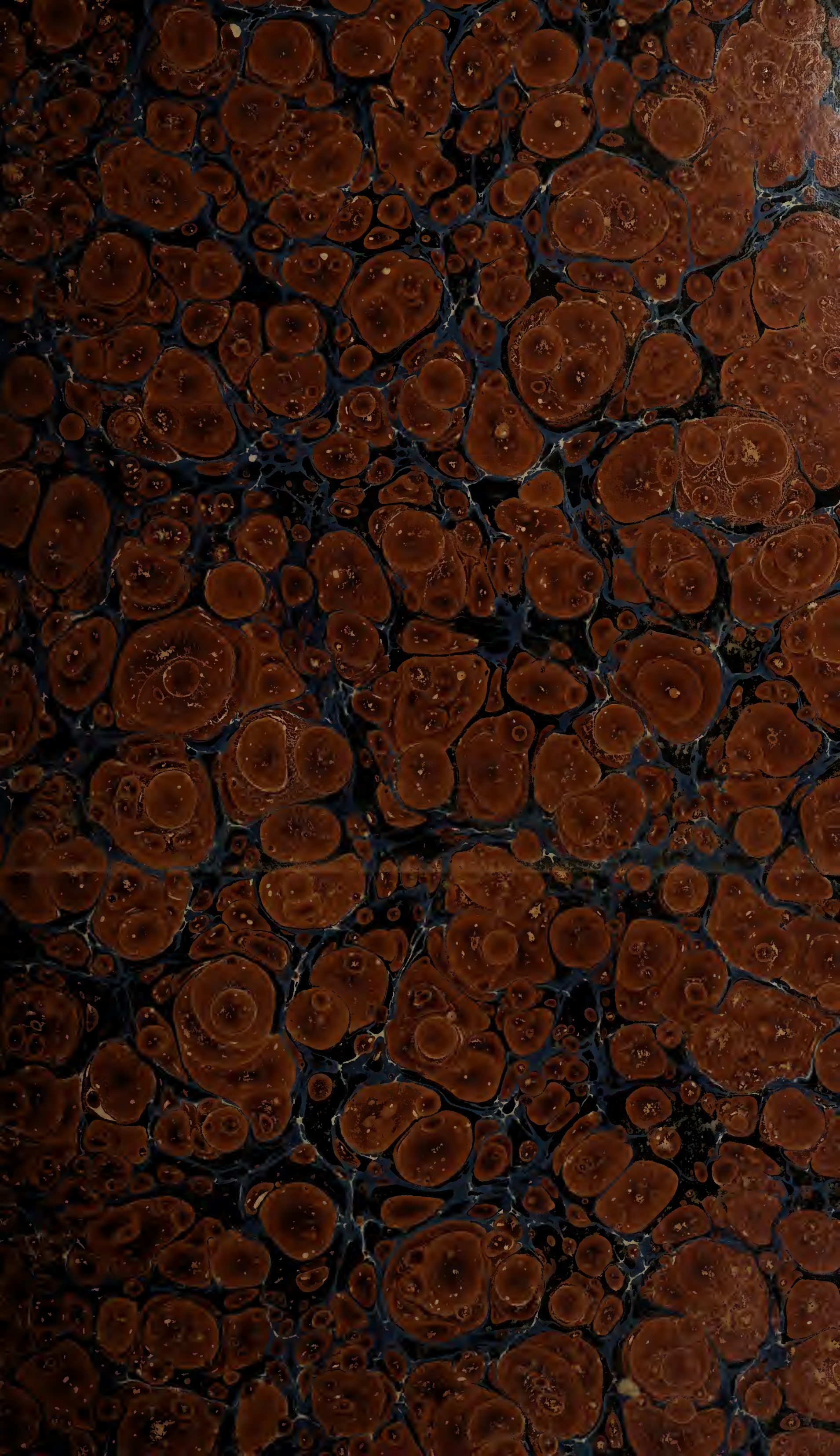






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THE
GARDENER'S AND BOTANIST'S
DICTIONARY;

CONTAINING

THE BEST AND NEWEST METHODS OF CULTIVATING AND IMPROVING THE
KITCHEN, FRUIT, AND FLOWER GARDEN, AND NURSERY;
OF PERFORMING THE
PRACTICAL PARTS OF AGRICULTURE;
OF MANAGING VINEYARDS,
AND
OF PROPAGATING ALL SORTS OF TIMBER TREES.

BY THE LATE

PHILIP MILLER, F.R.S.

GARDENER TO THE WORSHIPFUL COMPANY OF APOTHECARIES AT THEIR BOTANIC GARDEN IN CHELSEA,
AND MEMBER OF THE BOTANIC ACADEMY AT FLORENCE.

TO WHICH ARE NOW FIRST ADDED,

A COMPLETE

ENUMERATION AND DESCRIPTION OF ALL PLANTS HITHERTO KNOWN,

WITH THEIR

GENERIC AND SPECIFIC CHARACTERS,

PLACES OF GROWTH, TIMES OF FLOWERING, AND USES BOTH MEDICINAL
AND ECONOMICAL.

THE WHOLE CORRECTED AND NEWLY ARRANGED,

WITH THE ADDITION OF ALL THE MODERN IMPROVEMENTS IN LANDSCAPE GARDENING, AND IN THE
CULTURE OF TREES, PLANTS, AND FRUITS,

PARTICULARLY IN THE VARIOUS KINDS OF HOT HOUSES AND FORCING FRAMES:

WITH PLATES EXPLANATORY BOTH OF THEM, AND THE PRINCIPLES OF BOTANY.

BY

THOMAS MARTYN, B.D. F.R.S.

REGIUS PROFESSOR OF BOTANY IN THE UNIVERSITY OF CAMBRIDGE.

IN TWO VOLUMES.

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VOL. I. PART I. A—CIV.

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L O N D O N:

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TO
THE RIGHT HONOURABLE
SIR JOSEPH BANKS, BARONET,
KNIGHT OF THE BATH,
PRESIDENT OF THE ROYAL SOCIETY,
ONE OF HIS MAJESTY'S MOST HONOURABLE PRIVY COUNCIL,
THE FOLLOWING WORK,
WHICH IS MUCH INDEBTED TO HIS COUNTENANCE AND PROTECTION,
AND TO THE
LIBERAL USE
OF HIS
NOBLE LIBRARY,
AND
COLLECTION OF PLANTS,
IS MOST RESPECTFULLY INSCRIBED,
BY HIS OBEDIENT HUMBLE SERVANT,

THOMAS MARTYN.

THE
PREFACE.

THERE have been few Books treating of any Art or Science, which have maintained their ground in a manner unrivalled, so long as Mr. Miller's Gardener's Dictionary: near half a century having elapsed between the publication of the first edition in octavo, and the last in quarto.

The First Edition, which is merely the germ of those which succeeded in folio, is entitled "The Gardener's and Florist's Dictionary, or a Complete System of Horticulture. By Philip Miller, Gardener of the Botanic Garden at Chelsea. London 1724, printed for Charles Rivington." In two volumes octavo.

This new work was recommended by the most famous Gardeners and Nursery-men of that time:—by Thomas Fairchild at Hoxton, Robert Furber at Kenfington, Robert Smith at Vauxhall, Samuel Driver at Lambeth, Moses James at Standgate, Obadiah Low at Battersea, Christopher Gray at Fulham, Benjamin Whitmill at Hoxton, Francis Hunt at Putney, and William Gray junior at Fulham. I have reason to suppose that the above persons were united in a Society for the improvement of Gardening; that Mr. Miller acted as their Secretary, and that this work was in some degree the produce of their joint efforts.

Mr. Miller naturally dedicated his book to Sir Hans Sloane, who at that time took the lead in Botany, and had recommended Mr. Miller to the Company of Apothecaries, to be the Gardener at their Botanic Garden at Chelsea.

In the Preface, he recommends as the greatest encouragers of Gardening:—the Duke of Chandos, the Honorable Mr. Henry Compton Speaker of the House of Commons, Sir Matthew Decker of Richmond famous for the improvement of Ananas in England, Mr. Warner of Rotherhith, famous for his vineyard and choice collection of fruits with great skill in the management of them, Mr. Charles Dubois of Mitcham, an early introducer of many useful improvements in Gardening and Planting when about forty years since the art seemed as it were but in its infancy, the Right Reverend Henry Compton late Lord Bishop of London, an introducer and naturalizer of many curious exotic trees and plants, Dr. Udal [Uvedale] of Enfield, a curious collector and introducer of many rare exotic plants and flowers, Dr. Lloyd of Sheen in Surry, a curious collector and propagator of a considerable variety of rare flowers and plants.

Mr. Miller affirms that Gardening never arrived to any considerable pitch in England till within about thirty years last past. He professes chiefly to collect and digest the labours of Fairchild, Bradley, Mortimer, Laurence, Switzer, Collins, Cook, &c. And he very frequently quotes Monsieur Liger, a French author, who published *Le Jardinier Fleuriste et Historiographe*, Amst. 1706. 12mo. with figures.

This edition being very scarce, I have here noted a few of the more interesting particulars which it contains.

A large Aloe [Agave] flowered at Hampton Court in 1714, and was seventeen feet high. Another flowered in the Duke of Buckingham's Garden, St. James's Park, in 1716.

Brocoli was a stranger in England till within these five years. It was then called Sprout Colliflower or Italian Asparagus.

Mortimer had a walk of Cedars, of his own raising, in Essex.

He mentions (from Bradley) a Holly at Trentham in Surry, about sixty feet in height.

Thousands of Ilexes were raised from the acorns by Robert Balle, Esq. He transplanted a great number about thirty feet high, that had stood twenty years.

A large Scarlet-flowering Horse Chestnut (*Æsculus Pavia*) is mentioned as growing in the Bishop of London's Garden at Fulham, which was then of many years standing. At that time the Bishop's garden was remarkable for many other fine exotic trees.

The catalogue of Evergreens amounted then only to twelve, viz. Alaternus, Arbutus, Bay, Box, Holly, Juniper, Laurel, Laurustinus, Phillyrea, Pyracantha, Italian Green Privet [which is not properly an evergreen] and Yew.

The cultivation of the Fig was then little looked into by English Gardeners. Mr. Miller himself was afterwards very attentive to the culture of it, and had a great variety of the finest sorts from Italy, as I well remember.

Christmas-flower and Winter Aconite (two of the Hellebores) were then so rare, as hardly to be met with, except at Mr. Fairchild's at Hoxton.

Helmet-flower or Monkshood, (*Aconitum Napellus*) though common in gardens remote from London, was very rarely found in those near the city.

Of Geraniums, seven species were only then known. [This must be meant exclusive of our wild sorts, which were called Crane's-bills.]

Mr. Miller prescribes the manner of laying out a pleasure-garden; and gives directions for building a Greenhouse or Conservatory.

We may guess at the taste of that time for pleasure-gardens by what Mr. Bradley says:—that Versailles is the sum of every thing that has been done in gardening. Agricola went farther, when he declared that it gave him a foretaste of Paradise!

Seven years after this Mr. Miller published his *Gardener's Dictionary* in folio. This is commonly regarded as the first edition, and is entitled, “The Gardeners Dictionary: Containing the “Methods of Cultivating and Improving the Kitchen Fruit and Flower Garden. As also, the “Physick Garden, Wilderness, Conservatory and Vineyard, According to the Practice of the most “experienced Gardeners of the present age. Interpersed with the History of the Plants, the “Characters of each Genus, and the Names of all the particular Species, in Latin and English; “and an explanation of all the Terms used in Botany and Gardening. Together with Accounts “of the Nature and Use of Barometers, Thermometers and Hygrometers proper for Gardeners; “and of the Origin, Causes, and Nature of Meteors, and the particular influences of Air, Earth, “Fire and Water upon Vegetation, according to the best Natural Philosophers. Adorned with “Copper Plates. By Philip Miller, Gardener to the Botanick Garden at Chelsea, and F.R.S.

“*Digna manet divini gloria ruris.* Virg. Geo.

“London: printed for the Author; and sold by C. Rivington, at the Bible and Crown in St. Paul's Church-yard. MDCCXXXI.

The Plates are—a Frontispiece, of an oldfashioned Garden, Plantation, &c. with a council of heathen divinities superintending—Greenhouse, Stove and Wine-press.

It is dedicated to Sir Hans Sloane President, the Council and Fellows of the Royal Society.

A preface of ten pages contains an Eulogium on Gardening; an account of ancient Gardens, as those of Cyrus, Laertes, Alcinous, &c.—and among the Romans—of modern Gardens, under Charles II. and William III.—An account of the work.—Explanation of Authors names referred to—and List of Subscribers.

The whole work contains 215 sheets: and has passed through eight successive editions, in each of which, says Dr. Pulteney, it received such improvements and augmentations, as have rendered it in the end the most complete body of gardening extant. The reception it has every where met with, is a sufficient proof of its superiority*.

The second folio edition varies very little from the first.—It is said to be by Philip Miller Gardener to the Worshipful Company of Apothecaries, at their Botanic Garden at Chelsea, and F.R.S. The Second Edition, corrected. MDCCXXXIII.—Preface as before—No subscribers names.—Plates the same.—The author does not seem to have made any additions.

In four years, a Third edition of this Work was published, namely in MDCCXXXVII. Mr. Miller informs his readers in the Preface, that he had devoted all his leisure hours to the improvement of the Dictionary, and had minuted down all the observations that occurred to him, as well as the remarks of his friends, with a design to have inserted them in this edition. But finding that the matter increased upon him very much, particularly from the number of new plants which had been introduced from America and other parts of the world, he determined to print this edition with corrections only, and to reserve the additions for a separate volume, which he published accordingly two years after. The most material difference between the present edition and the former ones is in the Kalendar, which is here printed as it was enlarged in the octavo edition. He was induced to this, from a spurious edition of the Dictionary having been published in a neighbouring kingdom, [Ireland] in which the Kalendar was printed.

* Sketches of Botany in England, 2. 245.

In the Fourth Edition of MDCCXLIII. I cannot discern any difference from the preceding, except that it has four sheets less, and therefore is printed a little closer.

The proposed additional Volume had in the mean time been published, and usually accompanies this edition. It is entitled, “The Second Volume of the Gardener’s Dictionary: which completes the Work. By Philip Miller, F.R.S. Gardener to the Worshipful Company of Apothecaries, at their Botanic Garden at Chelsea. London: Printed for the Author; and sold by Charles Rivington, at the Bible and Crown in St. Paul’s Church-yard, MDCCXXXIX.”—It is dedicated to the Right Honourable the Earl of Burlington. In the Preface Mr. Miller informs us, that he had published (1735) a small Appendix of Plants omitted in the former editions of the Dictionary; which Appendix is not bound up with any copies of the third or fourth editions. Mr. Miller remarks that there was little demand for it, few persons caring to purchase such a small piece, consisting only of five sheets, after their books were bound; and that being loose, it was subject to be mislaid and lost. Having therefore abundant materials, such as notices of many new plants; observations and experiments in Agriculture; catalogues and other matters, he was induced to publish all together as a second volume, and thus to complete his general design, without depreciating the former editions.

This volume contains 105 sheets. Many improvements are to be found in the Culture of Plants, particularly of the Ananas, both under this article and that of Stoves, together with several plates exhibiting plans of Stoves. Full directions are given for building hot-walls, which then began to be much in request.

In the Addenda are many curious trees and plants lately introduced into England: as Winter’s Bark, Mahogany-tree, Barbadoes Cedar, Tupelo-tree, Baobab, Logwood, Collinsonia, Conocarpus, Dalea, Red-wood, Iron-wood, Lignum Rhodium, Fustic-wood, Barbadoes Mastich-tree, Pellitory of Spain, Brasiletto wood, Gum Copal tree, Yams, Tacamahaca, Xanthoxylum or Yellow-wood, &c.

Catalogues of Hardy deciduous Trees and Shrubs, ranged according to their growths—of Climbing Shrubs—of hardy Evergreen Trees and Shrubs—of hardy Perennial Flowering Plants—of such as only require to be protected from severe frost—of such as require a warm Greenhouse in winter; but not artificial heat—of Stove Plants that require the least degree of heat—that require a greater heat—and the most tender—of Medicinal Plants.

An Explanation of Technical Terms, with three elegant plates of leaves and flowers from drawings by G. D. Ehret.

A large Index of English and Latin Names; and a List of Subscribers.

The Fifth edition of MDCCXLVIII. I have never seen; but I have reason to think that it does not differ in any respect from the Fourth.

The Sixth may be considered as the first complete edition of the Dictionary. It is entitled, “The Gardeners Dictionary, &c. as before—and *Pleasure Garden*; wherein all the Articles contained in the former Editions of this work, in two volumes, are disposed in one Alphabet: with the addition of a great number of Plants. The Sixth Edition; carefully revised, and adapted to the present practice. By Philip Miller, F.R.S. Gardener, &c. and Member of the Botanic Society at Florence. London, &c. and sold by John and James Rivington, &c. MDCCCLII.”

Here is a new Frontispiece, by Wale and Rooker. It is allegorical—Industry pouring into Britannia’s lap what Nature has denied. It is continued in the seventh and eighth editions.—The Dedication is to the Right Honourable Hugh Earl of Northumberland.—In a Preface of six pages the Author apologizes for the numerous alterations in this from former editions, and the considerable additions which are made to it, rendering the preceding ones of inferior value, which he had been hitherto studious to avoid, by keeping the improvements distinct: but now he was in a manner obliged to combine them, because a piratical edition had been published at Dublin, joining the two volumes in one alphabet; and translations had been made into several modern languages, possessing the same advantage.—This Sixth Edition, as the author informs us, contains additions of many rare plants—improvements in the directions for culture, especially of fruit trees, melons, ananas, and the kitchen garden in general; field culture and pastures—lists of hardy flowers trees and shrubs, exotic and medicinal plants; all chiefly from the second volume now incorporated with the first in one alphabet. The Kalendar is printed separately in this edition. The system of Tournefort is still followed; and this edition (says the author) is to be considered as a standard, to posterity, as well as the present generation. It contains 245 sheets. There is a copy on large paper in each of the Libraries of the British Museum and the Royal Society.

The Seventh Edition, being generally esteemed the most complete, a more particular account of it may be acceptable. It is entitled—“The Gardener’s Dictionary: Containing the best and
“newest

“ newest Methods of Cultivating and Improving the Kitchen, Fruit, Flower Garden, and Nursery;
 “ As also for performing the Practical parts of Agriculture: Including the Management of Vine-
 “ yards, with the Methods of Making and Preserving the Wine, according to the present practice
 “ of the most skilful Vignerons in the several Wine Countries in Europe. Together with Direc-
 “ tions for Propagating and improving from real practice and experience, all sorts of Timber
 “ Trees. The Seventh Edition, revised and altered according to the latest system of Botany; and
 “ embellished with several Copper-Plates, which were not in the former Editions. By Philip
 “ Miller, F.R.S. Gardener to the Worshipful Company of Apothecaries, at their Botanic Garden
 “ in Chelsea, and Member of the Botanick Academy at Florence.

“ — *Digna manet divini gloria ruris.* Virg. Georg.

“ London, Printed for the Author; and sold by John Rivington, in St. Paul's Church-yard,
 “ Millar, Whifton, White, Hawkins, Hinton, James Rivington, Fletcher, Baldwin, Richardson,
 “ Johnston, Crowder, Davey, Law, Caflon, Doddsley. MDCCLIX.”

Dedicated, as before, to Hugh Percy Smithson, Earl of Northumberland, &c.

It appears by the Preface, that this edition was published in numbers; and that it exceeded the bulk at first proposed, on account of the names and system of Linneus being now first adopted, and short Descriptions being added to each Plant. Most of the species are included that had been lately introduced from foreign countries, but such only are enumerated as had their flowers examined by the Author himself, whose situation and extensive correspondence gave him such advantages of knowing the Plants which were annually introduced, as few in Europe could boast of. The Descriptions are not copied from books; but are mostly taken from growing plants, and some from well-preserved dried samples, of which Mr. Miller had a large collection.

Plants which are deemed Weeds, and therefore not cultivated in Gardens, are omitted in this edition; but all such British indigenous plants as are preserved in Gardens either for use or ornament are included, omitting varieties.

The method directed for the Culture of Plants is founded in the experience of the Author himself in various soils and situations. The instructions relative to Husbandry, and the propagation of Timber, are not merely theoretical, but such as from repeated experiments have been found to succeed best.

The alterations in the Catalogues of Trees and Plants are made to bring the whole into less compass, without diminishing their usefulness.

In the whole of the performance, the Author has principally aimed at rendering his instructions as clear and intelligible to practitioners and learners as possible. Having had the strictest regard to truth, and never advancing any thing as such, but what he has been fully convinced of by his own experience, he hopes for indulgence from the publick for any imperfections.

The Gardeners Kalendar, inserted in the former editions, is in this omitted; many editions of it having been printed in octavo, it is presumed that it was in most person's hands, who had an inclination for Gardening, and it would therefore have unnecessarily swelled the work.

The Preface is followed by an Explanation of Technical Terms, illustrated by three Plates of Roots, Inflorescence, Fruits, and Flowers, and one Plate of Linneus's Classes, all drawn and engraved by John Miller. Other Plates are, a Greenhouse with two Stoves. *Polygala Senega*, from a drawing by Ehret. *Rubia tinctoria* or Madder, by John Miller, accompanied by six Plates of buildings, &c. necessary for preparing the root for the dyers. Two Plates of Bark Stoves; and one Plate of Frames for covering Melons. Two Plates of Wine Presses.

This edition contains 338 sheets.

The Eighth and last Edition of the Gardeners Dictionary in folio was published in MDCCLXVIII. The Dedication to Hugh Duke of Northumberland is dated from Chelsea March 1, in that year.

The Preface differs in some particulars from that of the seventh edition. The Author apologizes more fully for the republication of his work, on the ground of very great improvements having been made in the art of Gardening, since the first edition was published; and the number of plants cultivated in England in 1768 being more than double those which were known in 1731.

Though in the title of this book it is only said to be a Dictionary of Gardening, yet (says the Author) all the branches of Agriculture are included in it, in a more complete manner than can be found in any other book extant. Nor are the instructions here given taken up hastily, but most of them are the result of more than twenty years practice in different parts of England, where he has been permitted to superintend and direct the whole; and he assures the public, that he has been very cautious in recommending any thing which he is not thoroughly convinced to be true.

He reprobates the common practice of sowing too much seed, and recommends the system of sowing in drills; which however has not, on further experience, been found to answer. He

P R E F A C E.

finds fault with the ordinary management of Pasture lands, with more justice; such as suffering bad weeds to overrun them, or to feed on head-lands, banks, in hedge-rows, or by ditches; allowing them little or no manure, or laying it on at a wrong season.

He is diffuse in his instructions on the article of Timber, because of its importance, and the great waste that has been made in it, especially by those who have been employed by government.

He recommends the cultivation of such useful plants as will not grow in England, to be adopted in the West-Indies, as Safflower, Indigo, and several other plants used in dyeing, with many medicinal drugs. He reprobates the inattention of the planters to the quality of their Coffee; and their practice of planting Sugar-canes too thick; as well as their neglecting wholly the culture of Chocolate.

In the seventh edition the Author adopted in a great measure the system of Linneus, but as many of the plants treated of in the Gardeners Dictionary were not to be found in any of Linneus's works then published, Tournefort's system was applied to them; but Linneus having since published more general works, the sexual system has been adopted entirely, except where Mr. Miller differed in opinion from the illustrious Swede.

This uniformity of arrangement by one, and that the universally favoured system, was certainly a great improvement, and would have given the eighth edition a considerable advantage over the seventh; if several very important articles, after being removed from the places which they occupied in the seventh, had not been wholly omitted where they were intended to stand in the eighth.

The addition of the trivial names, which contributed as much as any thing to facilitate the introduction of Linneus's system, was first adopted in this edition of the Dictionary, and by its great convenience compensates in some measure for the defects.

The eighth edition contains 333 sheets, or five less than the seventh; which may be accounted for from the omissions above mentioned. Two sheets of Addenda in the seventh are to be found in the body of the work in the eighth.

Having thus given an account of the eight folio editions of the Gardeners Dictionary published by Mr. Miller, in a course of thirty-seven years, it now remains to inform the public what has been done for the enlargement and improvement of this edition.

The principal general features which distinguish the present work are the arrangement of the matter, and the completeness of the enumeration. In all the former editions of the Dictionary, the culture was generally mixed with the descriptions of the species, and was frequently repeated several times under the same genus; but here the Scientific, Popular and Practical parts being kept separate, they may each be consulted with facility; and what was before confused, now becomes distinct and obvious.

Mr. Miller's enumeration of plants was confessedly partial; for his intention was to give only or chiefly such as in his time were generally brought into cultivation: whereas here every species of Vegetable is enumerated, and for the most part described, that is to be found in the fourteenth edition of Linneus's *Systema Vegetabilium*, with the exception of the minute tribes of Mosses, Algæ or Sea-weeds, and Fungi or Mushrooms; of which the generic characters are commonly given, together with such species as are used in food, or in any of the arts. The plants which more modern Authors have added to Linneus's stock, are inserted in their proper places.

Each article, containing a single genus, is treated in the following manner. First, the generic name of the plant is given in capitals, marked for the quantity, where it is necessary; and accompanied with the derivation. This is frequently uncertain: the most probable ones are set down, but they are by no means always approved by the author. References are next made to three editions of Linneus's *Genera Plantarum*, his own, Reichard's, and Schreber's; to Jussieu's *Genera Plantarum secundum Ordines Naturales disposita*; to Tournefort and Gærtner, for their figures; and occasionally to Ray and others. The Class and Order in Linneus's system is also referred to; together with his Natural Order and that of Jussieu. The Generic Character follows, translated carefully and literally from Schreber's edition of Linneus's *Genera Plantarum*; with corrections from subsequent observations: and then the Essential Character, for the most part taken from Murray's edition of the *Systema Vegetabilium*, corrected and enlarged from observation, and books since published. The Generic Character might perhaps with more propriety have been denominated a description of the fructification: for the Essential is the true generic character, distinguishing the genus from all others in the same class and order.

We now arrive at the enumeration of the Species. Here the specific or trivial name of each plant follows that of the genus, and is usually accompanied with an English name: a copious selection

is given of references to such authors as have best described or figured the plant; and the essential specific character, or diagnosis as it is sometimes called, distinguishing each species from all others of the same genus. Here ends what I call the most scientific part of the work.

Next follows the more popular department entitled *Descriptions, &c.* It might perhaps with more propriety have been called, the History of the Species; for it contains not only a description of each plant, but the duration, place of growth, time of flowering, the qualities and uses, medicinal and oeconomic; and in many cases the era of its introduction: in some of the most interesting articles, as Bread-fruit, Coffee, Tea, Sugar, &c. all that is known of them is detailed at considerable length, and has been collected with much care and pains: in others, general observations will be found, facilitating the distinction of the species, where they are very numerous, as in Cistus, &c. The Varieties are ranged under the respective species to which they belong. The Descriptions of exotic plants are for the most part translated from foreign Authors of the highest reputation: Linnæus and his followers have been commonly preferred, together with such authors as are known to have described from living plants in their native places of growth, or in botanic gardens. These gentlemen have generally written in the Latin language; and much care has been taken both in the selection, and in giving the sense of the respective authors, to whose works reference is always made at the foot of the page. Indigenous British plants are described chiefly from the works of Dr. Smith, Dr. Withering, and Mr. Curtis, assisted by a manuscript obligingly communicated by Thomas Jenkinson Woodward, Esq. whose skill and accuracy are too well known to stand in need of my commendation. Of my own descriptions and remarks I say nothing, for they are—"rari nantes in gurgite vasto."

The third and last under each article is the Practical department, entitled *Propagation and Culture.* With respect to this, Mr. Miller's authority, derived from long and extensive experience is such, not in my opinion only, but in that of persons much better qualified to decide on the subject, that I have generally retained very scrupulously the substance of what he has directed with respect to the mode of propagation and culture: only bringing together the scattered limbs, reducing the pleonasm, and correcting the language where the sense was obscured by grammatical faults; without aiming at any sort of elegance in style, either in the correction of his articles, or in writing my own. Although nothing essential is detracted from Mr. Miller under this head, yet much is added, from authentic books, and reputable living authority, on the cultivation of plants recently introduced, on forcing fruits, on planting timber and other trees, on the field culture of corn, on the management of pastures, &c. &c.

To the body of information conveyed in this work, little seems wanting to bring us acquainted with the numerous species of the Vegetable creation, except a good figure of each, in its natural size and proper colours. It must be immediately seen that such a plan of elucidation is wholly chimerical, from its enormous expense, if for no other reason: and a few scattered plates of plants would answer no end that is not already accomplished by the figures which Mr. Miller himself published to accompany his Dictionary, and which may now be had for the same purpose. References are made to the best figures of plants in the enumeration of the species; and also to such general books as Gerarde's and Parkinson's Herbals, Morison's *Historia Oxoniensis*, &c. not that the figures are good, for they are too frequently far otherwise; but because rural botanists, at a distance from public libraries, and not in a state of opulence themselves, frequently possess one of these works, and perhaps few others containing figures.

The present, I am aware, is an age of sumptuous plates, and ornamental publications; but the Gardener's and Botanist's Dictionary aims at nothing beyond utility, those plates only are therefore given which contribute in any degree to render the work really useful to Gardeners and Botanists. Such are plans and elevations of Hortulan Edifices, and general explanatory figures of the principles of Botany.

I am sensible that many will say, perhaps with a sneer, that the work now offered to the public is nothing but a mere compilation. The original matter indeed bears so small a proportion to the whole, that the Editor is content it should pass under that humble title. But if the Gardener's and Botanist's Dictionary were to be considered as nothing more than a digest of what was known on Gardening and Botany at the end of the eighteenth century; or as a mass of information collected from a great variety of the most scarce and valuable books, not accessible to the generality of readers, and written in languages little understood by practical men; the Editor flatters himself that it may meet with the indulgence, if not the approbation of a candid public. He is conscious at least to himself, that in the unwearied application of what talents he possesses, and the whole of that time which he could spare from the duties of his profession, during the last twenty years, to this laborious work, no attention or

industry has been wanting on his part; and that he has strained every nerve to render it as complete in its kind as the nature of so extensive an undertaking will allow. That they who think proper to consult this work may be enabled to judge for themselves; whatever of any importance is added by the Editor, is included between hooks or crotchets; and all that is not his own, is carefully referred to its proper author, by a reference at the foot of the page. The derivations, almost all the references, the generic characters, and most of the descriptions are new; that is, not to be found at all, or in a very different form, in Mr. Miller's editions. Perhaps the omissions which the present editor has ventured to make, may be thought by some to require an apology; but these are chiefly the Philosophical articles, which were become extremely antiquated, and appear to be entirely out of place in a work of Gardening and Botany. Such general articles as seem to be of consequence, will be found either in their proper places, or in the Introduction. The Editor is more disposed to make an apology for the bulk of his book. He has done what he could to keep it within compass, but the subject is so vast, and the articles so numerous, that he could not make it less, without depriving it of material information.

Soon after the publication of the first edition of the Dictionary in folio, Mr. Miller was induced to prepare an Abridgement in octavo. The first edition of this was published in two volumes in the year 1735. It has the same plates with the folio, in a smaller size; and contains the whole of the practical part, with an enumeration of all the species that are to be found in the folio. Some articles are added. Etymologies, explanations of words, philosophical articles and kalendar are omitted. The publication, as Mr. Miller informs us, was hastened, by an advertisement that an Abridgement was nearly finished by other hands. A second edition was published, in three volumes, in 1741; a third in 1748; and a fourth in 1754. The matter being by this time much increased, and it being suggested that one volume was more convenient than three, the fifth and sixth editions came out in quarto, the fifth in 1763 and the sixth in 1771; the last year of Mr. Miller's life. The last edition in quarto has some of the articles which were omitted in the folio of 1768. The dedication to the Duke of Northumberland is dated Chelsea, Dec. 15, 1770. The number of sheets is the same in both editions, namely 114.

The estimation in which this great work of Mr. Miller's was held on the continent may be fairly collected from the translations of it into several languages. It was published in Dutch, in 1746; in German at Nuremberg in two volumes folio, the first volume in 1750, the second in 1751; also in the French language, in quarto; with a fancy portrait of the author in front, in a bag wig and ruffles, a costume which must appear truly ridiculous to such as remember the plain old-fashioned English dress in which Mr. Miller always appeared.

The advantages which Mr. Miller possessed in an extensive correspondence over most parts of the globe, enabled him to execute, what it was in the power of few to attempt—His Figures of Plants, adapted to his Dictionary,—which he began to publish in 1755, and which were completed in 300 plates, making two volumes in folio, in 1760, were drawn from plants of the botanic garden which he cultivated. His original design was very extensive; no less than to give one or more species of all the genera: but it was found to be impracticable; and it was therefore confined to such as were most beautiful, useful and uncommon. Each number was accompanied with several pages of letter-press, containing the descriptions, and an account of the classes to which they belong, according to the systems of Ray, Tournefort and Linneus. Whether we consider the rarity of the subjects, the speciousness of those he selected for his purpose, or the general execution of the whole, England had not before produced any work except the *Hortus Elthamensis*, and Catesby's Carolina, so superb and extensive. In one respect, Miller's plates had the advantage of the above mentioned; as they exhibited, much more frequently, the separate figures of the parts of fructification. Such is Dr. Pulteney's account of this superb work*; which was begun to be republished in the year 1798, in numbers containing five, and in parts containing thirty plates; carefully coloured from the original drawings, and, when it could be done, compared with the plants themselves. The Linnean and English names of each Plant are given at the bottom of the Plates; and a short description of the parts of fructification which are figured, together with short notices for better comprehending the Plates are added in letter-press: but the history and culture of the plants themselves, being detailed in the Dictionary, are not repeated here. These figures will be found of considerable service to the Botanist, in illustrating the systematic arrangement and characters of plants; for there is at least one plant of every Class figured, and also of every remarkable Order in the Linnean System; and the Generic Characters of more than two hundred and fifty plants are delineated and described.

* Sketches of Botany, vol. 2. 246. My copy is dated 1771 in the title-page. It is dedicated to John Duke of Bedford.

In the year preceding the publication of the first edition of the Dictionary, Mr. Miller edited a list of the Medical Plants in the Chelsea Garden, under the title of *Catalogus Plantarum Officinalium quæ in Horto Botanico Chelseiano aluntur*. 1730. 8vo. pages 152.

Mr. Rand, then Lecturer and Demonstrator to the Company of Apothecaries in their Botanic Garden, regarded this book of Mr. Miller's as an incroachment upon his province: he therefore published in the same year, *Index Plantarum Officinalium Horti Chelseiani*.

The same year, 1730, produced *A Catalogue of Trees, Shrubs, and Flowers, which are hardy enough to bear the cold of our climate, and the open air; and are propagated in the gardens near London*. Folio; pages 90; plates 21. The Catalogue consists chiefly of Trees and Shrubs; among which are several of the Coniferous kinds. The plates are coloured; the arrangement is alphabetical; and generical characters are given. Some varieties are interspersed. No name is prefixed to this work, but it was generally ascribed to Mr. Miller. It may be said perhaps with more propriety that he published it as Secretary to a Society of Gardeners and Nursermen, composed of the following persons. John Alston, near Chelsea College. Robert Furber, at Kenfington. William Wood, near Hyde Park Corner. Philip Miller, at the Physic Garden in Chelsea. Obadiah Lowe, at Battersea. John Thompson, at the Rose in Chelsea. Christopher Gray, at Fulham. Francis Hunt, at Putney. Moses James, at Standgate. George Singleton, at the Neathouses. Benjamin Whitmill, at Hoxton. Richard Cole, at Battersea. Samuel Hunt, at Putney. Stephen Bacon, at Hoxton, *Weston's Catalogue*, p. 57.

In the year succeeding the first edition of the Gardener's Dictionary in folio, Mr. Miller published a smaller work, which much facilitated the practice of Gardening, entitled *The Gardener's Kalendar, Directing the necessary Works to be done every month in the Kitchen, Fruit, and Pleasure Gardens, as also in the Conservatory and Nursery*. Lond. 1732. 8vo. This work has run through sixteen editions, and continued a manual in its way, to the whole kingdom*, till the publication of Abercrombie's Kalendar, under the name of Mawe. The Kalendar is not so original a work as the Dictionary, for Mr. Miller had that of Evelyn before him; but he enlarged and improved the little work of the famous planter very considerably. Mr. Miller having published *A short Introduction to the Knowledge of the Science of Botany*, in 1760, with five plates; this little treatise was annexed to the editions of the Kalendar from 1761. A third edition of this useful work was printed so soon as 1734. The fifteenth edition appeared in 1769, and this is the last in Mr. Miller's life-time. A sixteenth edition was published in 12mo. in 1775; and it has not been reprinted since that time. Of the dates of the intermediate editions I am not able to give an exact account. The Kalendar was dedicated to the Master, Wardens, and Court of Assistants of the Worshipful Company of Apothecaries of London. It was translated into German, and published at Goettingen, 1751, 8vo.

In 1758, Mr. Miller, roused by the enormous price at which Madder then was, strove to recommend the growth of it in England, and published *The Method of cultivating Madder*, as it is practised by the Dutch in Zealand; in a quarto pamphlet; which was afterwards inserted in the seventh and eighth editions of the Dictionary. The original pamphlet contained thirty-eight pages and seven plates.—Mr. Miller hoped to excite his countrymen, by the cultivation of this important article of trade, to supercede the importation of it from the Dutch, who had received from hence, as he tells us, for many years past, more than 180,000 pounds a year for this root, the culture of which would employ a great number of hands from after harvest till the spring, which is generally a dead time of the year†.

To complete the catalogue of Mr. Miller's works, we have now only to notice four papers in the Philosophical Transactions of the Royal Society of London. The first of these was communicated in the year 1728, and is to be found in vol. 35. p. 485. It is entitled, *A Method of raising some Exotic Seeds, which have been judged almost impossible to be raised in England*. His method consisted in suffering the seeds to germinate in a bark-bed, and then transplanting them into earth. Thus he succeeded with the hard-shelled fruits and seeds of hot climates: as the Coco Nut, the Bonduc or Nickar Tree, the *Abrus precatorius*, the Horse-eye Bean or *Dolichos urens*, and several others.

The second paper is in vol. 37, at p. 81. and is entitled *Experiments relating to the flowering of Tulips, Narcissuses, &c. in winter, by placing their bulbs upon glasses of water*. This method of procuring early flowers of bulbous plants in the house, at that time lately discovered, is now well known and commonly practised.

The third is a letter to Mr. (afterwards Dr. and Sir William) Watson, relating to a mistake of Professor Gmelin, concerning the *Spondilium vulgare hirsutum* of Caspar Bauhin.—Mr. Miller ad-

* Pulteney's Sketches, p. 244, 245.

† Pulteney, 2. 248.

duces several reasons to prove, that the common *Cow-Parshup* of Siberia, which the inhabitants make an article of food, is not the sort known as such in Europe, but the *Sphondilium maximum* of Breynius: He remarks farther, and very justly, that other mistakes have arisen from considering the common plants of one country as the common plants of another. Particularly that the *Parietaria*, so frequent in England, is not the *P. officinarum* of Casp. Bauhin, but the *P. Ocymini folio* of that author. In this supposition however Mr. Miller has not been followed by English Botanists of later date.

Mr. Miller's last memoirs were upon the subject of the Varnish Tree, in *A Letter to the Rev. Thomas Birch, D.D. Secretary to the Royal Society*; vol. 49. p. 161.—And, *Remarks upon the Letter of Mr. John Ellis, F.R.S. to Philip Carteret Webb, Esq.* in vol. 50. p. 430.

These letters relate to a discovery made by the Abbé Mazeas, and the Abbé Sauvages, on the black staining quality of three species of American Sumach. These were, 1. The Poison Ash or *Rhus Vernix* of Linneus. 2. *Rhus Toxicodendrum*. 3. *Rhus Radicans*. Mr. Miller considers the discovery as having been long before anticipated by Kämpfer; and adduces many reasons to prove, that the *Sitzdifu* or *Arbor vernicifera legitima*, p. 791. f. 792. of that Author, or the Varnish Tree of Japan, is no other than the first of these species, of which the staining quality is recorded by Kämpfer. This position drew Mr. Miller into a controversy with Mr. Ellis, who strongly insisted, that the American and Japanese *Toxicodendra* were different. Mr. Miller defends his opinion in the remarks. It is but justice to observe, that subsequent Botanists of the first note, such as Linneus, Reichard and Thunberg, have countenanced Mr. Miller's opinion, by placing them under the same specific distinction with the *Rhus Vernix* *.

Mr. Weston ascribes to Mr. Miller—The Elements of Agriculture, translated from the French of Du Hamel; in two volumes, 8vo. 1764. Dr. Pulteney does not mention this book, nor have I seen it.

Having given an ample account of Mr. Miller's writings, which during almost half a century occupied the chief of the time that he had to spare from the superintendence of the Botanic Garden at Chelsea, and an extended foreign correspondence; there is little to add concerning him, that can in any degree interest the public. He was born in the year 1691. His Father was Gardener to the Company of Apothecaries, and he succeeded his Father in that office, in the year 1722, upon Sir Hans Sloane's liberal donation of near four acres to the Company. Mr. Miller raised himself by his merit, from a state of obscurity, to a degree of eminence, rarely if ever before equalled, in the character of a gardener. It is not uncommon to give the term of Botanist, to any man who can recite by memory, the plants of his garden. But Mr. Miller rose much above this attainment: he added to his knowledge of the theory and practice of Gardening, that of the structure and characters of plants, and was early and practically versed in the Methods of Ray and Tournefort. Habituated to the use of these, from his younger years, it was not without reluctance that he was brought to adopt the system of Linneus; but he was convinced at length by the arguments of the late Sir William Watson and Mr. Hudson, and embraced it. To his superior skill in his art, the curious owe the culture and preservation of many fine plants, which, in less skilful hands, would have failed, at that time, to adorn the conservatories of England.

His objects were not confined to exotics: few were better acquainted with the indigenous plants of Britain, of which, he successively cultivated most of the rare species.

He maintained a correspondence with many of the most eminent Botanists on the continent: among others, with Linneus, who said of his Dictionary, *Non erit Lexicon Hortulanorum, sed Botanicorum*. By other foreigners he was emphatically styled *Hortulanorum Princeps*. He was admitted a Member of the Botanical Academy of Florence; and a Fellow of the Royal Society of London; in which he was occasionally honoured by being chosen of the Council. Mr. Miller, says Dr. Pulteney, was the only person I ever knew, who remembered to have seen Mr. Ray; and I shall not easily forget the pleasure that enlightened his countenance, it so strongly expressed the *Virgilium tantum vidi*, when, in speaking of that revered man, he related to me that incident of his youth.

Mr. Miller's infirmities induced him to resign his office in the Garden, a little time before his decease, which took place December 18, 1771. He left a very large Herbarium of Exotic Plants, principally the produce of the Chelsea Garden.

The above account is transcribed from my late friend Dr. Pulteney's Sketches of the progress of Botany in England. I may add that he married the Sister of Mr. Ehret, the famous Botanic Painter, and that he had by her two Sons, of whom Philip, the eldest, after having worked some

* Pulteney, 2. 244, 248—250.

years under his Father, went to the East Indies, and died there. Charles, the youngest, was born August 27, 1739, was educated at Chelsea, in the same school with the editor of this work, and was appointed by Dr. Walker, founder of the Botanic Garden at Cambridge, his first Curator when the Editor was nominated his Reader. Having executed this trust during several years to the general satisfaction of the University, he also went to the East Indies; whence, more fortunate than his Brother, after a long stay, he returned, and is now resident in London. Though from his knowledge and experience he is very capable of giving information on many subjects, he has never published any thing. In the Philosophical Transactions (vol. 58.) there is an account by Sir William Watson, of an experiment, which Mr. Charles Miller made, in the Botanic Garden at Cambridge, on the great increase of Wheat, from a single grain. In the sixty-eighth volume is some account of the island of Sumatra, by him; which I believe was collected from private letters to his friends, and inserted during his residence in India, without his knowledge. If he would have undertaken this work, than which no one could have executed it better, the Editor would gladly have delegated it to him; having had no other end in view, but of being useful to the public, and of doing what honour he could to his worthy Father.

Scotland having furnished so many excellent Gardeners, a notion has prevailed that Mr. Philip Miller was a native of that Country. It has however no foundation, for he was born in or near London, and I have reason to think that he never was in Scotland. He had several Scotch pupils under him, who proved men of the first reputation in their profession. Suffice it to name Aiton and Forsyth. He spent some time in Holland, in order to make himself master of the practice which the famous Florists there pursued in the culture of Bulbous Flowers. He had been in most parts of his native country, having been consulted by many noblemen and gentlemen on the subjects of planting, laying out grounds, &c. particularly by the three noble dukes of Bedford, Northumberland and Richmond.

Mr. Miller accumulated no wealth from this reputable connection with the Great, or from the numerous editions of his useful works. He was of a disposition too generous and careless of money to become rich; and in all his transactions showed more attention to integrity and honest fame, than to any pecuniary advantages. He enjoyed the greatest honour that a Botanist can receive, in having a new genus of plants consecrated to his name. The MILLERIA, discovered by Dr. Houttoun, at Panama and Vera Cruz, and belonging to the Class Syngenesia, was first figured and described by Professor John Martyn in his splendid work—*Decades Plantarum Rariorum*.

LIST OF AUTHORS' NAMES AND WORKS REFERRED TO IN THIS WORK;

WITH AN

EXPLANATION OF THE ABBREVIATIONS MADE USE OF

- ACT. Bonon.** De Bononienſi Scientiarum et Artium Inſtituto atque Academia Commentarii. 1745, &c. 4to.
- Act. Gott.** Commentarii Societatis Regiæ Gottingenſis. 1752, &c. 4to.
- Act. Holm.** Kongl. Svenska Vetenskaps Academiens Handlingar. 1739—1779. 8vo.
Kongl. Vetenskaps Academiens nya Handlingar. 1780, &c. 8vo.
- Act. Lond.** See *Philof. Tranſ.*
- Act. Nat. Cur.** Acta Phyſico-Medica Academia Cæſareæ Naturæ Curioſorum. Vol. 10. Norimb. 1727—1754. 4to. Item, Nova Acta, &c. 1757, &c.
- Act. Par.** Hiſtoire de l'Academie Royale des Sciences, avec les Memoires de Mathematique et de Phyſique. Par. 1702, &c. qu.
- Act. Petrop.** Acta Academia Scientiarum Imperialis Petropolitana. Petrop. 1728, &c. 4to.—Item Nova Acta, 1750, &c.
- Adans. Fam.** Michel Adanſon Familles des Plantes. Par. 1763. 8vo.
- Adans. voy.** Relation abregée d'un Voyage fait en Senegal pendant les années 1749—53. impr. avec ſon Hiſtoire Naturelle. Par. 1757. 4to.
- Ait. kew.** Hortus Kewenſis, or a Catalogue of the Plants cultivated in the Royal Botanic Garden at Kew. By William Aiton, Gardener to his Maſteſty. In three Volumes. Lond. 1789. 8vo.
- Allion. pedem.** Caroli Allionii Flora Pedemontana, five Enumeratio methodica ſtirpium indigenarum Pedemontii. Auguſta Taurin. 1785. fol. 92 plates.
- Alp. ægypt.** Proſper Alpinus de Plantis Ægypti Liber. Ven. 1592. 4to.
- Alp. exot.** Proſper Alpinus de Plantis Exoticis. Ven. 1629. 4to. Edidit Alpinus, Proſperi filius.
- Amoen. acad.** See *Linn.*
- Ambroſ. phytol.** Hyacinthi Ambroſini Phytologiæ, hoc eſt de Plantis Partis primæ Tomus primus. Bononiæ, 1666. fol. —pages 578, with figures cut in wood.
- Amer. acad. mem.** Memoirs of the American Academy of Arts and Sciences. Vol. 1. to the end of the year 1783. Boſton, 1785. 4to.
- Amm. ruth.** Joan. Amman (Pauli filii) Stirpium rariorum in Imperio Rutheno ſponte provenientium icones & deſcriptiones. Petrop. 1739. 4to. Pages 210. Plates 35.
- And. eſſays.** Anderſon's Eſſays on Agriculture. Edinb. 1784. 96. 8vo. 3 vols.
- Arduin. animadv.** Pietro Arduino Animadverſionum botanicarum ſpecimen. Patavii, 1759. 4to. Pages 27. Plates 12.—Specimen alterum. Ven. 1764. 4to. Pages 42. Plates 20.
- Aſſo arag.** Ignatii de Aſſo Synopſis Stirpium indigenarum Aragoniæ. Maſſiliæ 1779. 4to. Pages 160. Plates 9.
- Aubl. guian.** Fuſée Aublet Hiſtoire des Plantes de la Guiane Francoiſe. Tomes 4. Par. 1775. 4to. 392 figures. The Plants are ranged by the ſexual ſyſtem.
- Barr. rar. f. ic.** Jacobi Barrelier Plantæ per Galliam Hiſpaniam et Italiam obſervatæ. Par. 1714. fol. A poſthumous work with abundance of figures; edited by Ant. de Juſſieu.
- Baff. monogr.** Ferdinandi Baſſi Ambroſina, novum plantæ genus. Bononiæ, 1763. 4to.
- Bath. mem. or papers.** Bath letters and papers on Agriculture, planting, &c. Bath 1788, &c. 8vo. Eight vols.
- Bauh. hiſt.** Joannis Bauhini Hiſtoria Plantarum univerſalis. Ebrod. 1650 et 1651. fol. 3 tomis. cum figuris ligno incifis.
- Bauh. pin.** Caſp. Bauhini Pinax Theatri Botanici. Baſ. 1671. 4to.
- Bauh. prodr.** Caſp. Bauhini Prodrômus Theatri Botanici. Baſ. 1671. 4to. cum figuris ligno incifis.
- Bauh. theat.** Caſp. Bauhini Theatri Botanici five Hiſtoriæ Plantarum liber primus, editus a Jo. Caſp. Bauhino. Baſ. 1658. fol. cum figuris ligno incifis.
- Belon itin.** Les obſervations de pluſieurs ſingularitez, &c. trouvées en Greece, &c. Par. 1554. 4to.
- Berg. phyt.** Phytonomatotechnie univerſelle, ceſt a dire l'art, de donner aux Plantes des Noms tirés des leurs Caracteres: par Monſ. Bergeret. Tome 1. Par. 1783. fol. tome 2. 1784. Figures.
- Berg. cap.** Petr. Jon. Bergii Deſcriptiones Plantarum ex Capite Bonæ Spei. Stockh. 1767. 8vo. Pages 361. Plates 5.
- Beſſ. eyſt.** Baſilii Beſſeri Hortus Eyſtettenſis. 1613, large folio, with many fine plates of flowers in the Biſhop's garden, diſtributed according to the four ſeaſons.
- Billard. ic. ſyr.** Icones plantarum Syriæ rariorum deſcriptionibus ac obſervationibus illuſtratæ. Auſtore Jacob. Jul. la Billardiere. Faſc. 1. 2. Par. 1791. 4to. Good deſcriptions and figures.
- Blackſt. faſc.** Faſciculus Plantarum circa Harefield ſponte naſcentium. Lond. 1737. 12mo.
- Blackſt. ſpec.** Specimen botanicum, quo plantarum plurium rariorum Angliæ indigenarum loci natales illuſtrantur. Lond. 1746. 12mo. Per J. B. pharmacopœum Londinenſem.
- Blackw. herb.** A curious Herbal containing 500 cuts of the moſt uſeful plants, which are now uſed in the practice of phyſick. Lond. 1737. fol. coloured plates.
- Blair pharm.** Patrick Blair Pharmacobotanologia, or an alphabetical and claſſical diſſertation on all the Britiſh indigenous and garden plants of the new London Diſpenſatory. In 7 decads. Lond. 1723—1728. 4to. Ending with Hedera.
- Bocc. muſ.** Paolo Boccone Muſco di piante rare della Sicilia, &c. Ven. 1697. 4to. Plates 131.
- Bocc. ſic.** Icones et deſcriptiones rariorum plantarum Siciliæ, &c. Oxon. 1674. 4to. Figures.
- Boerh. lugdb.** Hermanni Boerhaave Index alter Plantarum quæ in horto Academia Lugduno Batavæ aluntur. Lugdb. 1720. 4to. Tomis 2. cum tabulis æneis.
- Bolt. fil.** Filices Britannicæ; an hiſtory of the Britiſh proper Ferns. Part 1. Leeds 1785. 4to. pages 59. plates 31.—Part 2. Huddersf. 1790. 4to. pages 60—81. plates 32—46. All coloured.
- Bolt. fung.** An hiſtory of Fungiſſes, growing about Hallifax: 3 volumes, with an appendix or ſupplement. 1788, 89, 91. 4to. 132 coloured plates. By James Bolton.
- Bont. ind.** See *Piſ. ind.*
- Boutcher.** A treatiſe on Foreſt Trees, by William Boutcher, nurſery-man at Comely garden, Edinburgh. ed. 2. Edinb. 1778. 4to. pages 259.
- Bradl. ſucc.** Richardi Bradley Hiſtoria Plantarum ſucculentarum. Latin and Engliſh. Five Decads, 1716—1727. 4to. Fifty plates.
- Breyn. ic.** Jacobi Breynii Icones rariorum et exoticarum plantarum. Gedani. 1739. 4to.
- Brown. jam.** The civil and natural hiſtory of Jamaica, by Patrick Browne, M.D. London. 1756. fol.
- Bruce trav.** Travels to diſcover the ſource of the Nile, in the years 1768—1773. By James Bruce, Eſq. Edinb. 1790. 4to. 5 vols. with plates.
- Brunf. herb.** Othonis Brunfelsii Herbarium, tomis tribus: Argentor. 1537. fol. The firſt good wooden cuts.
- Burm. afr.** Joannis Burmanni rariorum Africanarum plantarum Decades 10. Amſtel. 1738, 9. 4to. 100 plates.
- Burm. ger.** Nic. Laur. Burmanni de Geraniis Diſſertatio. Lugdb. 1759. 4to.
- Burm. ind.** Nic. Laur. Burmanni Flora Indica. Lugdb. 1768. 4to. item, Prodrômus Floræ Capenſis.
- Burm. zeyl.** Jo. Burmanni Theſaurus Zeylanicus. Amſtel. 1737. 4to.
- Buxb. cent.** Joh. Chr. Buxbaumii plantarum minus cognitarum Centuriæ 5. Petrop. 1728—1740. 4to.
- Cæſalp.** Andr. Cæſalpini de Plantis libri xvi. Flor. 1583. 4.
- Camel. luz.** Herbarum in inſula Luzonum naſcentium, a G. Joſ. Camello obſervatarum ſyllabus; in tomo tertio Hiſtoriæ Plantarum Raii.
- Camer. epit.** De plantis Epitome Petr. Andr. Matthioli, auſta a Joach. Camerario Franc. ad Moen. 1586. 4.
- Camer. hort.** Joach. Camerarii Hortus medicus et philoſophicus, Francof. 1588. 4.

- Carver's trav.* Travels through the interior parts of North America, 1766—1768, by Jonathan Carver. 3d ed. 1781. 8 Plates.
- Catesb. car.* The natural history of Carolina, Florida, and the Bahama islands, by Mark Catesby. London. 1731, 1743. fol. 2 vols. engl. and french. 100 plates in each volume, besides 20 in the appendix, coloured.
- Cavan. diff.* Ant. Jos. Cavanilles Monadelphix Classis Differtationes decem, Matriti 1790. 4. Par. 1785—1790.
- Cavan. ic. hisp.* Ant. Jos. Cavanilles Icones et descriptiones plantarum, quæ aut sponte in Hispania crescunt, aut in hortis hospitantur. Vol. 1. pag. 67. plates 100. Matriti, 1791. fol.
- Clayt. virg.* v. Gronov.
- Clus. cur. pest.* Car. Clusii Curæ posteriores. Antv. 1611. fol. Wooden cuts.
- Clus. hist.* Car. Clusii Rariorum plantarum historia. Antv. 1601. fol. Wooden cuts.
- Clus. pann.* Car. Clusii Rariorum aliquot stirpium per Pannoniam, Austriam, &c. observatarum historia. Antv. 1583. 8. Wooden cuts.
- Cold. noveb.* Cadw. Colden Plantæ Coldenhamiæ in provincia Noveboracensi Americæ sponte crescentes: in act. upf. 1743, 44—50.
- Col. ecphr.* Fabii Columnæ minus cognitarum, &c. stirpium ecphrafis. Romæ 1616. 4.—item, pars altera. Plates.
- Col. phytob.* Fab. Columnæ Phytobasanos, five plantarum aliquot historia. Neap. 1592. 4. Plates.
- Comm. hort.* Horti Medici Amstelodamensis rariorum plantarum descriptio et icones, auctore Joanne Commelino. Amstel. 1697.—Pars altera, auctore Casp. Commelino. 1701. fol.
- Comm. præl.* Casp. Commelini Prælia botanica. Lugdb. 1703. 4. Plates 33.
- Comm. rar.* Casp. Commelini Plantæ rariores et exoticæ horti medici Amstelodamensis. Lugdb. 1706. 4. Plates 48.
- Comment. gotting.* See *Act. gotting.*
- Comment. petrop.* See *Act. petrop.*
- Cook voy.* A Voyage towards the South Pole, and round the World, 1772—1775, by James Cook, 2 vols. Lond. 1777. 4.
- Cord. hist.* Valerii Cordi Historiæ Plantarum libri 4. In operibus ejus editis a Conr. Gesnero. Argent. 1561. fol.
- Corn. canad.* Jac. Cornuti Canadensium plantarum Historia. Par. 1635. 4. Figures.
- Crantz. austr.* Henr. Jo. Nepomuceni Crantz Stirpes austriacæ. Vien. 1769. 4.
- Crantz. cruc.* H. Jo. Nepom. Crantz Classis Cruciformium emendata. Lipf. 1769. 8.
- Crantz. umb.* H. J. Nep. Crantz Classis Umbelliferarum emendata. Lipf. 1767. 8vo.
- Cup. cathol.* Francisci Cupani Hortus Catholicus Neap. 1696. 4. cum Supplemento:—item, Supplementum alterum, Panormi, 1697. 4.
- Curt. gram.* Practical Observations on the British Grasses best adapted to the laying down, or improving of meadows and pastures. 2d edit. Lond. 1790. 8. with six plates.
- Curt. lond.* Flora Londinensis, by William Curtis. vol. 1. plants 218. Descriptions and Plates, coloured or uncoloured. Lond. 1777. fol.—Vol. 2. fasc. 37—70, with 6 plates in each.
- Curt. magaz.* The Botanical Magazine, by William Curtis. Lond. 1787, &c. 8. Coloured Plates.
- Cyrill. neap.* Dominici Cyrilli Plantarum rariorum Regni Neapolitani fasc. 1. Neap. 1788. fol. Plates 12.—Fasc. 2. 1792. Plates 12.
- Dahl. obs.* Andreæ Dahl Observationes Botanicae. Havn. 1787. 8.
- Dale pharm.* Sam. Dale Pharmacologia. Lond. 1737. 4.
- Dalech. hist.* Jacobi Dalechampii Historia generalis Plantarum: tom. 2. Lugd. 1586. fol.
- Dalib. par.* Tho. Francois Dalibard Floræ Parisiensis Prodromus. Par. 1749. 12. Plates 4.
- Dambourney.* Recueil de procédés et d'expériences sur les Teintures solides, &c. par M. L. A. Dambourney Négociant à Rouen. Par. 1786. 8.
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- Darwin bot. gard.* The Botanic Garden, by Erasmus Darwin. A Poem. Lond. 4. Part 1. 1791—part 2. Lichf. 1789. Plates 17.
- D'Affs.* See *Affs.*
- Deering nottingh.* A Catalogue of Plants growing about Nottingham, &c. Nott. 1738. 8.
- De La Croix Commub.* Demetrii de la Croix f. Mac Encroe Comiubia Florum; with notes and observations of Rd. Clayton. Bath 1791. 8vo.
- De Lamarck.* See *Lamarck.* *De La Roche.* See *Roche.*
- De Saussure.* See *Saussure.*
- Desfont. atlant.* Rene Louiche Desfontaines Flora Atlantica, f. historia plantarum, quæ in Atlante, agro Tunetano et Algeriensi crescunt. Par. 4. Plates 261. very neatly engraved.
- Dickf. crypt.* Jacobi Dickson Plantarum Cryptogamicarum Britannicæ Fasciculi 1, 2, 3, 4. Lond. 1785, &c. 4.—In Linn. transf. and Withering.
- Dill. clib.* Joh. Jac. Dillenii Hortus Elthamensis. Lond. 1732. fol. Vol. 2. Tab. 224.
- Dill. giff.* Joh. Jac. Dillenii Catalogus Plantarum circa Giffam nascentium. Francof. 1719. 8.
- Dill. musc.* Joh. Jac. Dillenii Historia Muscorum. Oxon. 1741. 4. tab. æn. 85.
- Dod. mem.* Memoires pour servir à l'histoire des plantes. Par. 1676. fol. par M. Dodart.
- Dod. pempt.* Remberti Dodonæi f. Dodoens. Stirpium historiæ pemptades sex f. libri xxx. Antv. ap. Plant. 1616. fol. cum figuris ligno incisis.
- Donn hort. cant.* Hortus Cantabrigienfis, or a Catalogue of plants cultivated in the Walkerian botanic garden at Cambridge. Cambr. 1796. 8. Pages 117. 3d edit. 1804. Pages 210.
- Dorft. bot.* Theoderici Dorstenii Botanicon. Francof. 1540. fol. cum fig. ligno incisis.
- Doffie niem.* Memoirs of Agriculture, &c. by Robert Doffie. Lond. 1768, 71. 82. 8.
- Dougl. coff.* A Description and History of the Coffee tree, by James Douglas. Lond. 1727. fol.
- Dougl. lil. f. descr.* A Description of the Guernsey Lily, by James Douglas. Lond. 1725. fol. and 1737.
- Dryander act. Stockh.*
- Dryander Linn. transf.* 1. 155. 2. 212. 3. 39.
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- Duchefne fraif.* Histoire naturelle des Fraisières, par Ant. Nic. Duchefne. Par. 1766. 12.
- Du Halde chin.* Description de l'Empire de la Chine, par le pere J. B. du Halde; tomes 4. Par. 1735. fol.
- Du Hamel or Duham. arb.* Traité des Arbres et Arbustes, qui se cultivent en France en pleine terre, par M. Du Hamel du Monceau; tomes 2. Par. 1755. 4.
- Durant. herb.* Castore Durante Herbario nuovo. Rom. 1585. fol. Ven. 1602, 1636, 1684. Cum figuris ligno incisis.
- Du Roi arb. f. obs.* Joh. Phil. Du Roi Dissertatio sistens observationes botanicas. Helmst. 1771. 4.
- Du Roi Harbk.* J. Phil. Du Roi harbkische wilde Baumzucht. Brunfv. 1772. 8. ed. 2. ib. 1795. 8.
- Edwards Hist.* History of the British Colonies in the West Indies, by Bryan Edwards, F.R.S. Lond. 1793, 94. 4.
- Ehret. pict.* Plantæ et papilionæ rariores, depictæ et æri incisæ, a Georg. Dionysio Ehret. Lond. 1748—1759. fol.—Tab. 15. pulcherrime coloratæ.
- Ehrh. Beitr.* Friedrich Ehrhart Beiträge zur naturkunde. Hann. 1787—1792. 8.
- Ellis coff.* An historical account of Coffee, by John Ellis. Lond. 1774. 4.
- Ellis mang.* A Description of the Mangostan and Bread Fruit, by John Ellis, Esq. Lond. 1775. 4.
- Engl. Bot.* English Botany. An elegant work by J. E. Smith, M.D. The plates by Mr. Sowerby.
- Evel. kal.* Kalendarium hortense, or the Gardener's Almanac, by John Evelyn, Esq. F.R.S. ed. 9. Lond. 1699. 8.
- Evel. silv.* Silva, or a Discourse of Forest Trees, with Terra, Pomona, Acetaria and Kalendarium Hortense, by John Evelyn, Esq. ed. 1. 1664—ed. 2. 1669—ed. 3. 1679.—ed. 4. 1706. ed. 5. 1729. Lond. fol.—With notes by Dr. Alex. Hunter and 39 plates. York 1776. 4. ed. 2. 1786.
- Fabric. helmst.* Phil. Conr. Fabricii Enumeratio methodica plantarum horti medici Helmstadiensis; ed. 3. Helmst. 1776. 8. This is the second edition of 1763, with a new title. The first edition was in 1759.
- Ferrar. flor.* Jo. Bapt. Ferrarius de florum cultura, libri 4. Romæ 1633. 4.
- Ferrar. hesp.* Jo. Bapt. Ferrarii Hesperides, f. de Malorum Aureorum cultura et usu libri 4. Romæ 1646. fol. Plates.
- Feuill. itin.* Observations faites sur les côtes orientales de l'Amerique meridionale, par le Pere Louis Feuillée; tomes 3. Par. 1714, 1725. 4.
- Fitzh. husb.* The booke of Husbandry by Fitzherberd. Lond. 1562. 8.
- Fl. dan.* Icones plantarum sponte nascentium in regnis Daniæ et Norvegiæ, editæ a Geo. Chr. Oeder, Oth. Frid. Muller, et Mart. Vahl. Hafn. 1761. &c. fol.
- Fl. rust.* Flora Rustica, by Tho. Martyn. Lond. 1792—94. 8. with 144 coloured figures by Nodder.
- Forr. voy.* A voyage to New Guinea, and the Moluccas, 1774—76, by Thomas Forrest. Lond. 1779. 4.
- Forsk. descr. f. agypt.* Flora Ægyptiaco-Arabica, five descriptiones plantarum quas per Ægyptum inferiorem et Arabiam Felicem detexit Pet. Forskahl. Havn. 1775. 4.
- Forsk. escul.* Georgii Forster de plantis esculentis Insularum Oceani Australis commentatio, Berol. 1786. 8.
- Forsk. gen.* Characteres generum plantarum, quas in itinere ad insulas maris australis collegerunt, &c. annis 1772—1775. Joan. Reinhold. et G. Forster. Lond. 1776. fol.
- Forsk. prodr.* Geo. Forster Floræ insularum australium prodromus. Gottingæ, 1786. 8.
- Forstyth.* A treatise on the culture and management of Fruit-trees; with observations on their diseases and cure. By William Forstyth. Lond. 1802. 4.
- Frazer agrofl.* A short history of the Agrostis Cornucopia. Lond. 1789. fol. by John Frazer.
- Fuchf. hist.* Leonharti Fuchii de historia stirpium commentarii,

- tarii, Bas. 1542. fol.—With large wooden cuts, admirably done for the time.
- Gærtn. fruct.* Josephus Gärtner de Fructibus et Seminibus plantarum, vol. 1. Stuttg. 1738.—vol. 2. 1791. 4.—with 180 admirable plates.
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- Garid. aix f. prov.* Histoire des plantes qui naissent en Provence, et principalement aux environs d'Aix. Par. 1719. fol. Plates 100.
- Ger. f. Ger. herb.* The Herball, or generall historie of plants, by John Gerarde. Lond. 1597. fol. Pages 1392. Wooden cuts.
- Ger. enac.* The same enlarged by Thomas Johnson. Lond. 1633 and 26. fol. Pages 1630.—The two editions are the same, with the alteration only of the date of the year in the title-page.
- Ger. hort.* Catalogus arborum fruticum ac plantarum, tam indigenarum quam exoticarum, in horto Johannis Gerardi nascentium. Lond. 1596. fol. admodum rarus.
- Ger. prov.* Louis Gerard Flora Gallo-Provincialis Par. 1761. 8. Pages 585. Pl. tes 19.
- Gesn. epist.* Conradi Gesneri Epistolæ medicinales. Tiguri 1577. 4.
- Gilpin for. scen.* Forest Scenery, by William Gilpin. 2 vols. 8vo.
- Giseke ord. nat.* Caroli a Linné Prælectiones in Ordines Naturales Plantarum. Edidit Paulus Diet. Giseke, M.D. Hamb. 1792. 8.
- Gloxin obs.* Benj. Petri Gloxin Observationes botanicæ. Argent. 1785. 4. Pages 26. Plates 3.
- Gmel. fib.* Jo. Georg. Gmelin Flora Sibirica: tomi 4. Petrop. 1747—69. 4. Plates.—Arranged by Royen's method.
- Gmel. syst.* Jo. Frid. Gmelin Systema Naturæ Linnæi. Lipf. 1791. 8.
- Gmel. tub.* Jo. Friderici Gmelin Enumeratio stirpium agro Tubingensi indigenarum. Tub. 1772. 8vo.
- Gooden. in Linn. Transf.* Observations on the British species of Carex, in the second volume of the Linnean Transactions: by Samuel Goodenough, LL.D. F.R.S. Canon of Windsor.
- Gort. belg.* David de Gorter Flora VII. provinciarum Belgii Foederati indigena. Harl. 1781. 8.
- Gort. gelr.* Ejusdem Flora Gelro-Zutphanica. Harderovici. 1745. 8.—cum Appendice. 1757. 8.
- Gort. ingr.* Ejusdem Flora Ingrida. Petrop. 1761. 8.—Appendix 1764.
- Gouan fl. monsp.* Antoine Gouan Flora Monspeliaca Lugd. 1765. 8. Pages 543. Plates 3.
- Gouan hort. monsp.* Ant. Gouan, M.D. Hortus Regius monspeliensis. Lugd. 1762. 8. Pages 548. By Linneus's manner of quotation we cannot tell which of these books he refers to.
- Gouan illustr.* Ejusdem Illustrationes et observationes botanicæ. Tig. 1773. fol. Pages 83. Plates 26.
- Græf. catal.* A descriptive catalogue of upwards of 1100 species and varieties of herbaceous or perennial plants, ferns, and annuals, by John Græfer. Lond. 8vo. Pages 139.
- Grew. anat.* The Anatomy of Plants, by Nehemiah Grew, M.D. F.R.S. Lond. 1682. fol. Plates 82.
- Griff. lusit.* Gabr. Griffley Viridarium Lusitanum. Ulyssip. 1661. 8.—item 1789. cum nomin. Linnæanis.
- Gron. orient.* Joh. Freder. Gronovii Flora Orientalis, f. recensio plantarum quas Leon. Rauwolfius annis 1573—75 in Syria, &c. collegit. Lugdb. 1755. 8. Pages 150.
- Gron. virg.* Ejusdem Flora Virginica exhibens plantas, quas J. Clayton in Virginia collegit. Ed. 1. Lugdb. 1743. 8.—ed. 2. Lugdb. 1762. 4.
- Grosier chin.* A general description of China; translated from the French. Lond. 1788. 8. 2 vols.
- Guetz. obs.* Observations sur les Plantes, par Jean Etienne Guettard. Par. 1747. 12. Tomes 2.
- Gunn. norv.* Joh. Ernesti Gunneri Flora Norvegica: pars prior, Nidrosiæ 1766—posterior, Hafn. 1772. fol.
- Hakluyt voy.* The principal navigations, &c. of the English nation: vol. 1. 1599—2. 1600. Lond. fol.
- Hall. helv.* Alberti von Haller Historia Stirpium indigenarum Helvetiæ inchoata. Bernæ 1768. fol. tomi 3. tab. æn. 48.
- Hall. opusc.* Alb. v. Haller Opuscula Botanica. Gott. 1749. 8.—ubi libellus de Allio.
- Hannov. magaz.* Hannoverisches Magazin. 1783. 4.
- Hartlib.* The Complete Husbandman; by Sam. Hartlib, Esq. Lond. 1659. 4.
A Designe for plenty, by planting Fruit-trees. Lond. 4.
A Discourse of Husbandrie used in Brabant and Flanders, by Sir Richard Weston; published by Sam. Hartlib. Lon. 1652. 4.
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- Hasselqu. itin.* Frederic Hasselquists Iter Palæstinum 1749—52. Stockh. 1757. 8.—Englith. Lond. 1766. 8.
- Hawkesw. voy.* An account of the Voyages of Byron, Wallis, Carteret and Cook, by John Hawkesworth. 3 vols. 4. Lond. 1773. with Plates.
- Haworth mesembr.* Observations on the genus Mesembryanthemum, by Adrian Hardy Haworth. Lond. 1794. 8.
- Hedw. musc.* Joan Hedwig Fundamentum historiæ naturalis Muscorum frondosorum. Lipf. 1782. 4.—Theoria generationis & fructificationis plantarum Cryptogamicarum. Petrop. 1784. 4.—Descriptio et adumbratio microscopico-analytica muscorum frondosorum, &c. tom. 1. 1787.—2. 1789.—3. 1792. Lipf. fol.—cum tab. æn. coloratis.
- Heist. Brunsv.* Laur. Heisteri descriptio Brunsvigiæ novi generis plantæ (Amaryllis orientalis.) Brunf. 1753. fol.
- Helw. puls.* Georg. Andr. Helwing Floræ compaña, seu Pulsatilla. Lipf. 4. tab. æn. 12.
- Heritier.* See *L'Heritier*.
- Herm. lugdb.* Pauli Hermanni Catalogus Horti Academici Lugduno-Batavi. Lugdb. 1687. 8.
- Herm. par.* P. Hermanni Paradisus Batavus. Lugdb. 1698 et 1705. 4. edit. eadem. Opus posth. ed. Guil. Sherard.
- Hern. mex.* Franc. Hernandez Nova plantarum, &c. Mexican. Historia. Romæ 1651. fol.
- Heuch. Witteb.* Joan. Henr. Heucheri Index plantarum horti medici academici Vitembergensis. Vitemb. 1711. 4.—item, Novi proventus ejusdem. 1711. et 1713. 4.
- Hill. syst.* The Vegetable System, by John Hill. Lond. 1772—75. fol.—26 vols. with plates.
- Hist. oxon.* See *Mor. hist.*
- Hoffm. germ.* Geo. Franz Hoffmann Deutschlands Flora. Erlangen 1791. 8. tab. æn. color. 12.
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- Hort. angl.* A Catalogue of Trees, Shrubs, Plants and Flowers, which are propagated for sale in the Gardens near London. Lond. 1730. fol.
- Hort. Ger.* See *Ger. hort.* *Hort. kew.* See *Ait. kew.*
- Hort. malab.* See *Rheed. hort.*
- Hort. oxon.* Catalogus plantarum horti medici Oxoniensis. ed. 1. Oxon. 1648.—ed. 2. 1658. 8.
- Hort. par.* Dionysii Jonquet Hortus regius Parisiensis. Par. 1665 and 1666. fol.
- Hort. rom.* See *Sabb.*
- Hofst. syn.* Nic. Th. Hofst Synopsis plantarum in Austria, &c. sponte crescentium. Vind. 1797. 8.
- Houghton's Collections:* in four vols. Lond. 1727. 8.
- Houft. reliqu.* Reliquiæ Houstonianæ, f. plantarum in America Meridionali collectarum Icones manu propria æri incisæ, cum descriptionibus. Lond. 1781. 4. tab. 26. Ex Mss. Houft. per honor. virum Jos. Banks editæ.
- Houft. Mss.* Codices manuscripti Guil. Houftoun, M.D. R.S.S. e bibliotheca Philippi Miller par Jos. Banks emti.
- Houtt. syst.* Martin Houttuyn Des Rittars C. von Linné volständiges Pflanzen-system. 1777—88. 8.
- How phytol.* Guil. How Phytologia Britannica. Lond. 1650. 12.
- Hudsf. angl.* Gulielmi Hudsoni Flora Anglica. ed. 1. 1762.—ed. 2. 1778. Lond. 8.
- Hughes Barbado.* The natural History of Barbadoes, by Griffith Hughes. Lond. 1750. fol. Plates 29.
- Hull.* The British Flora, by John Hull. Manch. 1799. 8.
- Hunter Evel.* See *Evel. silv.*
- Hunt. georg. eff.* Georgical Essays, by Alex. Hunter, M.D. F.R.S. Lond. 1769, &c. 8.—One vol. 8vo. 1777.
- Jacob faversh.* Edw. Jacob Plantæ Favershamienfes: a catalogue of the more perfect plants growing spontaneously about Faversham, in the county of Kent. Lond. 1777. 8.
- Jacqu. amer.* Nic. Jos. von Jacquin Selectarum stirpium Americanarum historia. Vind. 1763. fol. tab. æn. 183.—item, Manhemii 1788. 8. descr. sine tab. æn.
- Jacqu. austr.* Ejusd. Floræ Austriacæ, f. plantarum selectarum in Austriæ Archiducatu sponte crescentium icones ad vivum coloratæ, et descriptionibus ac synonymis illustratæ. Vienne 1773—78. fol. cum tab. æn. 500.
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- Jacqu. hist.* See *Jacqu. amer.*
- Jacqu. hort.* Ejusd. hortus botanicus Vindobonensis, f. plantarum rariorum, quæ in horto botanico Vindobonensi coluntur, icones coloratæ, et succinctæ descriptiones Vind. 1770—76. fol. tomi 3. tab. 200.
- Jacqu. ic. rar.* Ejusd. Icones plantarum rariorum Vind. 1781—93. fol. tomi 3. tab. color. 648.
- Jacqu. misc.* Ejusd. Miscellanea Austriaca ad botanicam, &c. spectantia. Vind. 1778—81. 4. tomi 2. tab. color. 21 et 23.
- Jacqu. obs.* Ejusd. Observationum Botanicarum pars 1. Vind. 1764. fol.—pars 2. 1767.—pars 3. 1768.—pars 4. 1771. tab. æn. 100.
- Jacqu. oxal.* Ejusd. Oxalis, Monographia, iconibus illustrata. Vien. 1794. 4. tab. æn. 81. quorum 75 coloratæ.
- Jacqu. pict.* Ejusd. Selectarum stirpium Americanarum historia; ed. altera, tabulis pictis, non æri incisis, 264.
- Jacqu. Schoenbr.* Ejusd. Plantarum rariorum horti Cæsarei Schoenbrunnensis descriptiones et icones. Vien. 1797. fol. tomi 2. cum tab. æn. color. 250.
- Jacqu. vind.* Ejusd. Enumeratio stirpium quæ sponte cresunt in agro Vindobonensi. Vien. 1762. 8. tab. æn. 9.
- Johns. itin.* Thomæ Johnson Iter Cantianum aº. 1629. item 1632. Lond. 1632. 8.

- Johns. mercur.* Ejusd. Mercurius botanicus, five plantarum, gratia suscepti itineris, anno 1634, descriptio. Lond. 1634. 8.—pars altera, ib. 1641. 8.
- Joncquet hort.* See *Hort. par.*
- Jonst. dendr.* Joan. Jonstoni Dendrographia. Francof. 1662. fol. tab. æn. 137.
- Journ. de Rozier.* Observations sur la Physique, sur l'Histoire Naturelle, et sur les Arts, par M. l'Abbé Rozier. Par. 1771, &c. 4.
- Isnard act. par.* Antoine Danty d'Isnard, in mem. acad. par. 1716, 1717, 1718, 1719, 1720, 1721, 1724.
- Ives voy.* A Voyage to India 1755 by Edw. Ives. Lond. 1775. 4.
- Jungh. ic.* Phil. Casp. Junghans, M.D. Icones plantarum ad vitam impressæ. Cent. 1. Halæ Salicæ, 1787. fol.—item, Icones plantarum officinalium, cent. 1. Ibid. 1787. fol. Coloured plates.
- Juss. gen.* Antoine Laurent de Jussieu Genera plantarum secundum ordines naturales disposita. Par. 1789. 8.
- Justice.* The British Gardener's director: by James Justice, F.R.S. one of the principal clerks of session. Edinb. 1764. 8. An excellent manual.
- Kämpf. amoen.* Engelberti Kämpfer Amoenitatum exoticarum fasciculi 5. Lemgovix 1712. 4. pag. 912. cum tab. æneis.
- Kämpf. ic. select.* Ejusd. Icones selectæ plantarum, quas in Japonia collegit et delineavit: ed. Jos. Banks ex archetypis in Museo Britannico asservatis. Tab. æn. 59. Lond. 1791. fol.
- Kalm amer.* Travels in North America by Pehr or Peter Kalm; in Swedish, Stockh. 3 vols. 1753, 56 & 61. 8.—in English, by John Reinhold Forster, 3 vols. 1. Warrington 1770. 2, 3. Lond. 1771. 8. The first volume of the original, and the first 101 pages of the second volume, are omitted in the translation.
- Kamel.* See *Camel lux.*
- Knight.* Tho. Andr. Knight, Esq. on the culture of the Apple and Pear. Ludl. 1797. 8.
- Kniph. orig.* Joan. Hieroz. Kniphof Botanica in originali. Cent. 12. Halæ 1757—64. fol.
- Knorr del. hort.* Thesaurus rei herbariæ hortensisque universalis: apud Geo. Wolfgangi Knorri hæredes. Norimb. 1770, 72. fol.
- Knox ceyl.* An historical relation of the island Ceylon, by R. Knox. Lond. 1681. fol. Cuts.
- Koenig.* Joh. Gerardi Koenig Descriptiones Monandrarum, in fasc. 2. Retzii obf.
- Kram. austr.* Guil. Henr. Kramer Elenchus vegetabilium et animalium per Austriam Inferiorem observatorum. Vien. 1756. 8.
- Krock. files.* Anton. Johann Krocker Flora Silesiaca. Vratislaviæ 1787, 90. 8. tab. æn. color. 96.
- Kylling. vir. dan.* Petri Kyllingii Viridarium Danicum. Hafn. 1688. 4.
- Labillardiere.* See *Billard. ic.*
- La Chenal in act. helv.* Wernerus de La Chenal Observationes botanicæ in Actis Helveticis. vol. 4, 7, 8. item, Bas. 1776. 4.
- Lamarck encycl.* Jean Bapt. Pierre Ant. de Monct Chevalier de Lamarck Encyclopedie Methodique. Botanique: tome 1. 1783—2. 1786. 3. 1789. Par. 4.
- Lambert cinch.* A description of the genus Cinchona, by Aylmer Bouike Lambert, F.R.S. Lond. 1797. 4.
- Lamb. pin.* The same on the genus Pinus. London 1803. large folio, with 38 plates.
- Lauth acer.* Thomæ Lauth Dissertatio inaug. de Acere. Argent. 1781. 4.
- Leers herb. born.* Joan. Dan. Leers Flora Herbornensis. Herb. 1775. 8.—tab. æn. 16.—ed. 2. Berol. 1789.
- Letts. thea.* Natural history of the Tea-tree, by John Coakley Lettsom, M.D. Lond. 1772. 4.
- Lewis mat. med.* An experimental history of the Materia medica, by William Lewis, F.R.S. Lond. 1768. 4. ed. 2.
- Leyff. hall.* Fried. Willh. von Leyffer Flora Halensis. ed. altera. Halæ 1783. 8.
- L'Herit. corn.* (Charles Louis) Car. Ludov. Cornus. Par. 1788. fol. tab. 6.
- L'Herit. geran.* Ejusdem Geraniologia, seu Erodii, Pelargonii, Geranii, Monsoniæ et Grieli historia iconibus illustrata. Par. 1787, 88. fol. Plates 44, without text.
- L'Herit. fert.* Ejusdem Sertum anglicum, seu plantæ rariores quæ in hortis juxta Londinum, imprimis in horto Regio Kewensi excoluntur, ann. 1786, 87, observatæ. Par. 1788. fol. Plates 12.
- L'Herit. stirp. nov.* Ejusdem Stirpes novæ aut minus cognitæ. Fasc. 6. Par. 1784 et 85. fol. Plates 84, with ample descriptions, &c.
- Lightf. scot.* Flora Scotica, or a systematic arrangement, in the Linnæan method, of the native plants of Scotland and the Hebrides. By John Lightfoot, M.A. Lond. 1777. 8. 2 vols. with 35 plates. Few descriptions are original.—The animals are prefixed, in 66 pages.
- Lin. amoen.* Caroli Linnæi (Nob. Carl von Linné) Amoenitates Academicæ, seu Dissertationes variæ physicæ, medicæ, botanicæ, antehac seorsim editæ, nunc collectæ et auctæ. Holm. et Lips. 1749. 8.—item Erlangæ 1787, 88, 89, curante Schrebero, qui edidit vol. 8^{um}. et 9^{um}. a^o. 1785, et 10^{um}. 1790. These are chiefly theses for degrees.
- Lin. dec.* Caroli Linnæi (Nob. Carl von Linné) Filii præcedentis Decas 1. plantarum rariores horti Upsalienfis. Stockh. 1762. fol.—Decas 2. 1763. Ten plates in each, with ample descriptions.
- Lin. gen.* Caroli v. Linné (Patris) Genera Plantarum, eorumque characteres naturales; ed. 6. Holm. 1764. 8. pag. 580. gen. 1239.
- Lin. gen. Reich.* Idem opus, curante Joan. Jac. Reichard. Francof. ad Moenum 1778. 8. pag. 571. gen. 1343.
- Lin. gen. Schreb.* Idem opus, prioribus longe auctior atque emendatior, curante Jo. Christiano Dan. Schreber. Francof. ad Moenum, 8. vol. 1. 1789. vol. 2. 1791. pag. 872. gen. 1769.—ord. nat. omiffis.
- Lin. hort. cliff.* Ejusdem Hortus Cliffortianus, plantas exhibens, quas in hortis, tam vivis, quam siccis, Hartecampi coluit Georgius Clifford. Amstel. 1737. fol. with 36 elegant engravings.
- Lin. hort. upf.* Ejusdem Hortus Upsalienfis, exhibens plantas exoticas horto Upsalienfis academix a sese illatas ab a. 1742 in a. 1748. Holm. 1748. 8. pag. 306. tab. 3.
- Lin. lapp.* Ejusdem Flora Lapponica. Amstel. 1737. 8.—ed. altera, studio Jac. Ed. Smith Lond. 1792. 8.
- Lin. mant.* Ejusdem Mantissa Plantarum Generum editionis VI. et Specierum edit. 2. Holm. 1767. 8. pag. 142.—item Mantissa altera. Holm. 1771. 8. pag. 143—584.
- Lin. mat. med.* Ejusdem Materia medica. Amst. (Holmiæ.) 1749. 8.—item, curante Schrebero. Vind. 1773. et Lips. & Erl. 1782. 8.
- Lin. mus.* Ejusdem Musa Cliffortiana florens Hartecampi 1736. Lugdb. 1736. 4.
- Lin. spec.* Ejusdem Species Plantarum, ed. 1. Holm. 1753. 8. 2 tomis. pag. 1200.—ed. 2. aucta. ib. 1762, 3. 8. 2 tomis. pag. 1684.
- Lin. spec. Willd.* Ejusdem Idem opus, adjectis vegetabilibus hucusque cognitis. Curante Carolo Ludovico Willdenow. Berol. vol. 1. 1797, vol. 2. 99. vol. 3. 1800. 8. pag. 1474. ad polyadelph.
- Lin. succ.* Ejusdem Flora Suecica, exhibens plantas per regnum Sueciæ crescentes: ed. 2. aucta et emendata. Stockh. 1755. 8. pag. 464.
- Lin. suppl.* Car. Linnæi Filii Supplementum Plantarum Systematis Vegetabilium ed. 13. Generum plantarum ed. 6. et Specierum plantarum ed. 2. Brunsvigæ 1781. 8.
- Lin. syst.* Systema vegetabilium. Editio 13. accessionibus et emendationibus novissimis manu auctoris scriptis adornata a Jo. Andr. Murray Gott. et Gothæ, 1774. 8. pag. 844.—item Editio 14, curante eodem. Gott. 1784. 8. pag. 987. The 13th edition, with the addition of the Supplementum, was translated by a Botanical Society at Lichfield. 1783.
- Lin. syst. Reich.* Systema plantarum, novis plantis ac emendationibus ab auctore sparsim evulgatis adaucta, curante Jo. Jac. Reichard. Francof. ad Moenum. 1779, 80. 8. tomis 4.—This is the Systema and Species united, with the addition of the two Mantissas. It is now superseded by Willdenow's edition.
- Lin. transf.* Transactions of the Linnean Society. Lond. 1791, &c. 4.
- Lin. vir. cliff.* Car. Linnæi Patris Viridarium Cliffortianum, in quo exhibentur plantæ, quas vivas aluit hortus Hartecampensis annis 1735, 6, 7. indicatæ nominibus ex horto Cliffortiano deponitis. Amstel. 1737. 8.
- Lin. zeyl.* Ejusdem Flora Zeylanica. Amstel. 1748. (Holmiæ 1747.) 8.
- Lisle. husb.* Observations in Husbandry, by Edw. Lisle, Esq. Lond. 1757. 4.
- Lob. adv.* Matthiæ de Lobel. f. Lobellii Adversaria Stirpium. Lond. 1571.—altera pars 1605. fol.
- Lob. hist.* Ejusdem Plantarum seu stirpium historia. Antv. 1576. fol.—item, Kruidtboek, germanice. ib. 1581.—item, Appendix: ib. 1576.
- Lob. ic.* Ejusdem Plantarum seu stirpium icones. Antv. 1581. 4. obl.—item, 1591. Wooden cuts, commonly two in a page.
- Loefl. hisp.* Petri Loefling Plantæ hispanicæ rariores, in itin. Hisp. Stockh. 1758. 8.
- Loefl. amer.* Ejusdem plantæ Americanæ observatæ in itinere a Cumana ad fluvium Orinoco: in itin. hisp.
- Loes. pruss.* Joh. Loefelii Flora Prussica; auxit et edidit Joh. Gottsched. Regiom. 1703. 4. tab. æn. 85.
- Long jam.* Long's history of Jamaica. Lond. 1774. 4. Three volumes with 16 plates.
- Lonic. hist.* Adami Loniceri opus novum, in quo tractatur de vera cognitione, delectu et usu omnium simplicium medicamentorum. Francof. 1551. fol.—tomus 2. ib. 1555. fol. Wooden cuts.
- Lour. cochinch.* Joan. de Loureiro Flora Cochinchinensis. Ulyssip. 1790. 4.—item, cum notis Car. Lud. Willdenow. Berol. 1793. 8.
- Lyons fasc.* Fasciculus Plantarum circa Cantabrigiam nascentium, quæ post Raium observatæ fuere. By Israel Lyons. Lond. 1763. 8.

- Madd. flor.* The Florist's Directory; by James Maddock. Lond. 1792. 8.
- Magn. bot.* Petri Magnol Botanicum Monspeliense. Lugd. 1676. 8. et Monsp. 1688. 8.
- Magn. hort.* Ejusdem Hortus regius Monspeliensis. Monsp. 1697. 8. with copper plates.
- Mapp. alfat.* Marci Mappi Historia plantarum Alsaticarum posthuma; studio J. C. Ehrmanni. Argent. 1742. 4. With copper plates.
- Marcgr. bras.* See *Pis. bras.*
- Marfd. Sumatra.* The history of Sumatra, by William Marsden. Lond. 1783.—ed. 2. 1784. 4. 2 plates.
- Marfb. arbut.* Arbutum americanum. The American Grove, or an alphabetical character of forest trees and shrubs, natives of the American united states, by Humphrey Marshall. Philad. 1785. 8.
- Marfb. gloc.* The rural economy of Gloucestershire, by Mr. Marshall. Gloc. 1789. 8. 2 vols.
- Marfb. midl.* The rural economy of the Midland Counties, by Mr. Marshall. Lond. 1790. 8. 2 vols.
- Marfb. norf.* The rural economy of Norfolk, by Mr. Marshall. Lond. 1787. 8. 2 vols.
- Marfb. plant.* Planting and Rural Ornament. Lond. 1796. 8. 2 vols. ed. 2. with large additions. The first edition was in one volume, 1785. Mr. Marshall has not put his name to either edition.
- Marfb. south.* Minutes, Experiments, Observations, and general Remarks on Agriculture, in the Southern Counties; a new edition, by Mr. Marshall. Lond. 1799. 8. 2 vols.
- Marfb. west.* The rural economy of the West of England, by Mr. Marshall. Lond. 1796. 8. 2 vols.
- Marfb. yorksh.* The rural economy of Yorkshire, by Mr. Marshall. Lond. 1788. 8. 2 vols.
- Mart. cat. cant.* Thomæ Martyn Plantæ Cantabrigienses, or a catalogue of the plants which grow wild in the county of Cambridge, disposed according to the system of Linnæus. Lond. 1763. 8.
- Mart. cent. f. dec. f. hist.* Joan. Martyn Historia plantarum rariorum. Cent. 1. Dec. 1—5. Lond. 1728. fol. Plates 50, printed in their proper colours.
- Mart. fl. rust.* See *Fl. rust.*
- Mart. hort. cant.* Thomæ Martyn Catalogus horti botanici Cantabrigienses. Cant. 1771. 8.
- Mart. meth. cant.* Joan. Martyn Methodus Plantarum circa Cantabrigiam nascentium. Lond. 1727. 8.
- Mart. Tourn.* Tournefort's history of plants about Paris, englished and accommodated to the plants of Great Britain, by John Martyn. Lond. 1732. 8. 2 vols.
- Massen monogr. flap.* Stapeliæ novæ, or a collection of several new species of that genus, discovered in the interior parts of Africa. Lond. 1796. fol. Coloured figures, with ample descriptions.
- Matth. op.* Petri Andreæ Matthioli Opera omnia: edidit Casp. Bauhinus. Francof. 1598. fol. ed. 2. Bas. 1674. fol. cum fig. ligno incis. is.
- Matth. comm.* Ejusdem Commentarii in libros Dioscoridis de Materia Medica. Ven. 1554, 1559, 1565. fol. ex offic. Valgr. cum fig. ligno incis. is.
- Maundr. journ.* Maundrell's Journey from Aleppo to Jerusalem. Oxf. 1721. 8.
- Medic. bot.* Friederich Kasimir Medicus f. Medikus Botanische beobachtungen des jahres 1782, Mannheim 1783. 8.—des jahres 1783. ib. 1784.
- Medic. theodor.* Ejusdem Theodora speciosa (Schotia) Mannh. 1786. 8. tab. æn. 4.
- Meen exot.* Exotic plants from the royal gardens at Kew; by Margaret Meen. 1790.—4 large coloured plates.
- Meerb. ic.* Nicolaas Meerburgh Plantarum selectarum icones pictæ. Lugdb. 1798. fol.
- Meese frif.* David Meese Flora Frisica. Franeker. 1760. 8.
- Mem. helv.* See *Reynier.*
- Mem. par.* See *Act. par.*
- Mer. jurin.* Maria Sibylla Merian de generatione et metamorphosis Insectorum Surinamensium. Hagæ Com. 1726. fol. Latin and French. Plates 72, with the plants on which the insects feed, coloured. A magnificent work.
- Merr. pin.* Christoph. Merrett Pinax rerum naturalium Britannicarum. Lond. 1667. 8.
- Mich. gen.* Nova Plantarum Genera juxta Tournefortii methodum disposita, auctore Petro Antonio Michelio Flor. Florentiæ 1729. fol. Plates 108.
- Mich. hort. f. flor.* Ejusdem Catalogus plantarum horti Cæsarei Florentini: edidit et continuavit et ipsius horti historia locupletavit Jo. Targioni Tozzetti. Flor. 1748. fol.
- Mill. bot. offic.* Botanicum officinale, or a compendious herbal, giving an account of all such plants as are now used in the practice of physick, with their descriptions and virtues: by Joseph Miller. Lond. 1722. 8.
- Mill. fg.* Figures of the most beautiful, useful and uncommon plants described in the Gardeners Dictionary: by Philip Miller. Lond. 1760. fol. 2 vols. with 150 coloured plates in each.
- Mill. ic.* Icones animalium et plantarum, 1776—1794, by John Frederick Miller, son of John Millier. Coloured plates 60.—Seven coloured plates were published by the Father in 1780. fol.
- Mill. illustr.* Joh. Miller Illustratio systematis sexualis Linnæi, latine et Anglice. Lond. 1777. fol. Coloured figures. An illustration of the sexual system of Linnæus, by John Miller, or Johann Sebastian Miller. vol. 1. 1779.—vol. 2. 1789. 8.
- Milne bot. indig.* Indigenous Botany, or habitations of English plants; containing the result of several botanical excursions, chiefly in Kent, Middlesex, and the adjacent counties, 1790—92, by Colin Milne and Alexander Gordon. Lond. 1793. 8. vol. 1. mon.—pent.
- Mitch. gen.* Joan. Mitchell Plantarum quædam genera recens condita. In act. nat. cur. vol. 8.—et seorsim, cum dissertatione de principiis Botanicorum et Zoologorum. Norimb. 1769. 4.
- Moench. haff.* Enumeratio plantarum indigen. Hassiæ præsertim inferioris, edita a Conr. Moench: pars 1. Cassellis 1777. 8. Definit in Icosandria.
- Moench. meth.* Ejusdem Methodus plantarum horti botanici et agri Marburgensis a flaminum situ describendi. Marb. 1794. 8.
- Moench. weissenst.* Verzeichniss ausländischer baume des lustschlosses Weissenstein. Frankf. & Leipf. 1785. 8.
- Monti gram.* Josephi Monti Catalogi stirpium agri Bononiensis prodromus, Gramina ac hujusmodi affinia complectens, Bonon. 1719. 4. tab. 3.
- Mor. hist.* Roberti Morison Plantarum Historiæ universalis Oxoniensis. Pars 2. Oxon. 1680. fol.—Pars 3. quam explevit et absolvit Jacobus Bobartius. ib. 1699. fol. Many Plates.
- Mor. præl.* Ejusdem Præudia Botanica. Lond. 1669. 8.
- Mor. umb.* Ejusdem Plantarum Umbelliferarum distributio nova. Oxon. 1672. fol. Plates much superior to those in the other two parts of the History, of which this is the first part.
- Morton Northamp.* The natural history of Northamptonshire, by John Morton. Lond. 1712. fol.
- M. S. Ord.* A manuscript lent me by Craven Ord, Esq. containing observations on forest trees. Probably by Oldys.
- M. S. Woodw.* See *Woodw.*
- Munting phyt.* Abrahami Munting Phytographia curiosa, exhibens arborum, fruticum, herbarum, et florum icones; varias earum denominationes Latinas, Gallicas, Italicas, Germanicas, Belgicas, aliasque adjecit Franc. Kiggelaer. Lugdb. et Amstel. 1702. fol.
- Murr. appar.* Joan. Andr. Murray Apparatus medicaminum. Gott. 1776—92. 8. tomis 6.
- Murr. prodr.* Ejusdem Prodromus designationis stirpium Gottingensium. Gott. 1770. 8.
- Mus. Tradesc.* Museum Tradescantianum. Lond. 1656. 8. By John Tradescant.
- Mus. Russ.* Museum Rusticum. Lond. 1764, &c. 6 vols. 8.
- Nash. Worc.* Collections for the history of Worcestershire, by T. Nash. vol. 1. 1781. vol. 2. 1782. Lond. fol.
- Neck. gallob.* Natalis Josephi De Necker Deliciæ Gallo-Belgicæ silvestres, seu tractatus generalis plantarum Gallo-Belgarum. Argent. 1768. 8. tomis 2.
- Nov. act. nat. cur. et upf. v. Act.*
- Nov. comm. gott. et petrop. v. Act.*
- Oeder. v. Fl. dan.*
- Orteg. hort.* Casimiri Gomezii Ortegæ novarum aut rariorum plantarum horti Reg. Botan. Matrit. descriptionum decades, cum nonnullarum iconibus. Matriti 1797. 4.
- Ofb. it. or voy.* A voyage to China and the East Indies, by Peter Osbeck. Swedish, 1757. 8.—German, 1765. 8. English, from the German, by John Reinhold Forster, in 2 vols. 8. Lond. 1771.
- Pallas. ross.* Petri Simon Pallas Flora Rossica, seu stirpium Imperii Rossici per Europam et Asiam indigenarum descriptiones et icones. Petrop. 1784. fol. pars 1.—pars 2. 1788. With 50 coloured plates in each part.
- Park. trav.* Travels in the interior districts of Africa, 1795—1797. By Mungo Park. Lond. 1799. 4.
- Park. parad.* Paradisi in sole paradisus terrestris, or a garden of all sorts of pleasant flowers, with a kitchen garden and orchard. Collected by John Parkinson, Apothecary of London. 1629. fol. Wooden cuts.
- Park. theat.* Theatrum Botanicum, the theatre of plants, or an Herball of a large extent. Lond. 1640. fol. By the same. Wooden cuts.
- Paters journ.* A narrative of four journeys into the country of the Hottentots, and Caffaria, in 1777, 8, 9. Lond. 1789. 4. Coloured plates 17, and a map.
- Pet. brit.* Herbarii Britannici Rari Catalogus cum iconibus. By James Petiver. In the second volume of his Works, in 72 plates.
- Pet. fl.* Pterigraphia americana, icones continens Filicum, &c. in Operum. vol. 2. Jacobi Petiver.
- Pet. gaz.* Ejusdem Gazophylacium naturæ et artis. Decades 10. Lond. 1702, 4. fol. 100 plates. These are in the first volume of his plates, with an addition of 56 plates.
- Philos. Transf.* Philosophical Transactions of the Royal Society of London. Lond. 1665, &c. 4.

- Pif. bras.* Gul. Pisonis de medicina Brasiliensi, libri 4. et Georg. Marcgravii historiae, &c. Lugdb. et Amstel. 1648. fol.
- Pif. ind.* Gul. Pisonis de Indiae utriusque re naturali et medica libri 14. viz. 5 Pisonis—G. Marcgravii tractatus Brasiliae—J. Bontii historiae naturalis et medicae Indiae Orientalis libri 6—et G. Pisonis mantissa aromatica. Amstel. 1658. fol.
- Plat Eden.* The Garden of Eden, by Sir Hugh Plat, Knight. Lond. 1660. 8.
- Plant. praet.* See *Marshall*.
- Plenck ic.* Jos. Jac. Plenck Icones plantarum medicinalium. Vien. fol. cent. 1. 1788. 2. 1789. 3. 1790. 4. 1791. coloured.
- Plin. hist. nat.* Caii Plinii Secundi Historiae Naturalis libri 37. interpretatione et notis illustravit Joan. Harduinus. Par. 1723. fol.
- Plot. Oxf.* The natural history of Oxfordshire, by Robert Plot. Oxf. 1705. fol. ed. 2.
- Plot. Staff.* The natural history of Staffordshire, by Robert Plot. Oxf. 1686. fol.
- Pluk. alm.* Leonard Plukenett Almagestum Botanicum. Lond. 1696. 4.
- Pluk. amalth.* Ejusdem Amaltheum Botanicum. Lond. 1705. 4.
- Pluk. mant.* Ejusdem Mantissa Almagesti Botanici. Lond. 1700. 4.
- Pluk. phyt.* Ejusdem Phytographia. Lond. 1691, 92. 4. These together form his Works in 6 volumes, and contain 454 plates, with several small figures in each.
- Plum. amer. f. spec.* Car. Plumier Description des Plantes de l'Amerique. Par. 1693. fol.
- Plum. fil.* Charles Plumier Traité des Fougères, de l'Amerique. Par. 1705. fol.
- Plum. gen.* Ejusdem Nova plantarum Americanarum genera. Par. 1703. 4.
- Plum. ic.* Plantarum Americanarum fasciculi x, continentes plantas quas olim Car. Plumierius detexit et depinxit, edidit Jo. Burmannus. Amstel. 1755—1760. fol.
- Pocock. orient.* A description of the East, by Richard Pococke, Bishop of Ossory. Lond. 1743, 45. fol.
- Poirct. voy.* Poirct voyage en Barbarie pendant 1785 et 86. Par. 1789. 3. 2 tomes.
- Pollich. palat.* Joh. Adami Pollich Historia Plantarum in Palatinatu Electorali sponte nascentium: tomi 3. Manuh. 1776, 77. 8. Good descriptions.
- Pona bald.* Giov. Pona Monte Baldo descritto, per Franc. Pona dal latino tradotto. Ven. 1617. 4. v. Historiam Plantarum Clusii.
- Pult. Dorf.* Catalogue of rare plants, &c. in Dorsetshire, by Richard Pulteney, M.D. In Hutchins's Dorsetshire. Lond. 1799. fol.
- Pult. Leic.* Rare plants in Leicestershire, by the same. In Philos. Transf. vol. 49. and Nichols's Leicestershire.
- Quer. espan.* Jos. Quer Flora Espaniola, o historia de las plantas que se crían en Espana. Madr. 1762, 64, 84. 4. Six volumes. The two last by Ortega.
- Rauwolf.* See *Gron. orient.*
- Raii. cant.* Catalogus Plantarum circa Cantabrigiam nascentium. Cant. 1660. 8.
- Raii. exter.* Catalogus Stirpium in exteris regionibus observatarum. Printed with his Journey into the low Countries, &c. Lond. 1673 and 1738. 8.—Also under the title of Stirpium Europæarum extra Britannias nascentium sylloge. Lond. 1694. 8.
- Raii. hist.* Joan. Raii Historia Plantarum. Lond. fol. tom. 1. 1686. 2. 1688. 3. 1704.
- Ray's letters.* Philosophical letters between Mr. Ray, and several correspondents. Published by W. Derham. Lond. 1718. 8.
- Raii. meth.* Joan. Raii Methodus plantarum emendata et aucta. Lond. 1703. 8.
- Raii. syn.* Ejusdem Synopsis methodica Stirpium Britannicarum. Ed. 3. edita a Dillenio. Lond. 1724. 8.
- Rea flor.* Flora: seu de Florum Cultura, or a complete Florilege, by John Rea, Gent. Lond. 1767 and 1702.
- Regnault bot.* La Botanique mise à la portée de tout le monde, ou collection des plantes d'usage dans la médecine, dans les alimens, et dans les arts. Par. 1774. fol. Coloured plates 467.
- Reich. flor.* Joan. Jac. Reichard Flora Moeno-Francofurtana. Francof. 1772, 78. 8.
- Reich. syst.* See *Lin. syst.*
- Relh. cant.* Richardi Relhan Flora Cantabrigiensis. Cant. 1785. 8. tab. æu. 7.—item supplementum 1786.—suppl. alterum, 1788. suppl. tertium, 1793.—Ed. altera. Cant. 1802. 8. pag. 567. species 1344.
- Reliqu. Rudb.* Reliquiae Rudbeckianæ, cura Jac. Edv. Smith. Lond. 1789. fol.
- Renealm. spec.* Pauli Renealmi Specimen historiae plantarum. Par. 1611. 4.
- Reports of Counties for the Board of Agriculture.*
- Retz. obs.* Andr. Joh. (Anders Jahan.) Retzii Observationes botanicæ. Fasc. 1. Lipf. 1779. fol. cum tab. 2.—fasc. 2. 1781. cum tab. 5.—fasc. 3. 1783. cum tab. 3.—fasc. 4. 1786. cum tab. 3.—fasc. 5. 1789. cum tab. 3.—fasc. 6. 1791. cum tab. 3.
- Retz. scand.* Ejusdem Floræ Scandinaviæ Prodrromus. Holm. 1779. 8.
- Reynier in mem. helvet.* tom. 1. Mem. de Lausanne and Journal de Physique.
- Rheed. malab.* Hortus indicus Malabaricus, continens regni Malabarici omnis generis plantas rariores, adornatus per Henricum Adrianum van Rheed tot Drakeflein, et Johannem Casarium, commentariis illustrare Arnoldus Syen, et Jo. Commelinus. Tomis 12. Amstel. 1678—1703.—Plates 794. A superb and scarce work.
- Riv. mon.* Aug. Quir. Rivini Ordo plantarum quæ sunt flore irregulari monopetalo. Lipf. 1691. fol. tab. 125.
- Riv. pent.* Ejusdem Ordo plantarum quæ sunt flore irregulari pentapetalo. Lipf. 1699. fol. tab. 139.
- Riv. tetr.* Ejusdem Ordo plantarum quæ sunt flore irregulari tetrapetalo. Lipf. 1691. fol. tab. 121.
- Rob. ic.* 319 plates engraved by Nic. Robert, A. Boffe and Louis de Chastillon. fol. Par. 1701.
- Robf. flor.* The British Flora. By Stephen Robson. York, 1777. 8. p. 330. Five plates of roots, leaves, flowers, and fruits. The arrangement is in natural orders.
- Roche. diff.* Dan. de la Roche Specimen inaug. sistens descriptiones plantarum aliquot novarum. Lugdb. 1766. 4. tab. 5.
- Rochon. voy.* Voyage a Madagascar et aux Indes Orientales. Par. 1791. 8.
- Rohr.* Julius von Rohr; apud Vahl ecl. amer.—See Dr. Barton's Collections, p. 21. Philad. 1801.
- Roi. v. Du Roi.*
- Rooke.* Descriptions and sketches of Oaks in Welbeck park. By Hayman Rooke. Lond. 1790. 4. Plates 10.
- Rose elem.* Elements of Botany, by Hugh Rose. Lond. 1775. 8.—Descriptions of some plants then lately found in England, with 3 plates.
- Roth. germ.* Alberti Guilielmi Roth Tentamen Floræ Germanicæ. Tom. 1. Lipf. 1788. 8. Tom. 2. pars 1. 1789. pars 2. 1793.
- Rottb. gram.* Descriptiones et icones rariorum pro maxima parte novarum plantarum, auctore Christ. Friis Rottboell. Havn. 1788. fol.
- Roxb. corom.* Plants of the coast of Coromandel, by William Roxburgh, M.D. Published by the East India Company, under the direction of Sir Joseph Banks. Lond. 1795, &c. large folio. Plates coloured or uncoloured, in vol. 1. 100.—vol. 2. 1798. n. 1, 2.
- Roy. lugdb.* Adriani van Royen Floræ Leydenfis Prodrromus. Lugdb. 1740. 8. Catalogue of the Leyden garden in a natural order.
- Rudb. elyf.* Olai Rudbeckii Campi Elyfii liber secundus. Upsalæ 1701. fol. wooden cuts. The first was burnt, and only two or three copies remain. One is in the Sherardian library at Oxford. See *Reliqu. Rudb.*
- Ruell. stirp.* Joan. Ruellius de Natura Stirpium. lib. 3. Par. 1536. fol.
- Ruiz. peruv.* Hippolyti Ruiz et Jos. Pavon Flora Peruviana et Chilensis. Madr. 1798. fol. tom. 1. tab. 106.
- Rumph. amb.* Georg. Everhardi Rumphii Herbarium Amboinense. Belgice cum versione latina edidit Jo. Burmannus. Amstel. 1750. fol. Auctionarium, 1755. Partes 6. tab. 696.
- Rupp. jen.* Henr. Bernh. Rupprii Flora Jenensis edita a Jo. Henr. Schüttes. Francof. et Lipf. 1718. et 1726. 8. auxit et emendavit Alb. Haller. Jenæ 1745. 8.
- Rush amer. transf.* Account of the Sugar Maple, by Benj. Rush, M.D. in the Transactions of the American Society, vol. 3.
- Ruff. alep.* The Natural History of Aleppo and parts adjacent, by Alexander Ruffel, M.D. F.R.S. Lond. 1756. 4.—ed. 2. revised, enlarged, and illustrated, by Patr. Ruffel, his brother. Lond. 1794. 4.
- Ruff. tabash.* An account of the Tabasheer (in Bambos arundinacea.) Philos. Transf. vol. 80. By Patrick Ruffel, M.D. F.R.S.
- Sabb. hort. rom.* Hortus Romanus secundum systema Tournefortii, &c. a Georgio Bonelli. Species suppetitabat et describebat Liberatus Sabbati. Tom. 1. Romæ 1772. tab. 100.—Ejusdem tom. 2, 3, 4, 5. a Nicolao Martellio et Liberato Sabbati. 1774—78. tab. 100 in singulo tomo. Ejusd. operis tom. 6, 7. a Nic. Martellio et Constantino Sabbati. 1780, 84. tab. 100 in singulo. Figures ill-coloured.
- Salisb. ic.* Ric. Ant. Salisbury, R.S.S. Icones Stirpium rariorum descriptionibus illustratæ. Lond. 1791. fol. tab. color. 10.
- Salisb. prodr. hort.* Prodrromus stirpium in horto ad Chapel Al-lerton vigentium. Lond. 1796. 8.
- Sauss. voy.* Voyages dans les Alpes, par Horace Benoît De Saussure. Tom. 1. Neuchatel, 1779.—2. Gen. 1786. 3. Neuch. 1796. 4.
- Sauv. monsp.* Franc. Boissier de Sauvages Methodus foliorum, f. Plantæ Monspelienses juxta foliorum ordinem digestæ. La Haye. 1751. 8.
- Schæff. fung.* Jacobi Christiani Schæffer Fungorum quæ in Bavaria et Palatinatu circa Ratisbonam nascuntur icones. Regensb. 4. tom. 1. 1762—2. 1763—3. 1770. tom. 4. tab. 330.

- Scheuch. agr. f. gram.* Joh. Scheuchzer Agrostographia, five Graminum, Juncorum, Cyperorum, Cyperoidum, iisque affinium historia. Tiguri, 1719. 4. Opus eximium.—item 1775, cum appendicibus Halleri.
- Scheuch. itin.* Joh. Jac. Scheuchzer Itinera alpina tria. Londi 1708. 4. et Lugdb. 1723. 4. tomis 4. The first containing the former journies; the three others new.
- Schmid. ic.* Casimiri Christoph. Schmidel Icones plantarum, edente Jo. Christoph. Keller. Norimb. 1762. fol.—tab. color. 50.
- Schmidt boëm.* Franc. Wilibaldi Schmidt Flora Boëmica. Tom 1. cent. 4. Pragæ 1793. 4. fol.
- Schrad. fert. hannov.* Henr. Adolphi Schrader Sertum Hannoveranum, seu plantæ rariores, quæ in hortis regiis Hannoveræ vicinis coluntur. Gottingæ fol.—fasc. 1. 1795. 2. 1796. tab. color. 12.
- Schreb. gen.* See *Lin. gen.*
- Schreb. gram.* Joh. Christiani Dan. Schreber Beschreibung der Gräser. Leipf. 1769. & 1774—79. fol. Forty excellent coloured figures of Grasses.
- Schreb. spicil.* Ejusdem Spicilegium Floræ Lipsicæ. Lipf. 1771. 8.
- Scop. ann.* Joan. Ant. Scopoli Anni 5 historico-naturales. Lipf. 1769—72. 8.
- Scop. carn.* Ejusdem Flora Carniolica. Vien. 1760. 8—in ordine naturali. Ed. 2. ib. 1772. 8. tomis 2. ordine Linnaei: tab. 65.
- Scop. insubr.* Ejusd. Deliciæ Floræ et Faunæ Insubricæ. partes 3. Ticini 1786—88. fol. In singula tab. 25.
- Seba. thes.* Alberti Seba Locupletissimi rerum naturalium thesauri accurata descriptio, et iconibus artificiosissimis expressio. Latine et gallice. Amstel. fol. tom. 1. 1734, cum tab. 101.—2. 1735, cum tab. 114.—3. 1758, cum tab. 116. 4. 1765, cum tab. 108.
- Seguier veron.* Joan. Franc. Seguier Plantæ Veronenses, seu Stirpium, quæ in agro Veronensi reperiuntur, methodica synopsis. Ver. 1745. 8. cum vol. 3. f. supplemento. Ver. 1754. 8.
- Shaw nat. misc.* The Naturalist's Miscellany, by George Shaw, M.D. F.R. & L.S. Coloured plates chiefly of animals; 3 figures of plants.
- Shaw trav.* Travels, or Observations relating to several parts of Barbary and the Levant, by Thomas Shaw. Oxf. 1738. fol.—Supplement, ib. 1746, and 47. fol.
- Sheldr. herb.* Botanicum medicinale, an herbal of medicinal plants, by Timothy Sheldrake. Lond. fol. Coloured plates 117.
- Sibb. scot.* Scotia illustrata, f. prodromus historiae naturalis Scotiæ. By Sir Robert Sibbald. Edinb. 1684. fol.
- Sibth. oxon.* Joan. Sibthorp, M.D. R.S.S. Prof. bot. reg. oxon. Flora Oxoniensis. Oxon. 1794. 8. pag. 422. species 1200.
- Sloan. cat.* Hans Sloane Catalogus Plantarum quæ in insula Jamaica sponte proveniunt, vel vulgo coluntur. Lond. 1696. 8.
- Sloan. hist. or jam.* A voyage to the islands Madera, Barbados, Nieves, S. Christophers and Jamaica, with the natural history of the last of those islands. Lond. fol. vol. 1. 1707, 2. 1725. Plates 274.
- Smith brit.* Jac. Edw. Smith, M.D. Soci Linn. Præsidis, &c. Flora Britannica. Lond. 1790. 8. vol. 1, 2.—1794, vol. 3. ad crypt. musc.
- Smith engl. bot.* See *Engl. bot.*
- Smith fil.* Ejusd. Tentamen botanicum de Filicum generibus describendis. In mem. acad. Taur.—item seorsim, et in Tractis 1798.
- Smith ic. var.* Ejusdem Icones pictæ plantarum rariores, descriptionibus et observationibus illustratæ: fasc. 1, 2, 3. lat. & angl. fol. 1791, 92.—18, large beautiful coloured plates.
- Smith ic. med.* Ejusd. Plantarum icones hætenus ineditæ, plerumque ad plantas in herbario Linnaeano conservatas delineatæ. Fasc. 1. 1789. 2. 1790. 3. 1791. Lond. fol. tab. 25; cum descriptionibus in singulo fasciculo.
- Smith irrit.* Observations on the Irritability of Vegetables. Philos. trans. vol. 78. and Tracts relating to natural history. 1798. Also in French, Italian and German. By the same.
- Smith in Linn. trans.* Linnean Transactions.
- Smith spicil.* Ejusd. Spicilegium Botanicum. fasc. 1, 2. Lond. 1791, 92. fol. 24 coloured plates.
- Smith taur.* Sketch of a Tour on the Continent, in 1786 and 87. By the same. Lond. 1793. 8. 3 vols.
- Smith tracts.* Tracts relating to natural history. By the same. Lond. 1798. 8. Plates 7, of which 6 are coloured.
- Sole menth.* Menthae Britannicæ, being a new botanical arrangement of all the British Mints hitherto discovered. Bath, 1798. fol. Plates 21. By William Sole.
- Sonn. it. ind.* Voyage aux Indes Orientales et à la Chine, par M. Sonnerat, tomes 2. Par. 1782. 4.
- Sonn. it. nov. guin.* Voyage à la Nouvelle Guinée, par M. Sonnerat. Par. 1776. 4.
- Sowerby engl. bot.* See *Engl. bot.*
- Sowerby Fungi.* Coloured figures of English Fungi or Mushrooms. By James Sowerby. Lond. 1796. fol.
- Sparrm. voy.* A voyage to the Cape of Good Hope, &c. Lond. 1785. 4. 2 vols. By Anders Sparrman.
- Speechly anan.* A treatise on the culture of the Pine Apple, by William Speechly. York. 1779. 8.
- Speechly vitis.* A treatise on the culture of the Vine, by the same. York, 1790. 4.
- Staunton emb.* An authentic account of an Embassy from the King of Great Britain to the Emperor of China. By Sir George Staunton, Bart. F.R.S. Lond. 1797. 4. 2 vols. with 44 plates.
- Steckm. artem.* Dissertatio inaug. de Artemisiis, à Joan. Paulo Steckmann. Gott. 1775. 4.
- Steph. hort. oxon.* Catalogus horti medici Oxoniensis. Oxon. 1648. 8.—item Catal. horti medici Oxon. cura Philippi Stephani, M.D. et Gulielmi Brounei, A.M. adhibitis etiam in consilium D. Roberto patre, hortulano academico, ejusque Filio, utpote rei Herbariæ callentissimis. Oxon. 1658. 8.—item. The second part of the Catalogue of the Trees and Plants of the Physick Garden in the University of Oxford. Oxf. 1658. 8.
- Sterb. fung.* Franc. van Sterbeeck Theatrum Fungorum. Antv. 1675. 4.
- Stilling. misc.* Miscellaneous tracts relating to natural history, husbandry and physick, translated from the latin, with notes by Benjamin Stillingfleet. Lond. 1759. 8.—ed. 2. 1762. Plates 11.
- Stokes, Jonathan, M.D.* See *With. arr.*
- Surveys of Counties for the Board of Agriculture.*
- Sutherl. hort.* Hortus medicus Edinburgensis. Edinb. 1683. 8. By James Sutherland.
- Swartz descr.* Olof Swartz Floræ Indiæ Occidentalis aucta atque illustrata, five Descriptiones plantarum in Prodromo recensitarum: tom. 1. Erlangæ 1797. 8. tab. 15. tom. 2. 1798.
- Swartz ic.* Olof Swartz Icones plantarum incognitarum quas in India Occidentali detexit atque delineavit. fasc. 1. Erlangæ 1794. fol. tab. color. 6.
- Swartz obs.* Ejusdem Observationes Botanicæ, quibus plantæ Indiæ Occidentalis; aliæque Systematis vegetabilium ed. 14. illustrantur: Erl. 1791. 8. tab. 4.
- Swartz prodr.* Nova genera et species plantarum, seu Prodromus descriptionum vegetabilium, maximam partem incognitorum, quæ sub itinere in Indiam Occidentalem, annis 1783—87. digessit. Holm. 1788. 8.
- Swayne gram.* G. Swayne Gramina pascua; or a collection of specimens of the common pasture grasses. Bristol. 1790. fol.
- Sweert. floril.* Eman. Sweertii Florilegium. Francof. 1612. fol. tab. 67 et 43.
- Symes Ava.* An account of an Embassy to the kingdom of Ava in 1795. By Lieut. Col. Michael Symes. Lond. 1800. 4. Plates 27.
- Sym. syn.* Jelling Symons Synopsis plantarum insulis Britannicis indigenarum: Lond. 1798. 8.
- Tabern. hist.* Jac. Theod. Tabernæmontani Kreuterbuch. Bas. 1664. fol. Cum figuris ligno incis.
- Tabern. ic.* Ejusdem Eicones plantarum, curante Nic. Bassæo, Francof. 1590. 4. obl. Figuræ ligno incisæ, duæ in quavis pagina.
- Thal. herc.* Joan. Thalii Sylva Hercynia, f. catalogus plantarum sponte nascentium in montibus, et locis vicinis Hercyniæ: impr. cum Joach. Camerarii horto. Francof. 1588. 4.
- Theophr. hist.* Theophrasti Eresii de Historia Plantarum libri decem. Græce et Latine Theod. Gaza interprete; commentariis et rariores plantarum iconibus illustravit Joan. Bodæus a Stapel; acceperunt Jul. Cæs. Scaligeri animadversiones et Rob. Constantini annotationes. Amstel. 1644. fol. Cum figuris ligno incis.
- Thornt. illustr.* Temple of Flora, or Garden of Nature, illustrative of the Sexual System of Linnæus. Magnificent coloured plates. By Dr. Thornton.
- Threlk. syn.* Caleb Threlkeld Synopsis stirpium Hibernicarum. Dubl. 1727. 8.
- Thunb. aloc.* Car. Pet. (Carl Peter) Thunberg Dissertatio de Aloe. Upf. 1785. 4.
- Thunb. erica. f. mon.* Ejusdem Diff. de Erica Upf. 1770. 4. item, amoen. 8.—ed. altera, curante R. A. Salisbury. Featherstone 1800. 4.
- Thunb. fic. monogr. f. diff.* Ficus genus Diff. Upf. 1786. 4. ab eodem.
- Thunb. gard. f. diff.* Ejusdem Diff. de Gardenia. Upf. 1780. 4.
- Thunb. gladiol. f. diff.* Ejusd. Diff. Gladiolus. Upf. 1784. 4.
- Thunb. jap.* Ejusd. Flora Japonica. Lipf. 1784. 8. tab. 39.—v. Linn. trans. vol. 2. p. 326.
- Thunb. irif. f. diff.* Ejusd. Diff. Iris. Upf. 1782. 4.
- Thunb. ixia. f. diff.* Ejusd. Diff. Ixia. Upf. 1783. 4.
- Thunb. mor. f. diff.* Ejusd. Diffs. de Moræa Upf. 1787. 4.
- Thunb. myrist.* Ejusd. Diff. inaug. de Myristica. Upf. 1788. 4.
- Thunb. nov. gen.* Ejusd. Diff. Nova Plantarum genera. Pars 1—5. Upf. 1781—84. 4. Partes 6, 7, 8, 9. a me non visæ.
- Thunb. oxal. f. diff.* Ejusd. Diff. Oxalis. Upf. 1781. 4.
- Thunb. prodr.* Ejusd. Prodromus plantarum Capensium. Pars 1. Upf. 1794. 8.
- Till. pis.* Mich. Ang. Tilli Catalogus Plantarum horti Pisani. Flor. 1723. fol. tab. 50.
- Tourn. cor.* Jos. Piton Tournefort Corollarium institutionum rei herbariæ. Par. 1703. 4.

- Tourn. inst.* Ejusd. Institutiones rei herbariæ. Par. 1700. 4. Plates 476. of generic characters.
- Tourn. it. f. voy.* Relation d'un voyage du Levant; par le meme. Par. 1717. 4. 2 tomes.—Lyon 1717. 3 tomes 8.—Lond. 1741. 8. 3 vols. 8. Many plates.
- Tourn. par.* Histoire des plantes qui naissent aux environs de Paris. Par. 1698. 12.—ed. 2. par Bernard de Jussieu. Par. 1725. 12.—In English by John Martyn. Lond. 1732. 8. 2 vols. See *Mart. Tourn.*
- Towns. Spain.* A journey through Spain in 1786, 7. by Joseph Townsend. Lond. 1791. 8. 3 vols. with plates.
- Tradesc. mus.* See *Mus. tradesc.*
- Trag. herb.* Hieronymi Tragi (f. Bock) Kreuterbuch. Straßb. 1560, fol. ib. 1572. fol. tab. ligno incis. —item, Imagines herbarum, &c. in herbario Bockii Straßb. 1553. 4. tab. ligno incisæ.
- Transf. soc. arts.* Transactions of the Society of Arts, Manufactures and Commerce. Lond. 1783, &c. 8.
- Trew ebret.* Plantæ Selectæ, quarum imagines pinxit Geo. Dionys. Ehret, collegit et illustravit Christoph. Jac. Trew. Norimb. 1750—1773. fol. Tab. color. 100.
- Turn. herb.* A new Herball, by William Turner, M.D. Lond. 1551. fol.—ed. 2. part 1. Collen 1568. fol.—part 2. Collen 1562. fol.—part 3. Collen 1568. fol.—This is the first Herball of any note published by an Englishman.
- Turra farset.* Ant. Turra, Farsetia, novum genus. (Cheiranthus Farsetia) Ven. 1765. 4.
- Vahl. ecl.* Martini Vahl Eclogæ Americanæ, seu descriptiones plantarum, præsertim Americæ Meridionalis, nondum cognitæ. Fasc. 1. Havniæ 1796. fol. tab. 10. fasc. 2. 1798. tab. 10.
- Vahl. symb.* Ejusdem Symbolæ botanicæ, sive plantarum, tam earum, quas in itinere, imprimis orientali, collegit Petrus Forstkahl, quam aliarum, recentius detectarum, exactiores descriptiones, nec non observationes circa quasdam plantas dudum cognitæ. Pars 1. Havn. 1790. fol. 2. 1791, 3. 1794. tab. 75.
- Vaill. par.* Sebastiani Vaillant Botanicon Parisiense. Leide et Amst. 1726. fol. tab. 33.
- Vest. ægypt.* Joan. Vessingii de plantis Ægyptiis observationes et notæ ad Prosp. Alpinum, cum additamento aliarum ejusdem regionis. Pat. 1638. 4. cum fig. ligno incis. —item, in edit. altera Prosp. Alpini, hist. nat. Ægypti.
- Villars dauph.* Histoire des plantes de Dauphiné, par M. Villars. Grenoble 1786. vol. 1.—vol. 2. 1787.—vol. 3. 1789. tab. 55.
- Volck. norib.* Joh. Geo. Volckamer Flora Noribergensis. Norib. 1700. 4.
- Voss. etym.* Gerardi Joannis Vossii Etymologicon Linguae Latine Amstel. ap. Elz. 1662. fol.
- Wach. hort.* Everardi Jacobi van Wachendorff horti Ultrajectini Index. Traj. ad Rhen. 1747. 8.
- Wade cat.* Gualteri Wade, M.D. Catalogus systematicus plantarum indigenarum in Comitatu Dublinensi inventarum. Dubl. 1794. 8.
- Walc. brit.* Flora Britannica indigena, or plates of the indigenous plants of Great Britain. Bath, 1773. 8. Plates 168.
- Wallis northumb.* The Natural History and Antiquities of Northumberland. Lond. 1769. 4.
- Walt. carol.* Thomæ Walter Flora Caroliniana. Lond. 1783. 8.
- Walzh. hort.* Designatio plantarum quas Hortus Augusti. Friderici Waltheri, Pathologiæ Professoris Lipsiensis complectitur. Accedunt novæ plantarum icones. Lipsi. 1735. 8. tab. 24.
- Wangenb. amer.* Friedr. Adam Jul. von Wangenheim Beytrag zur teutschen holzgerechten forstwissenschaft, die anpflanzung Nordamericanischer holzarten, &c. Gott. 1787. fol. tab. 31.
- Warn. woodf.* Plantæ Woodfordienses, a catalogue of the more perfect plants growing spontaneously about Woodford in the county of Essex. Lond. 1771. 8. By Richard Warner.
- Weber dec.* Geo. Henr. Weber Plantarum minus cognitæ decuria. Kiloniæ 1784. 4.
- Weber spicil.* Ejusdem Spicilegium Floræ Goettingensis. Gothæ 1778. 8. tab. color. 5.
- Weig. pomer.* Christian. Ehrenfried Weigel Flora Pomerano-Rugica. Berol. 1769. 8.
- Weinm. phytanth.* Joh. Wilhelm Weinmann Phytanthozaiconographia, Regenspurg 1737.—45. fol. tab. 1025.
- Weiss crypt.* Frider. Guilielm. Weiss Plantæ Cryptogamicæ Floræ Gottingensis. Gotting. 1770. 8.
- Wepf. cicut.* Joh. Jac. Wepferi Cicutæ aquaticæ historia et noxæ. Bas. 1679. 4.—item, Lugdb. 1738. 8.
- West.* H. in Vahl. ecl.
- Weston bot.* The universal botanist and nurseryman. By Richard Weston. Lond. 1770—77. 8. Four vols.
- Weston flor.* The English Flora, or a Catalogue of trees, &c. natives as well as exotics, cultivated in the English nurseries, greenhouses and stoves. Lond. 1775. 8.—Suppl. 1780.
- Wheler itin.* A journey into Greece, by George Wheler. Lond. 1682. fol.
- White selb.* The natural history and antiquities of Selborne, in the county of Southampton. Lond. 1789. 4. Plates 9. By Gilbert White.
- White voy.* Journal of a Voyage to New South Wales. Lond. 1790. 4. Plates 65. By John White, Esq.
- Wigg. primit.* F. H. Wiggers Primitiæ Floræ Holsaticæ. Kilæ 1780. 8.
- Willd. amaranth.* Car. Lud. (Carl Ludwig) Willdenow Historia Amaranthorum. Turici 1790. fol. tab. color. 12.
- Willd. arb.* Ejusd. Berlinische Baumzucht. Berl. 1796. 8.
- Willd. spec.* Car. a Linné Species Plantarum adjectis vegetabilibus hucusque cognitis, curante Carolo Ludovico Willdenow. Berol. 1797, &c. 8.
- Willich illustr.* Christiani Ludov. Willich Illustrationes quædam Botanicae. Gott. 1766. 8.
- Willich obs.* Ejusdem de Plantis quibusdam Observationes. Gott. 1762. 8.—Adfunt etiam in Reichardi Sylloge opusculorum botanicorum.
- Wilson syn.* A Synopsis of the British Plants, in Mr. Ray's method, by John Wilson. Newc. 1744. 8.
- Wither. arr.* A botanical arrangement of British Plants: ed. 2. Birm. 1787—92. 8. Ed. 3. Birm. 1796. 8. Four volumes.
- Wither. foxgl.* An account of the Foxglove, and some of its medical uses. Birming. 1785. 8.
- Woodv. med. bot.* Medical Botany, containing descriptions with plates of all the medicinal plants, comprehended in the catalogues of the Materia Medica, as published by the Royal College of Physicians of London and Edinburgh. By William Woodville, M.D. Lond. 4. 1790, 92 and 93. three vols. Plates coloured or uncoloured.
- Woodw. MSS.* Descriptions of English Plants in manuscript, by Thomas Jenkinson Woodward, Esq. Communicated by him to the Editor. Many of them are inserted in Withering's Arrangements. There are several dissertations on plants of the class Cryptogamia, in which this gentleman is eminently skilled, inserted in the Transactions of the Linnean Society.
- Worlidge agr.* Systema Agriculturæ. The mystery of Husbandry discovered by J. W. Gent. ed. 4. 1687. fol. Frontispiece and another plate by Van Hove: pages 226.
- Wulfen in Jacqu. misc.*
- Young ann.* Annals of Agriculture and other useful arts, by Arthur Young, Esq. Bury St. Edmund's, 1790, &c. 8. 44 volumes.
- Young cal.* The Farmer's Calendar, by the same. Lond. 1804. 8.
- Young east. tour.* The Farmer's tour through the East of England, by the Same. Lond. 1771. 8. 4 vols.
- Young irel.* A tour in Ireland. By the Same. Lond. 1780. 8. 2 vols.
- Young north.* A six month's tour through the north of England. By the Same. Lond. 1771. 8. 4 vols.
- Young South.* A six weeks tour through the Southern counties of England and Wales: ed 2. 1772. 8.
- Zanich. opusc.* Joh. Hieron. Zanichelli Opuscula botanica posthuma: edita a Joh. Jac. filio. Ven. 1730. 4.
- Zanon. hist.* Giacomo Zanon I storia Botanica. Bologna, 1675. fol. tab. 80.—item, Latine. Bon. 1742. fol. tab. 185.
- Zinn. gott.* Johann. Gottfried Zinn Catalogus plantarum horti academici et agri Gottingensis. Gott. 1757. 8.

LIST OF AUTHORS, PRINCIPALLY ENGLISH,

WHO HAVE WRITTEN ON GARDENING OR HUSBANDRY: ARRANGED IN A CHRONOLOGICAL ORDER.

1478. CRESCENZIO.

AGRICULTURA di Crescenzo. 1478. 4. Flor. H. My copy is entitled—Pietro Crescentio d'Agricoltura. In Venetia MDXLII. 8. Not paged: 46 sheets, besides the table of contents at the end, where it is said—*Stampato in Vinegia, per Bernardino Bindoni, nel Anno MDXXXII.* There are many editions of this much esteemed book.

1528. MARINO.

Palladius de Re Rustica, translated into Italian by Pier Marino. 1528. H.

1534. FITZHERBERD.

The book of husbandry, imprinted at London, in Fleetstreet in the house of Thomas Berthelet, near the conduit, at the sign of Lucrece (cum privilegio) 1534. Small Octavo. *Harte's Essay* 2. p. 76. This is probably a wrong date for the book; the wooden device only being thus dated.

Fitzherbert's second work in husbandry, entitled Surveying, or the Book of Surveying and Improvements. Small octavo, containing 120 pages, imprinted for Berthelet, in a black letter. S. B. in his Epitome of Husbandry, 1669. 12. has transcribed from this author 181 pages, almost verbatim, without acknowledgement. These scarce treatises of Fitzherbert, were reprinted in 1769. *W. from Harte's first Essay*, p. 42. and 2. p. 78. Mr. Harte, in his list of Writers, ascribes the year 1534 to the Surveying, and 1539 to the Art of Husbandry: but that must be a mistake. I believe that Fitzherbert's Boke of Husbandrye, with the Boke intituled Surveyence, printed by Berthelet, was also published in 1546.

My copy is entitled—The booke of Husbandrye, very profitable and necessary for al maner of persons. Made first by the auctor Fitzherberd, and now lately corrected and amended, wyth divers addicions put thereunto. Anno do. MDLXII. Imprinted at London by John Awdely, dwelling in lyttle Brittainestreete by great St. Bartelmewes. Small 8vo. Black letter. Fol. lxxvi. besides the title, prologue and table.

Judge Fitzherberd is known among the Lawyers, as author of a work entitled *Natura Brevium*. He was born at Norbury in Derbyshire, and probably was buried there. He was made judge of the Common-pleas in the 15th of Henry VIII. H. 2. 77.

1550. GALLO.

Agostino Gallo Vinti Giornate dell Agricoltura. 4. H.—Reprinted in 1757. H.

1554. STEPHENS.

Caroli Stephani Prædium Rusticum. Lut. 1554 et 1629. 8. This contains several treatises published before between 1536 and 1548.

1557. HERVET.

Xenophon's Treatise of Household. Anno M.D.LVII.—Ryght connynglye translated out of the Greke tonge into Englishe, by Gentian Hervet, at the desyre of maister Greffrey Pole.—Imprinted at London in Paules Churchyard at the signe of the Lambe by Abraham Vele. Black letter fol. LXIIII.

1558. BELON.

Les remontrances sur le default du labour et culture des plantes, et de la cognoissance d'icelles, contenant la maniere d'affranchir et apprivoiser les arbres sauvages. Par. 1558. 8.—In Latin by Clusius. Antv. 1589. 8. and in Exoticis Clusii. B.

1560. MIZALDUS.

Antonii Mizaldi Secretorum agri Enchiridion primum, hortorum curam complectens. Lut. 1560. 8.

1562. TUSSEY.

Five hundred points of Husbandry. By Thomas Tusser. Lond. 1562. 4. Black Letter, in quatrains or stanzas of four verses. *W.*—There are many editions, as 1573. B. 1580. 1586. 1592. 1597. 1604. 1638. 1651. 1672. Tusser redivivus, published monthly with a comment, 1710. 8. Reprinted 1744. 8.

1565. STEPHENS.

Charles Etienne et Jean Liebault: L'Agriculture et Maison Rustique Rouen 1625. 4. B. Anvers 1565—1617. H.

1571. DYDYMUS MOUNTAIN.

The Gardeners Labyrinth, Containing a discourse of the Gardeners life, in the yearly travels to be bestowed on his plot of earth, for the use of a Garden. Gathered out of the best approved writers of Gardening, Husbandrie, and Physicke: by Dydymus Mountain. By Bynneman, black letter, 4. 1571. *W.* 1577. B.—1608. 4. and 1652. fol. *W.* My copy is London printed by Adam Illip. 1594. 4. Dedicated to Lord Burghley by Henrie Dethicke. In two parts, pages 80, and 180, black letter, besides the tables at the beginning and end in roman letter. Engravings in the title page, at the beginning of the book, at the head of several chapters, and four plates of herbs, knots and mazes, cunningly handled for the beautifying of Gardens.

It appears by the Dedication, that the Editor had plighted his promise to his friend, then lately entered, to perfect this English treatise.

His list of tender herbs and pleasant flowers contains Marjoram, Savoury, herb Fluellin, Buglofs, the Blessed Thistle, Angelica, Valerian, Balme, Annis, Dill, Fennell, Organy, Mintes, Rue or herb Grace, Sperage, Arache, Spinache, Beetes, Endive, Borage, Rochet, Taragon, Parsley, Sorrell, Endive, Strawberry, Lettuce, Artichoke, Marigold, Rose Campion red and white, flower Armoure, flower Petilius, Columbine white and blew, Sweet Johns, Pink, Heart's-ease, Pionie, red Lillie, herb Sticas or Lavender gentle, Batchelors button, Gilliflower, Carnation.

The Gardeners Labyrinth, is compiled and translated chiefly from latin writers; or as the author says, "the instructions and rare secretes are part borrowed out of the worthie workes and treasures of the Greeke and Latin professors of husbandrie, and part purchased by friendship and earnest sute, of the skilfull observers and wittie searchers in our time of laudable secrets in Garden matters."

1572. MASCALL.

A Booke of the Arte and manner how to Plant and Graffe all sorts of Trees, how to sette Stones and sow Pepins, to make wild Trees to graffe on, as also remedies and medicins. With divers other new practises, by one of the Abbey of S. Vincent in Fraunce, practised with his owne hands: divided into vii chapters, as hereafter more plainly shall appeare, with an addition to the ende of this book, of certaine Dutch practises, set forth & Englished, by Leonard Mascall. London 1572. 4. pages 90, wooden cut one. B. Other editions are 1575. 1582. 1592. 1652. 4. Black letter.

My copy is of 1592, and is Imprinted at London by T. East, for Thomas Wight, pages 84, besides table and index. Dedicated to Sir John Paulet Knight Lord St. John. In his Epistle to the gentle reader, he gives him to understand, that he has taken out of divers Authors this simple work into our English tongue. One Plate, and several vignettes in wood. He also published—The Government of Cattell. Lond. 1627. and 1638. 4. Black letter pages 307. *W.* and B. And—The Countryman's Jewell, in three books, 1630. 8. *W.*

1574. HYLL.

The profitable Arte of Gardening: to which is added much necessarie matter, and a number of secrets, with the Physicke helps belonging to each hearbe, and that easily prepared. To this is annexed two proper Treatises, the one entitled The marvailous government, propertie and benefite of Bees, with the rare secretes of the honnie and waxe. And the other, The yerely conjectures meete for Husbandmen. To these is likewise added a Treatise of the Arte of Graffing and Planting of trees. Gathered by Thomas Hyll, Citizen of London. London 1574. 4. pages 134 and 87.—1579. 4. pages 152 and 92. B. 1593. 4. All in black letter. There is also an edition dated 1586, without Hyll's name, said to be the third time set forth, and printed by Robert Waldegrave. *W.*

Of the last edition 1593 I have two copies. It is imprinted by Edward Allde. Pages 164, with a view of a garden and three mazes or knots.—Subjoined to this is a profitable instruction

tion of the perfect ordering of Bees: and certain Husbandly conjectures of dearth and plenty, and other matters meet for husbandmen to know. By Thomas Hill Londoner. Imprinted at London by Edward Alde. 1593. pages 92. Black letter.

The first treatise is dedicated to Sir Henrie Seamer Knight. In the Preface he informs us, that he has "set forth this treatise, now the third time increased, to which he has added such profitable and pleasant matter as he found written in the Italian or Latine tongue, that intreated of this art. Besides sundrie pleasant secrets, and the necessarie commodities, which most of the hearbs serve unto in the use of physick."

The second treatise on Bees is dedicated to the worshipfull Maister M. Gentleman.—To this are annexed—Certaine Husbandly conjectures of dearth and plenty for ever.

These treatises, like the other books of this time, contain little or no original matter, but are chiefly compiled from the ancients, or Corn. Agrippa, Cardan and others. Hyll or Hill, for his name is spelt both ways in his own book, has given lists of the Authors out of which his works are gathered.

1574. SCOT.

A Perfite platforme of a Hoppe Garden, and necessarie Instructions for the making and mayntenance thereof, with notes and rules for reformation of all abuses, commonly practised therein, very necessarie and expedient for all men to have, which in any wise have to doe with Hops. By Reynolde Scot. London 1574. 4. pages 56. B. 1576. 4. pages 63.—1578. 4. pages 63. B. All in black letter with wooden cuts.

My copy is that of 1576, said to be "Nowe newly corrected and augmented. Imprinted at London by Henrie Denham, dwelling in Pater noster Rowe, at the signe of the Starre."

Dedicated to the Right worshipfull Maister Willyam Lovelace, Esquire, Serjeant at the Lawe.

The author was a gentleman, the younger son of Sir John Scot, of Scot's-Hall near Smeeth in Kent, and was educated at Oxford. His was the first treatise upon Hops, and is much more original than the generality of books published in his time.—In the Epilogue he says—"Thus have I, accordyng to my small skylle and experience, according to my friendes desire, and according to the truth, uttered these fewe notes concernyng the making and mayntenance of an Hoppe garden, that which remayneth more to be sayde thereof, resteth in the skill of skilfuller persons, and is at this time either without the compassse of my knowledge, or beyonde the reache of my memorie."

He complains much of mens unwillingness to cultivate Hops, and of their buying them at Poppering (in Flanders) rather than have them at home with more ease and less charge.

Reynolde Scot was author of a Discovry of Witchcraft. 1561. 4. pages 401. In which he seems first, at least in England, to have detected publickly the absurd pretences of it. W.

1578. GOOGE.

Four Bookes of Husbandrie, collected by M. Conradus Herebachius, counsellor to the high and mightie Prince, the Duke of Cleve: containing the whole art and trade of Husbandrie, Gardening, Graffing, and planting, with the antiquitie and commendation thereof. Newly Englished, and increased by Barnabe Googe Esquire. At London. Printed for John Wight. Black Letter, 4. 1578. W.

My copy is dated 1586. At the back of the title page are the armorial bearings of Barnabe Googe, with the motto—*Post tristia leta*. At the end is a wooden cut of the printer, with a motto round it—"Welcom the Wight, that bringeth such Light."—Underneath is, "Imprinted at London for John Wight, dwelling in Paules Church-yard, at the great North doore of Paules. Anno Domini 1586." Leaves 194. besides the Dedication, Epistle and Table at the beginning; and Olde English rules in verse, for purchasing Lande, at the end.

The Dedication, to the Right Worshipfull, his very good Freend, Syr William Fitz Williams, Knight, is dated from Kingstone, the first of Februarie. 1577.

This work is translated from the Latin of Conrad Herebach, a German, who published it at Cologne in 1573. It is entitled, *Rei rustice libri 4*; and was reprinted at Spire in 1594. 8.

In the Epistle to the Reader Googe observes, that though he has altered and increased the original work with his own readings and observations, joined with the experience of sundry his friends, he does not think it reason to take from him (as divers in the like case have done) the honour and glory of his own travail.

He gives the reverence and honour due to his predecessors, Fitzherbert and Tuffer, whose works may in his fancy, without any presumption, compare with any their Varro, Columella, or Palladius of Rome.

His authorities extend from the Bible and Doctors of the Church, through the Greek and Roman writers, Homer, Cato, &c. to the Moderns as low as Ruellius, Fuchsius, Matthiolus, Cardanus and Tragus. He subjoins a list of his friends and others, who assisted him. S. Nich. Malbee. M. Cap. Byng ham. M. John Somer. M. Nicus. Yetzwert. M. Fitzherbert. M. Willi. Lambert. M. Tuffer. M. Tho. Whetenhall. M. Ri. Deering. M. Hen Brockhull. M. Franklin, H. King. Richard Andrewes. Henry Denys. William Pratte.

John Hathe. Phillip Partridge. Kenworth Darforth.

The work is in dialogue. The persons are, Cono a Gentleman retired into the country. Rigo a Courtier. Metella Wife of Cono; and Hermes a Servant.

Googe the translator was of Albingham or Alvingham in Lincolnshire, and grandfather to Barnaby Googe esq. who lived there in 1634. H. 2. 32.

Gervase Markham reprinted this work in 1614. 4. with insertions; intended chiefly to adapt German husbandry to the English climate. H. Leaves 183. B. cat. 1. 298. I have a copy of this edition, it is in black letter, and seems to be printed verbatim from the others.

1592.

A Short Instruction very profitable and necessary, for al those that delight in gardening, to know the time and season when it is good to sow and replant all manner of Seedes. Whereunto is annexed divers plots both for planting and grafting, for the better ease of the Gardener. Translated out of French into English. London Printed by John Wolfe, and are to be sold at his shop over against the great South doore of Paules. 1592. 4. Black letter, 8 pages, with 15 wooden cuts, mostly the same as in the Gardeners Labyrinth.

1592. BUSSALÒ.

Giardino di Agricoltura, di Marco Buffalo. Ven. 1592. 4. 1593. SOUTHERN.

A Treatise concerning the right use and ordering of Bees, Newly made and set forth, according to the Author's own experience. By Edmund Southern Gent. Imprinted at London by Thomas Orwin, for Thomas Woodcock, dwelling in Pauls Church-yard, at the sign of the black Bear. 1593.

1593. PLATT.

Dyvers Soyles for manuring pasture and Arable land. By Sir Hugh Platt. 1593. 4. W.

1594. PLAT.

The Jewel-house of Art and Nature, Conteyning divers rare and profitable Inventions, together with sundry new experiments in the Art of Husbandry, Distillation and Moulding. Faithfully and familiarly set downe, according to the Authors owne experience, by Hugh Platte, of Lincolnes Inne Gentleman. London, Printed by Peter Short dwelling on Breadstreet hill, at the signe of the Star, and are to be solde in Paules Churchyard. 1594. 4. 96 pages.

Diverse new sorts of Soyle not yet brought into any publique use, for manuring both of pasture and arable ground, with sundrie conceived practices belonging thereunto. Faithfully and familiarly set down by H. Plat of Lincolnes Inne Gent. London Printed by Peter Short. 1594. 60 pages.

This is the treatise set down by Mr. Weston for the year 1593.—He has mistaken the Author, in ascribing the Jewel-house to Gabriel Plattes. The book is in my possession, and I have it now before me.

Divers Chinnicall Conclusions concerning the Art of Distillation. With many rare practices and uses thereof, according to the Authors own experience. Faithfully and familiarly set downe by H. Plat of Lincolnes Inne Gent. London Printed by Peter Short. 1594.—76 pages.

These three treatises are bound together and make one work under the title of the Jewel-house of Art and Nature. It is dedicated to Robert Devorax Earle of Essex, &c.

The first book contains 103 diverse new and conceited Experiments, as the Author calls them.

The second treats of manures, particularly marl, and salts; also clay, street dirt, moorish earth, fern, hair, calcined vegetables, malt-dust, earth of rotten trees, soap-boilers ashes, pilchards and garbage of fish, blood and offals of beasts. He gives directions for making composts, and recommends a brick receptacle for dung, to be covered over that it may be kept from air and rain.

Distillation, which is the subject of the third book, seems to have made a part of all treatises in Husbandry, as well as Medicine. It concludes with the art of molding and casting; and with an offer of certain new inventions, which the Author will be ready to disclose upon reasonable considerations, to such as shall be willing to entertain them, or to procure some privilege for them.

These are first, a new kind of Fire: which appears to be the Liege balls, made of coal-dust and clay, worked up together; a project which has been lately revived. 2. A vessel of wood to brew or boil in: for which it seems the author had been much ridiculed, he therefore offers for a competent wager to make a public shew of his vessel before any indifferent judges, and refers to the proofes in his Apologie, published An. 1593. which I have not seen, and may perhaps be in the treatise mentioned by Mr. Weston. 3. A boulting Hutch, which by the figure much resembles one that I have lately seen. 4. A portable pump, of which there is also a figure. 5. A wholesome, lasting, and fresh victuall for the Navie: with an Engin for the making of this victuall. 6. A spedie way for the inning of any breach; by which he thinks he could in one month shut up the great breach at Earith. 7. A light garment and yet sufficient against all rainie weather. 8. A new conceit in Peter (salt petre) works.

He mentions his "conceyted booke of gardenyng, wherein he has set down sundrie observations, which neither M. Tuffer though hee have written sharply, nor Master Hill though he have written painfully, nor Master Barnabé Googe though he have written foundlye, applying himselfe in his whole discourse both to our soyle and Clymate, hath as yet discovered to the world."—By this I presume he means his *Paradise of Flora*, published in 1600. The name of which was changed to that of *the Garden of Eden* by Bellingham:

The Jewel-house of Art and Nature, was republished in 1653. 4. by Dr. Beati, commonly called in England Dr. Boat. *W.*

The Garden of Eden. Or, an accurate Description of all Flowers and Fruits now growing in England; with particular Rules how to advance their Nature and Growth, as well in Seeds and Hearbs, as the secret ordering of Trees and Plants. By that learned and great Observer, Sir Hugh Plat, Knight. The Fifth Edition. London, Printed for William Leake; at the Crown in Fleetstreet betwixt the two Temple Gates. 1660. Small Octavo. Pages 175.—Published by Charles Bellingham, nearly allied to the Author. Dedicated to the Honourable and most perfect Gentleman, Francis Finch junior, of the Inner Temple, Esquire.

The Second part of the Garden of Eden, &c. Never before printed. London, for William Leak; &c. 1660. pages 159. Published with the other.

Mr. Harte says (Essays 2. 112.) that the first part is the same with *Flora's Paradise*, and that Bellingham only changed the title.

Mr. Weston mentions an edition in 1658.

Whatever in this book is derived from any other person, has the discoverer's name to it; as Mr. Andr. Hill, Mr. Taverner, Mr. Pointer of Twickenham, M. Colborne, M. Melinus, M. Simson; and sometimes only initials, as T. T. A. P. &c. Whatever is his own, has no name, or else the initials H. P. at the end of the paragraph.

This publication was posthumous; and had run through four editions previous to this, in less than six years. I have seen only the fifth.

Mr. Bellingham says that Sir Hugh Plat "wrote other pieces of Natural Philosophy, whereunto he subjoined an excellent Abstract of Cornelius Agrippa de Occulta Philosophia; but they fell into ill hands, and worse times."

Hartlib, in his Compleat Husbandman (p. 6.) says, "there is a Book long since Printed, made by Sir Hugh Plattes, (the most curious man of his time,) called *Adams Art revived*, wherein is shewed the great benefit which would accrue to this Nation, if all land which were fit to be digg'd, were so ordered, and their corn set." Worlidge entitles it "Adams Tool revived, or the new art of Setting corn, printed in the year 1600, where he doth very ingeniously describe not only the way, but the great advantage that accrues by this then new discovery"—of setting corn.—In p. 20, that "his *Closet for Ladies* discloseth many secrets of making wines from our fruits." And in p. 74. that "in his writings he setteth down divers ingenious ways of fattening poultry," &c. This he has done in his *Jewel-house*, § 7. The other treatises which Hartlib mentions I have not seen.

Sir Hugh Platt, says Mr. Weston, spent part of his time at Copt-hall in Essex, or at Bishop's-hall in Middlesex, at each of which places he had a country seat; but his town residence was Lincoln's Inn. In the *Jewel House of Art and Nature* he is named Hugh Platte or Plat (for it is spelt both ways) of Lincolnes Inne Gentleman. By the same book it appears that he then (1594) lived at Bishops hall. (2. p. 52) and that he had an estate near St. Albans. (2. p. 34.)

He does not inform us what profession he was of, only that it was alien from the studies of husbandry and gardening. But I believe he was a Lawyer. He must have had a numerous family, for he informs us that six of his children died of the worms. (2. p. 17.)

It appears from his *Garden of Eden*, (p. 96.) that he was living in the year 1606; and that he had a Garden in St. Martin's-lane, (part 2. p. 49.)

1595. WARD.

Secretes of the reverend Maister Alexis of Piemont, translated out of Frenche into Englishe, by William Ward. Imprinted at London by Peter Short, for Thomas Wight. 1595. 4.

Wecher translated it from the original Italian into Latin; and it has often been rendered into French. The greater part of this book is confined to Physick; but the Husbandman may find some useful hints in it. *W.*

1597. LAWSON.

A New Orchard and Garden. By William Lawson. 4. 1597.—Another edition in 1623. *W.*—Printed with Markham's Way to get Wealth, 1648. and 1660. In this edition the whole title is—A new Orchard and Garden: or the best way for Planting, Graffing, and to make any Ground good for a rich Orchard: Particularly, in the North, and generally for the whole Commonwealth;—with the Country Hous-wifes Garden for Herbs of common use: their Virtues, Seasons, Profits, Ornaments;

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variety of Knots, Models for Trees, and Plots, for the best ordering of Grounds and Walks. As also the Husbandry of Bees, with their several Uses and Annoyances: All being the Experience of forty and eight years labour, and now the third time corrected, and much enlarged. By William Lawson. Whereunto is newly added, the Art of Propagating Plants, with the true Ordering of all manner of Fruits, in their Gathering, Carrying home, and Preservation. London. Printed by William Wilson, for George Sawbridge, at the Bible on Ludgate-hill, near Fleet-bridg. 1665. 4. 92 pages. Followed by—A most profitable new Treatise, from approved Experience, of the Art of Propagating Plants. By Simon Harward. 20 pages. Dedicated to Sir Henry Belloses, Knight and Baronet.

He professes to write wholly from experience, and not to delight in curious conceits, as Planting and Graffing with the roots upwards, inoculating Roses on Thorns, and such like.

1599. GARDINER.

Gardiners Kitchin-Garden. 1599. *Plat's Garden of Eden*, p. 66.

1600. PLAT.

The Paradise of Flora:—and The new and admirable Arte of Setting of Corne. 4. By Hugh Plat Esq. Imprinted at London by Peter Short, at the signe of the Starre on Breadstreet hill. 1600. 16 leaves not paged. Signed at the end H. Plat Esquire. See 1594. Plat.

1600. SERRES.

Theatre d'Agriculture, par De Serres; fol. 1600: Dedié a Henri IV. pag. 985. *H.*

1600. SURFLET.

The Countrie Farme; also a collection of hunting the hart, boare; hare, fox, grey doney, of birds and faulconrie; with cuts, printed by Bollifant; translated from the *Maison Rustique* of Charles Etienne. *W.* See 1554 and 1565. Stephens.

Again in 1606. 4.—1616: 3rd. edit. fol.

1604.

The Fruiterers secrets.

1606. MAXIE.

A Treatise on Drilling Corn, by Maffie or Maxie. 1606. 4. *W.*—1600. *H.*

1607. GEFTE.

The perfect use of Silkworms, englished by Nicholas Geffe. 1607. 4. *W.*

1607. NORDEN.

The Surveyor's Dialogue, by that eminent antiquarian Sir John Norden, 1607. 4. black letter—1618—1738. *W.*

1608.

Flora's Paradise beautified.

1609. W. S.

W. S. on Mulberries; sold in Paul's Chuttyard by Eleaz. Edgar.

1609. BUTLER.

The feminine Monarchie or the histori of Bees. By Butler 1609. 4. again 1637. *W.*

Oxford 1634. 4. pag. 182.—item *Monarchia fœminina*, five Apum historia, interprete R. Richardson. Londini, 1673. 8: pag. 199.—Charles Butler was a Clergyman. Born 1560. Died 1647. B.

1612. R. C.

An old thrift newly revived, by R. C. of planting and preserving of timber and fewel, by R. C. 1612. 4: in four parts. *W.*

1613. STANDISH.

Directions for the planting of timber and fire-wood. By Arthur Standish. 1613. *W.*

1616. RATHBONE. *W.*

The Surveyor, by Aaron Rathbone, in 4 books, fol. *W.*

1623. MARKHAM.

The country Housewifes Garden, by Gervase Markham. 1623. 4:—1626.

He appears, says Mr. Harte (Essays, 2. 32.) to be the first Englishman who deserves to be called a *hackney-writer*. All subjects seem to have been alike easy to him. His thefts were innumerable, but he has now and then stolen some very good things, and preserved their memory from perishing.

1629. PARKINSON.

Paradisi in Sole Paradisus Terrestris, or A Garden of all sort of pleasant flowers which our English ayre will permitt to be nourshed up: with a Kitchen garden of all manner of herbes, rootes, and fruites, for meate or sause used with us, and an Orchard of all sorte of fruitbearing Trees and shrubbes fit for our Land together with the right orderinge planting and preserving of them and their uses and vertues. Collected by John Parkinson Apothecary of London. 1629. fol. Printed by Humfrey Lownes and Robert Young at the signe of the Starre on Breadstreet hill. This is an engraved title page by Switzer, and represents the Garden of Eden. Pages 612, with 109 wooden cuts of flowers and fruits, and a portrait of the Author. Dedicated to the Queen.

This is the first Gardening book worth mentioning, and considering what had been done before, must be allowed to have great merit.

The state of our Gardens at the beginning of the seventeenth century may be judged of from his lists of flowers, fruits, trees and shrubs then cultivated.

He enumerates, 94 Narcissuses, 50 Hyacinths, 31 Crocuses, 70 Irises, 10 Cyclamens, 66 Anemonies, and 20 Ranunculuses. It appears that raising Anemonies from seed was not then familiarly known in England. He has 19 Carnations and 30 Gilliflowers.—The Laurel, then called the Bay Cherry, was a great rarity, and supposed to require protection in winter.—The double yellow Rose was a curiosity.—Melons were then only beginning to be cultivated. He directs them to be planted on a bank sloping to the south, raised with stable dung three feet deep: covering them occasionally with straw. Some used great hollow glasses like unto bell heads. The usual manner of eating them was with pepper and salt, and drowning them with wine.—Gardeners were then beginning to have their own feeds. Asparagus was found to be “a delectable fallet-herbe,” whose younger shootes, when a good handfull high above the ground, were cut an inch within the ground, and being “boyled, were eaten with a little vinegar and butter, as a fallet of great delight.” Colliflowers were then to be had in this country very seldom.—Rhapontic, Sellery, and Finochia were great rarities.—Three sorts of Potatoe are mentioned—the Spanish—the Virginia, our common short, then rare—and the Canada, our Jerusalem Artichoke, then in vulgar use.—Garden Beans served more for the use of the poor than the rich, and Kidney Beans were oftener at rich men’s tables.—Pickled cowcumbers that came from beyond sea were much used for sauce. Some had striven to equal them here, but they were nothing comparable to the Danticke kind.

The Larch was rare and nursed up but with a few, and those only lovers of rarities. Bladder Nut, Myrtle-leaved and Virginia-Sumach are spoken of as curiosities.

His catalogue of Fruits contains the Raspis white and red. Currans red, white and black. Gooseberries, red of three sorts, blew and green. Barberries, the common sort: a large variety he had not seen, and doubted the existence of those without stones. Filberd, common. Grapes twenty-three sorts. Figge three sorts. Service two sorts. Medlar three sorts. Lote or Nettle-tree three sorts. Cornel-tree or Cornelian Cherry. Cherry thirty six sorts. Plumme sixty one sorts. Apricocke six sorts. Peach twenty one sorts. Neflorin five sorts. Almond. Orange. Apple fifty eight sorts. Quince six sorts. Pear sixty four sorts. Walnut. Horse Chestnut. Mulberrie, black, white, Virginia. The true, sweet Chestnut is left, he says, to the woods, whilst the Horse Chestnut is nursed up from nuts sent us from Turkey. So little was the fruit known in Parkinson’s days, that he says it was roasted and eaten as the ordinary sort.

It will give some pleasure to the reader to meet with many respectable persons mentioned, who introduced curious and useful plants, and contributed to improve the cultivation of them: as John Tradescant, John Goodier of Maple-Durham in Hampshire. Guillaume Boel, a very curious and cunning searcher of simples. Mr. William Coys of Stubbers by North Oxendon in Essex. Mrs. Thomasin Tunstall of Bull-bank near Hornsby Castle. Mr. Brian Ball, apothecary at Coventry. Mr. Nicholas Lete, a worthy merchant, and a lover of all faire flowers. Mr. John de Franqueville. Mr. Francis le Veau, the honestest root-gatherer that ever came over to us. Mr. Doctor Flud, one of the Physicians of the Colledge in London. Vincent Sion born in Flanders, dwelling on the Banke side, an industrious and worthy lover of faire flowers. Mr. George Wilmer of Stratford Bowe, Esq. Richard Barnesley of Lambeth. Mr. Humfrey Packington of Harvington in Worcestershire, Esq. Mr. Dr. John More. Master James Cole a merchant of London and great lover of all rarities, living at Highgate. Master Morgan apothecary to the late Queen Elisabeth, who had a garden at Batterley. Mr. Doctor Matthew Lister, one of the King’s physicians. Master John Miller in Olde streete. Mr. William Ward, the King’s servant in his granary, who had a country house at Boram in Essex.

1631. DIGGES.

Tetonicon, or a Treatise of Surveying, with cuts. 4. black letter, 1631. By Leonard Digges. *W.*

The Shepherds Calendar, wooden cuts, black letter. fol. 1631. *W.*

1631. AUSTEN.

Observations on Sir Francis Bacon’s Natural History, so far as it concernes Fruit-trees. By Francis Austen, 1631. 4. *W.*

1631. MARKHAM.

Farewell to Husbandry, by Gervase Markham, 1631. 4. *W.*—He also reprinted this year, the Whole art of Husbandry, by Googe. Black letter. 4. *W.*

1633. FERRARIUS.

Jo. Bapt. Ferrarii Flora, seu de Florum Cultura, libri 4. Romæ 1633. 4. Pag. 522. cum tab. æn.—item, ed. nova, accurate Berhh. Rottendorffio. Amstel. 1646. 4.—item, Flora, overo cultura di fiori, trasportata dalla lingua latina nelli Italiana, da Lod. Aureli. Roma, 1638. 4. Pag. 520. cum tab. æn. B.—item Hesperides, five de Italarum Aureorum (Oranges) cultura et usu libri 4. Romæ 1646. fol. pag. 480. cum fig. æri incisis.

1633. PLATTES.

Observations on Husbandry, with twenty experiments. By Gabriel Plattes. 1633. 4. *H.* Probably this date is a mistake for 1653. See 1638.

1634. LEVET.

The ordering of Bees, by J. Levet. 1634. 4. *W.* See 1655. *Hartlib.*

1635. BATE.

The mysteries of nature and art, by J. Bate. 1635. 4. edit. 2. *W.*

1635. MARKHAM.

The English Husbandman enlarged, by Gervase Markham. 1635. *W.*

1637. REMNANT.

A treatise on Bees, by Remnant, 1637. 4. *W.* See 1655. *Hartlib.*

1637. PLATTES.

Discovery of subterranean treasure: viz. of all manner of Mines and Minerals from the Gold to the Coal, with plain directions for finding them, also the art of melting, refining and assaying them, &c. By Gabriel Plattes, 1637. 4.—Seven years before, he had published, New cheap and delicate Fire of Cole-balles. *W.*

Mercurius Lætificans. By the Same. 1644. 4. 12 pages. *W.*

1638. BOYCEAU.

Boyceau Traité du Jardinage. 1638.

1638. PLATTES.

A Discovery of subterranean Treasure. By Gabriel Plattes. 1638. 4. three sheets. *H.* 2. 64.—Mercurius lætificans, 1644. 4. See 1653.

1640.

The Countryman’s Recreation, or the art of Planting, Graffing and Gardening, in three bookes. Lond. 1640. qu.—With a perfect Platforme of a Hop-Garden.

The expert Gardener, collected out of Dutch and French Authors. 1640. 4.

1645. HALL.

An Essay on Timber Trees. By Joseph Hall. 1645. *W.*

1645. WESTON.

A Discours of Husbandrie used in Brabant and Flanders: Shewing the wonderful improvement of land there; and serving as a pattern for our practise in this Commonwealth. Lond. 1645. 4. 24 Pages. *W.*—The second edition, Corrected and Enlarged. London, Printed by William Dugard, dwelling in Suffolk-lane, near London-stone, Anno Dom. 1652. 4. 30 pages. Besides the Epistle Dedicatorie to the Right Honorable the Council of State, in 6 pages, by Samuel Hartlib the Editor.

The Discourse is in form of an Epistle, and is entitled—“Sir Richard Weston late of Sutton in the Countie of Surrey his Legacie to his Sons, &c. Anno Dom. 1645.

It is an excellent little Treatise, full of original important information, on improving barren heathy ground, manuring, paring and burning, cultivating flax, turneps, clover, &c.—At the end are two letters from Hartlib to Sir Richard Weston, dated from his house at Charing-Cross, over against Angel-Court, the 2d of Maie, and Octob. 10th, 1651. By which it appears that he had published without Sir Richard’s knowledge or consent. He here solicits the Author’s corrections and improvements, but it does not seem that he returned Hartlib any answer. Hartlib however republished it, probably in 1655; and in order to enlarge and better explain it, he annexed Dr. Beatie’s annotations. *H.* and *W.*

It is remarked, in the Philosophical Transactions, that England has profited in agriculture, to the amount of many millions, by following the directions laid down in this little treatise.

Sir Richard Weston was Ambassador from England to Frederic v. Elector Palatine and King of Bohemia, in 1619. He was present at the famous battle of Prague, and his curious relation of it in a letter, is still preserved in m.s. *W.* from *H.* 2. 53.

1647. VREDMANNUS.

Vriedmanni Hortorum, Viridariorumque formæ elegantes. Col. 1647. fol.

1648. MARKHAM.

A Way to get Wealth, Containing six Principall Vocations, or Callings, in which every good Husband or Housewife, may lawfully imploy themselves. As, 1. The natures, ordering, curing, breeding, choice, use and feeding of all sorts of Cattle, and Fowl, fit for the service of man: As also the riding and dieting of Horses, either for War or Pleasure.—2. The knowledge, use, and laudable practice of all the Recreations meet for a Gentleman.—3. The Office of a Hous-wife, in Physick, Chyrurgery, extraction of Oyles, Banquets, Cookery, ordering of Feasts, preserving of Wine, conceited secrets, Distillations, Perfumes, ordering of Wool, Hemp, Flax, Dying, use of Dayries, Malting, Brewing, Baking; and the profit of Oats.—4. The enrichment of the Weald in Kent.—5. The Husbanding and enriching of all sorts of barren grounds, making them equal with the most fruitfull: with the preservation of Swine. And a computation of men and Cattles labours, &c.—6. The making of Orchards, Planting and Graffing, the Office of Gardening and the Orna-

Ornaments, with the best Husbanding of Bees. The first five books gathered by G. M. (Gervase Markham.) The last by Master W. L. (William Lawfon) for the benefit of Great Britain. London 1648. 4.

I have only seen two editions, said to be the tenth and eleventh time Corrected, and Augmented by the Author. Both London, Printed by William Wilson, for George Sawbridge, at the Bible on Ludgate-hill, near Fleet-bridge, 1660.—I suspected these two editions to be the same, with a new title. But in the eleventh, the Country Contentments are said to be the tenth edition, of the year 1664. The English Housewife now the eighth time to be much enlarged, and printed for George Sawbridge only, without any mention of E. Brewster. 1664 for 1660. The enriching of the Weald of Kent is also dated 1664 for 1660.—Markham's Farewell to Husbandry is said to be now newly the eighth time (in the 10th edition it is the seventh) revised, &c. 1664. In the former, at the end of the Dedication, his name is spelt Gervase, in the latter Gervase. In the New Orchard—in the title of the former edition, Grafting is spelt as we do now, in the latter it is spelt Graffing. The date is 1665 for 1660.—In most other respects these two editions are the same.

Of Markham see above 1623:

1649. BLITH.

English Improver Improved. 4.—and, Survey of Husbandry, discovering the best methods of improving all sorts of land. fol. W.

These and the second edition I have not seen. My copy, dated 1653, is said to be the third impression, and is entitled—The English Improver Improved or the Survey of Husbandry Surveyed Discovering the Improveableness of all Lands: by W. Blith a Lover of Ingenuity. Under six pieces of Improvement. 1. By Floeing and Watering such Land as lieth capable thereof. 2. By drayning Fen, reducing Bog, and regaining Sea-lands. 3. By such Enclosures as prevents Depopulation, and advanceth all Interests. 4. By Tillage of some Land lost for want of, and Pasturing others destroyed with Plowing. 5. By a Discovery of all Soyles and Composts with their nature and use. 6. By doubling the growth of Wood by a new Plantation. The Third Impression much augmented. With an additional Discovery of the severall Tooles, and Instruments in their Formes and Figures promised. With a second part; Containing Six Newer Pieces of Improvement. 1. Our English Husbandring Claver gaffe, and St. Foyn, as high as may be. 2. The facilitating the charge and burthen of the Plough, with divers figures thereof. 3. The Planting Welde, Woad, and Madder, three rich commodities for Dyers. 4. The Planting of Hops, Saffron and Liquorish, with their advance. 5. The Planting of Rape, Cole-seed, Hemp, and Flax, and the profit thereof. 6. The great Advance of Land by divers Orchards and Garden Fruits. London Printed for John Wright, at the Kings-head in the Old-Bayley. 1653. 4.—274 pages besides the prefaces and index.—4 plates besides the title.—Dedicated to the Lord Generall Cromwell, and the rest of the Councill of Statc. Epistles to the Reader—to the Souldiery—and to the Husbandman, Farmer, or Tenant.—Verses to Captain Walter Blith, by P. W. and T. C.—In his address to the Soldiers, he signs himself, your quondam brother, fellow Souldier, and very Servant.

This is an original and incomparable work for the time.

WILLIAMS.

Virginia's discovery of Silke-wormes, with their benefit, and the implanting of Mulberry trees; also the dressing and keeping of Vines, for the rich trade of making Wines there, by Edward Williams. London, 1650. 4. Pages 75, with wooden cuts, the same as in De Serres. B.

1650. HARTLIB.

Samuel Hartlib his Legacy: ed. 2. 1651. ed. 3, 1655. W.

1651. HARTLIB.

Concerning the defects and remedies of English Husbandry, in a letter to Dr. Beati. 4. W.

I have a copy of this treatise, entitled—The Compleat Husbandman: or a discourse of the whole Art of Husbandry; both Forraign and Domestick. Wherein many rare and most hidden secrets, and experiments are laid open to the view of all, for the enriching of these Nations. Unto which is added a Particular discourse of the Natrall History and Husbandry of Ireland. By Samuel Hartlib, Esq. London, Printed and are to be sold by Edward Brewster at the Crane in Paul's Church-yard, 1659. 4. 82 pages.

It is called a large Letter concerning the Defects and Remedies of English Husbandry, written to Mr. Samuel Hartlib; who has prefixed an address to the Reader, and the Introduction to Sir Richard Weston's Brabant Husbandry.

In the same volume is, An Appendix to the Legacie of Husbandry: or a Seed-plot of Annotations upon the Legacie aforesaid. With an Interrogatorie, relating more particularly to the Husbandry, and Natrall History of Ireland. London, Printed for Richard Wodenoth in Leaden-hall Market, next door to the Golden Hart. 1652.—The Annotations, as I suppose, are Dr. Beati's.

I have a Treatise entitled—A Designe for Plentie, by an universall Planting of Fruit-trees: tendred by some Wel-wishers to the Publick. London, Printed for Richard Wodenoth in Leaden-hall street, over against Leadenhall. Without date, but probably 1652. 4. Pages 24. Published by Hartlib, who had the MS from the Hon. Colonel John Barkstead Lieutenant

of the Tower. The author was an aged minister of the Gospel, at Loving-land near Yarmouth.

Samuel Hartlib, a German gentleman by birth, was the great promoter of Husbandry during the times of the Commonwealth, and was much esteemed by all ingenious men in those days. Milton addressed to him his Treatise on Education, and Sir William Petty inscribed two letters to him on the same subject. Cromwell allowed Hartlib a pension of a hundred pounds a year.

The work attributed to Hartlib, was only drawn up at his request, and passing through his correction and revision, was published by him. The real author was R. Child; and various correspondencies are annexed to it from persons eminent for skill in agriculture at that time, as C. D. B. W. R. H. T. Underhill. Henry Cruttenden. W. Potter, &c. As also the Mercurius Lætificans, and twenty large experiments by G. Plattes: together with Annotations on the Legacy by Dr. Arnold Beati, and replies to the Animadversions by the Author of the Legacy.—An abridgement was published in 1744, under the title of a Treatise on the Husbandry, &c. of England. 8. Hartlib writ a little treatise on Setting Land; and some attribute to him Adam's art revived, though that work seems to belong more properly to Sir Hugh Plat.

Besides these performances in Agriculture, (in which he rather reported the writings of others, than composed any thing himself,) he published A true and ready way to learn the Latin tongue. 4. 1654.—A vindication of Mr. John Duric. 4. 1650. 3 sheets—and Twisse's doubting conscience resolved. 8. 1652. *Harte Eff.* 1. 22 and 2.

It is remarkable that Hartlib does not seem to have heard of Fitzherbert's works, "Till the latter end (says he) of Queen Elizabeth's days. I suppose that there was scarce a book wrote of this subject. I never saw or heard of any. About that time: Tusser made his verses, and Scot wrote about a Hop-garden, Gouge translated some things. Lately divers small Treatises have been made by divers, as Sir Hugh Platts, Gab. Platts, Markham, Blith, and Butler, who do well in divers things; but their books cannot be called com-pleat books, as you may perceive by divers particular things, not so much as mentioned by them." p. 79. edit. 1659.

1651. SPEED.

The Reformed Husbandman, imparted to Hartlib by Adam Speed. 1651. 4. W. See 1659.

Blith speaks very slightly of Speed and his pretensions, and says "whosoever desires cordially to be informed of him, may from Mr. Samuel Hartlib, dwelling against Charing Cross, who can give fuller and larger description both of the man and his abilities, having expressed himself so far a Gentleman of such charity towards him, as he hath maintained him divers months together while he was inventing some of these his discoveries." p. 177.

1652. TAYLOR.

Silo. Taylor Common good, or Improvement of Commons.

1653. PLATTES.

Observations and Improvements in Husbandry, accompanied with 20 experiments, imparted to Samuel Hartlib. 4. 32 pages. By Gabriel Plattes. Who in a letter to Hartlib, May 14, 1664. mentions a work of his called the Treasure-house of Nature unlocked, and set wide open to the world, &c. It is not known whether this performance was ever printed, or whether it is not the first treatise in 1637. Practical Husbandry improved, or a Discovery of infinite treasure, by Gabriel Plattes. 1656. 4. 120 pages. 1696. Remedies against Famine. 1684. 8. W.

The author had a bold adventurous cast of mind. As great a genius as he was, he was allowed to drop down dead in London streets with hunger; nor had he a shirt upon his back when he died. He bequeathed his papers to Hartlib, who seems to have published few of them. H.

1653. AUSTEN.

A Treatise of Fruit-Trees. Shewing the manner of Grafting, Setting, Pruning, and Ordering of them in all respects: According to divers new and easy Rules of experience; gathered in the space of Twenty yeares. Whereby the value of Lands may be much improved, in a short time, by small cost, and little labour. Also discovering some dangerous Errors, both in the Theory and Practice of the Art of Planting Fruit-trees. With the Alimentall and Physicall use of fruits. Together with the Spirituall use of an Orchard. Held forth in divers Similitudes betweene Naturall and Spirituall Fruit-trees: according to Scripture and Experience. By Ra. Austen. Practiser in the Art of Planting. Oxford, printed by Tho. Robinson. 1653. 4.—An engraved title by J. Goddard. 97 pages; besides the Dedication to the Worshipfull Samuel Hartlib Esquire his much Honoured Friend; an Address to the Reader; the Analysis, and Table of Contents. Second edition. Oxford, 1657. 4. Pages 140 and 208. B. Again 1662. 1667.

BEATI. See Plat, 1594.

1654.

The expert Gardiner, with cuts. W.

Instructions pour les Arbres Fruictiers. Par. 3.

1654. LAUREMBERGIUS.

Petri Laurebergii Horticultura, libris 2. Francof. 4. B. —item, 1671.

1655. HARTLIB.

The Reformed Common-wealth of Bees. Presented in several Letters and Observations to Samuel Hartlib Esq. London, Printed for Giles Calvert at the Black-Spread-Eagle at the West-end of Pauls, 1655. 4. pages 64.

The letters and observations are from Mr. Carew of Anthony in Cornwall, Dr. Arnold Boate, Thomas Brown D. D. and L. L. D.—F. H.—G. S. Mr. William Mewe, minister at Easington in Gloucestershire. Mr. Christ. Wren, fellow of All Soul's College in Oxford. Mr. Thomas Babington. Mr. Gerard Malynes.

At the end is a list of some Writers on Bees, extant in English. 1. The Feminine Monarchy; or the History of Bees, written out of experience by Charles Butler, Magd. Oxford, Printed by William Turner, for the Author. 1634. See 1609. Butler. 2. A Book promised by Henry Gurnay, Gentleman. 3. The Ordering of Bees. Or the true History of managing them from time to time, with their Honey and Wax, shewing their Nature and Breed. As also what Trees, Plants and Hearbs are good for them, and namely what are hurtful: together with the extraordinary profit arising from them, &c. Set forth in a Dialogue, resolving all doubts whatsoever. By the late unparallel'd experience of John Levets, Gent. London, Printed by Thom. Harper, for John Harrison, 1634. 4. A Treatise concerning the right use and ordering of Bees. By Edmund Southern, Gent. See 1593. Southern. 5. A Discourse or History of Bees, Shewing their Nature and Usage, and the great profit of them. Written by Richard Remnant. London, Printed by Robert Young, for Thomas Slater, dwelling in Duck-lane at the white Swan. 1637.

One cannot help smiling that it was the Monarchy of Bees in 1634; but the Commonwealth in 1655.

The Reformed Virginian Silkworm, or a rare and new Discovery of a speedy way, and easy means, found out by a young Lady in England, she having made full proof thereof in May Anno 1652, for the feeding of Silk-worms in the Woods, on the Mulberry-Tree-leaves in Virginia. London, Printed by John Streater, for Giles Calvert at the Black-Spread-Eagle at the West end of Paul's, 1655. 4. 40 pages. With an address to the Reader by Samuel Hartlib.

1656. TRADESCANT.

Musæum Tradescantianum, or a collection of rarities preserved at South Lambeth near London. London 1656. 8. —Catalogue of the plants in his garden, p. 73 to 178.

1657. J. B.

Herefordshire Orchards a pattern for all England. Written in an Epistolary Address to Samuel Hartlib, Esq. By J. B. Dated May the 3rd. 1656.—Reprinted 1724. 8. 36 pages.

1658. MORINUS.

Pet. Morini Observationes circa culturam Plantarum.

1658. EVELYN.

The French Gardiner: Instructing how to cultivate all sorts of Fruit-Trees, and Herbs for the Garden: together with directions to dry and conserve them in their Natural. Six times printed in France, and once in Holland. An accomplished Piece, First written by R. D. C. D. W. B. D. N. And now transplanted into English by PHILOCEPOS. Illustrated with Sculptures. London, Printed for John Croke at the Ship in St. Pauls Church-yard. 1658. 12. 294 pages. 4 plates by Hertochs.—Dedicated to Thomas Henshaw, Esq. by J. E. (John Evelyn.)—Ed. 3. 1676.—1691.

This was Evelyn's first work in Gardening, about seven years after his return to England from his travels on the Continent. In most of the editions is added, the English Gardener vindicated by John Rose, gardener to King Charles II. with a tract of the making and ordering of Wines in France. Evelyn was born at Wotton in Surry Oct. 31. 1620, and having finished his education at Oxford, set out to make the tour of Europe in 1644. *W.* He died Feb. 27. 1703. See 1664.

1659. DUCKETT.

Proceedings concerning the Improvement of all manner of land, &c. By Thomas Duckett. *W.*

1659. SPEED.

Adam out of Eden, by Adam Speed, gentleman. 12. *W.*

1660.

Le Jardinier Francois. Amst. 8. This is the work that Evelyn translated.

1660. GENDRE.

The right manner of ordering Fruit-trees, by the Sicur le Gendre. 8. *W.*

1660. SHARROCK.

The History of the Propagation and Improvement of Vegetables by the concurrence of Art and Nature. Written according to Observations made from Experience and Practice. Oxford 1660. 8. Pages 150. 1 Plate. *B.*

The Second Edition much Enlarged. By Robert Sharrock, Fellow of New College, Oxford: Printed by W. Hall, for Ric. Davis, Anno Dom. 1672. Imprimatur, P. Mews Vice-Cancellarius. Oxon. May 22, 1671. Dedicated to the Honorable Robert Boyle, Esq. Pages 255. 1 Plate of inoculating and grafting.

1662. ATWELL.

The Faithful Surveyor, by George Atwell. Cambr. 4. *W.*

1662. DUGDALE.

Sir William Dugdale's History of Imbanking and Draining of divers Fens and Marshes.—Reprinted in 1772. *W.*

1662. COWLEY.

Abrahami Couleii Plantarum Libri duo.—item 1668.—Libri 6. inter ejus Poemata Latina. Lond. 1678. 12.—1682, by Sprat. *H.*

1664. BLAKE.

Gardener's Practice. 4. *W.*

1664. EVELYN.

Silva, or a Discourse of Forest-Trees, and the Propagation of Timber in his Majesty's Dominions, as it was delivered in the Royal Society the xvth of October, MDCLXII. In two Books.—Terra, a philosophical essay of Earth,—Pomona, or an Appendix concerning Fruit-Trees.—Also Acetaria, or a Discourse of Sallets. With Kalendarium Hortense, or the Gardner's Almanack. London, MDCLXIV. fol. Dedicated to the King. Portrait of the Author by Nanteuil.

Second Edition, MDCLXIX.—Third Edition MDCLXXIX. Fourth Edition MDCCVI.—Fifth Edition, MDCCXXIX: With notes by Alexander Hunter, M.D. York 1776. 4. Pages 649. Plates 39. edit. 2. 1786.

The Terra was printed separately in 1675. 8. And his Acetaria in 1699. 12.

Kalendarium Hortense: or the Gardner's Almanac, Directing what he is to do Monthly throughout the year. And what Fruits and Flowers are in Prime. By John Evelyn Esq. Fellow of the Royal Society. Lond. 1664. 8.

This work was so much esteemed, that by the year 1706, there were ten editions of it, *W.* in octavo, besides its being printed with the Silva. I am not able to give the dates of all the editions of this useful book, which was the origin of Miller's and Abercrombie's Calendars. The second or third edition was probably in 1669. The fourth was in 1671. The sixth in 1676. The seventh in 1678. The eighth in 1691. The ninth in 1699. And the tenth in 1706.

The eighth edition has 175 pages. The ninth, which I have before me, has 181 pages. London, Printed for George Hudleston, at the Black-Moor Head near Exeter Exchange in the Strand. 1699. With many useful additions. Dedicated to Abraham Cowley Esq; who in return inscribes to the amable Author an Epistle and a poem which he entitles the Garden: dated from Chertsea, 1666.—In the Introduction the Author says, he has enlarged this edition, though in a smaller volume. Where the Additions are, the margin is dotted. One of the principal additions is a plan for a new Conservatory or Greenhouse, illustrated with a figure. And a Letter from Sir Dudley Cullum concerning it.—Also a Catalogue of Fruit-trees, the best of which were then to be had of London and Wife at Brumpton Park.

1664.

England's Happiness increased, or a Remedy against all succeeding dear years, by a Plantation of Potatoes.

"Who the author of this small valuable treatise is, I have not at present discovered, but the public is much obliged to him, from the great benefit the poor of this nation has received from the cultivation of this valuable root. *Mr. Weston.*

1664. MARKHAM.

The English Hous-Wife, by A. M. with the Way to get Wealth. 1660.

The Enrichment of the Weald of Kent. By G. M. With the Same. See 1648. Markham.

1664. RUDBECK.

Horticultura nova Upsaliensis. Resp. Gust. Lohrman. Præfide Olao Rudbeck. Upsaliæ. 1664. 4. *B.*

1665. LAWSON.

A New Orchard and Garden, by William Lawson. With Markham's Way to get Wealth. See 1648.

1665. HUGHES.

The Complete Vineyard, or a most excellent way for the planting of Vines. By William Hughes. London 1665. 8. Pages 27.—Also 1670. 8 Pages 92. Plate 1. *B.*—Flower-garden and Vineyard. 1683. 12. *W.* Flower-garden. 1734. *W.*

1665. RAPIN.

Renati Rapini Hortorum libri 4. 1665. 1666. 1668.—item Ultraj. 1672. 8. præter ejus libellum de cultura hortensi, et Meursii arborum facrum.

Nemus translated in English verses by Evelyn junior, printed with the Sylva. Rapin's 4 books translated by him were published separately 1673. 8. Lond. *B.*

1665. REA.

Flora, or a complete Florilege, furnished with all requisites belonging to a Florist. Lond. 1665. fol. with cuts. *W.*—Second impression. Lond. 1676. fol. Pages 231. Cuts 8.—The Third impression corrected. With many additions, and several new plates. By John Rea, Gent. Lond. 1702. fol.—This is the same with the second, only with a new title. *B.*

There are three Dedications—to Charles Lord Gerrard Baron of Gerrards Bromley in Staffordshire—to Digby Lord Gerrard his Son—and, to Sir Thomas Hanmer Bart.—It appears from the first of these that Mr. Rea had made a design for his Lordship's

Lordship's garden at Bromley.—The second was prefixed to the second edition. He divides his Treatise into three Books. 1. Flora treats of the choicest plants, flowers and fruits that will endure our winters. 2. Ceres contains such plants and flowers as are yearly or every other year raised from seeds. 3. Pomona treats of the best Garden-Fruits, of evergreens and flowering shrubs.

In his address to the Reader on the second impression, he says that he has revised; corrected and much amended the former, and has added more than five hundred new flowers and fruits; besides many instructions and observations, in the planting, ordering and improvement of them. This is dated from his house at Kinlet near Bewdly in Worcestershire.

The first book contains directions for making Pleasure Gardens. "To the habitation of every Gentleman there should belong two several Gardens, besides that for the Kitchen. The first of these Gardens of delight, recreation and entertainment we will call the Fruit Garden; the other the Flower Garden, which should be lesser, and placed immediately under the walls of the house; the other on the east or west side. Fourscore yards square for the fruit, and thirty for the flower garden, will be enough for a nobleman: but for a private gentleman forty for the one and twenty for the other, will be sufficient. These Gardens are to be walled round, and separated by a lower wall or pales. The earth of the beds is to be kept up with painted boards; the whole is to be laid out in cheefecake form, for which several designs are given: the alleys are to be laid out with turf and gravel; and an octangular summer-house is to be placed in the middle of one side of the flower-garden.

He gives large Catalogues of Evergreen and Deciduous Trees and Shrubs, Bulbous plants vulgarly called French flowers, among which are above 300 varieties of the Tulip. He has 260 good sorts of Carnation. His Fruits are very numerous. He speaks of the Horse Chestnut as producing fruit in Turkey, but rarely with us; and of the Larch Tree as growing slowly, and to be found in few places.

1668. LAWSON.

The husbandry of Bees, by William Lawson. 4. See 1648. Markham.

1668. WORLIDGE.

Systema Agriculturae; the mystery of Husbandry discovered. By J. W. (John Worlidge) Gent.—Second edition 1675. *W.*—Fourth edition 1687. fol. London, Printed for Tho. Dring, at the Harrow at the corner of Chancery-lane in Fleetstreet, 1687.—Said to be carefully corrected and amended, with one whole Section added, and many large and useful additions throughout the whole Work. But I have not seen the former editions, to compare with this. Pages 326. Engraved Frontispiece of a farm, by van Hove, and one plate. Dedicated to the Gentry and Yeomanry of England. Preface on the excellency, utility and necessity of Husbandry.

He treats 1. Of Improvements in general. 2. Of the benefits of Enclosing lands. 3. Of Meadows and Pastures, of watering or drowning them; and sowing Clover, St. Foyn, Lucern, Ray-Grass, Tares or Vetches, Spurry Trefoil, Wiltshire Long-Grass, &c. 4. Of Arable-Land, and Tillage, of the several kinds of Grain and Pulse, of Hemp and Flax, Woad, Rape and Cole-seed, Turneps, &c. Of the manner of setting corn and hewing it. Of Sir Hugh Plat's method—Of Gabriel Plattes engine, and a new instrument of his own. Of the preparation, change and steeping of seed. 5. Of manuring, dunging and soyling land. 6. Of planting Trees for timber, coppice, ornament, fencing, &c. Of Quick-set Hedges—Nursery—Transplantation, pruning and felling. 7. Of Fruit-Trees—grafting, inoculating, pruning, &c. Of Cider, Perry and English Wines. 8. Of Garden-Tillage—Hops, Liquorice, Saffron, Madder, Woad, Beans, Peas, Melons, Cucumbers, Asparagus, Cabbage, &c. Carrots, Turneps, and other Roots. Of making hot-beds, watering, &c. 9. Of Beasts, Fowls, Bees, and Silkworms. 10. Of Injuries, enemies and diseases incident to the Husbandman. 11. Of Instruments, tools and engines, and of Building. 12. Of Fowling and Fishing. 13. Kalendarium Rusticum, or monthly directions for the Husbandman. 14. Prognosticks of dearth, scarcity, plenty, sickness, heat, cold, frost, snow, winds, rain, hail, thunder, &c. 15. Dictionarium Rusticum, or explanation of Rustick Terms used in several places of England.

A Persian Wheel was made by his direction at Wilton in Wiltshire in 1665, that carried water in good quantity above twenty feet high, for watering meadows: and another near Godalming in Surrey.

Sowing Clover and other Seeds preserved the cattle in the fatal winter of 1673 in the southern parts of England; whereas in the western and northern, through defect of hay and pasture, the greatest part of their cattle perished. He refers much to Sir Richard Weston, Hartlib and Blith.

He informs us, that Hops enough were not planted in his time to serve the kingdom, but that we yearly made use of Flemish Hops, nothing near so good as our own.

Another edition was printed in 1716, according to Ellis; but I have not seen it.

1669. S. B.

The Epitome of Husbandry, by S. B. 12. Supposed to be Samuel Blagrave, or as others say, Billingsley.

VOL. I.

He has copied verbatim 181 pages from Fitzherberd, without making any apology; and the remaining chapters are taken from Mascall, Blith, and an Italian author, who wrote a treatise, called by the translator, the Heroic Excellence of Horsemanship. *W. Harte*, p. 43. who gives the date 1699, but that probably by mistake, as he says that it was not long after the restoration.

1669. ROSER.

The English Vineyard vindicated by John Roser.

1670. FOLLI.

Francesco Folli Dialogo intorno alla cultura della Vite. Firenze. 1670. 8.

1670. SMITH.

England's Improvement revived. 4. *W.* 1673. See 1704.

1671. HIEBERN.

Joh. Chr. Hiebern Horticultura.

St. Foine improved, a discourse shewing the utility and benefit which England hath and may receive by the grass called St. Foine. London 1671. 4. Pages 20. *B.*

1672. DROPE.

Francis Drope's Sure guide to raising and ordering Fruit-trees. 8. *W.* He and his brother John, a physician and poet, were natives of Cumner in Berkshire, where their father was vicar.

1675. COTTON.

The Planter's Manual, by Charles Cotton Esq. 12.

1676. COOK.

The manner of raising, ordering, and improving Forest trees. By Moses Cook. London. 4. 2nd edit. 1717, 8.

W.—3rd edit. London, 1724. 8. Pages 273. Plates 4. *B.*

1676. COMMELIN.

Johan Commelyn Nederlandtze Hesperides. Amst. fol. with many plates. Englished by G. V. N. London. 1683. 8.

1677. WORLIDGE.

The Art of Gardening, by J. Worlidge. 2 vols. 8. *W.*—Third edition. London, 1688. 8. by J. Woolridge. Pages 278. Plates 3. *B.*—1700. 2 vols. 8. By Worlidge. *W.* In my catalogue it is Woolridge.

1677. YARRANTON.

England's Improvement by Sea and Land. By Andrew Yarranton, Gent. London MDCLXXVII. 4. Pages 195. Plates 8.—This is a book of Projects, and belongs rather to the Manufacturer than the Husbandman. But he published before Two books entitled—Yarranton's Improvement by Clover, printed by Sawbridge on Ludgate-hill; which I have not seen.

1678. WORLIDGE.

Worlidge's Vinetum Britannicum.

1679.

The Compleat Gardener. 4. *W.*

1680. LANGFORD.

Langford's Instructions to raise all sorts of Fruit-trees.—1696. 8.—1699. 8. Pages 220. Plates 2. *B.*

1681. HOUGHTON.

Houghton's Collection of Husbandry. 2 vols. 4.—1697. fol. and 1727. 4 vols. 8.—Evelyn contributed to this collection. *W.* See Bradley.

1682. STERBEECK.

Citricultura. Antw. 4. Pages 296. Plates 14.—item 1712. The same with a new title. *B.*

1683. GILBERT.

Samuel Gilbert's Florist's Vade mecum. London, 12. Pages 252. Besides the Gardener's Almanack. *B.* Third edition. 12. 1702. By Sam. Gilbert, Philereus.—In this small book is a particular description of the Roses cultivated in the English gardens at that period, and very accurately described. *W.*

1683. LAMBERT.

The Countryman's Treasure: or a Treatise of Oxen, Sheep, Hogs and Dogs. 12. By John Lambert. *W.*

1683. MEAGER.

English Gardener with cuts. 4. *W.*

The Mystery of Husbandry. 1697. 12.

1685. TEMPLE.

Upon the Gardens of Epicurus; or, of Gardening, in the year 1685.—In the Works of Sir William Temple, 1740, 2 vols. fol.—vol. 1. Miscellanea, p. 170—190.

1685.

The Complete Planter and Cyderist. 8.

1686. RUDBECK.

Olai Rudbeck filii Propagatio Plantarum botanico-physica. Ups. 8. *B.*

1687.

Olai Bromelii Lupulogia—item, Stockh. 1748. 8. *B.*

1688. COWLEY.

Cowley's Essays on Husbandry. fol. *H.*

1693. QUINTINYE.

Quintinye's Complete Gard'ner: by Evelyn. fol. with cuts and a Treatise of Orange-trees, and the raising of Melons, omitted in the French edition.

1695. MOORE.

The Gentleman and Farmer's Friend, by Sir J. Moore. 12. *W.* See 1705.

1696. CRAWSEY.

Crawkey's Countryman's Instructor.

1697. DONALDSON.
Donaldson's Husbandry anatomized.
1697. QUINTINEY.
Instruction pour les jardin's fruitiers et potagers, par Jean de la Quintiney; Amst. 1697. 4. edit. 3. 2 tomes. B.
1699. FACIO.
Fruit-walls improved by inclining them to the horizon, by a member of the Royal Society, N.F.D. Nicholas Facio de Duillier. With cuts by Gribelin. London. 1699. 4. Pages 128. *W. B.*
1699.
L'art ou la maniere de tailler les arbres fruitiers. Amst. 4. Pages 19, with wooden cuts. *B.* Probably from Quintiney.
- 1699: LONDON and WISE.
The Complete Gard'ner: or Directions for Cultivating and right Ordering of Fruit-Gardens and Kitchen-Gardens. With the Gardener's Kalendar, directing what is to be done every Month in the Year. By Monsieur De la Quintiney. Now compendiously Abridged, and made of more use, with very considerable Improvements. By George London, and Henry Wise. To which is prefixed, an Address to the Nobility and Gentry. By J. Evelyn, Esq. *W.*—other editions in 1706, 1710, &c.—I have the seventh edition corrected. London: Printed for A. and W. Bell, at the Cross Keys and Bible in Cornhill. 1719. Pages 325. 10 Plates, besides the Frontispiece, containing directions for pruning.—A very sensible Advertisement of 13 pages by the Editors.—Mr. Evelyn's Address is a strong recommendation of them for their skill and integrity. London was chief Gardener to their Majesties. He and Wise his associate had the most ample and choice collection of trees, shrubs and plants then known, in their nursery at Brompton Park near Kensington.
This treatise is chiefly upon Fruit-trees, and the best method of pruning and managing them.
The culture of the Kitchen Garden is treated of from p. 189 to p. 246. and in the ninth part, from p. 247. to p. 311. is an ample Gard'ner's Kalendar: followed by directions, what sort of ground is proper to each Legume and Kitchen-Plant—what sort of Culture is most proper for every particular Plant—and, how long every Kitchen-Plant may stand in its place, which must be housed and which are they that we may force; and lastly, how long each sort of seed will last without losing its Virtue.
Is their *Retired Gardener* different from the *Complete Gardener*? See 1717.
1700. NOURSE.
Nourse's Discourse of the benefits and improvements of Husbandry.
1703.
The Dutch Gardener, or Complete Florist; translated from the Dutch of van Oosten. fol.
1704.
Dictionarium Rusticum: or a Dictionary of Husbandry, Gardening, Trade and Commerce, 2 vols. 8. with cuts. An edition in 1726. and another in 1728. *W.*
1704. SMITH.
The Husbandman's Magazine. 12. *W.*
1705. MOORE.
England's Interest, or the Gentleman and Farmer's Friend. By Sir John Moore. 8. Another edition in 1721. *W.*
1706. GENTIL.
Gentil's Solitary or Carthusian Gardener.
OOSTEN.
Henry van Oosten Der Nederlandische garden. Hann. & Wolff. 8. *B.*
1706. LIGER.
Le Jardinier Fleuriste et Historiographe, ou la Culture Universelle des fleurs, arbres, arbrustes & arbrisseaux. Par le Sieur Louis Liger, d'Auxerre. Amsterdam, 1706. 12. 3 parts. Pages 679. Many cuts of flowers, figures for parterres, &c. See 1717.
1706. LONDON and WISE.
The Retired Gardener. 2 vols. 8. *W.* See 1717.
1706. MORTIMER.
The whole Art of Husbandry; or the way of managing and improving of Land. To which is added, The Countryman's Kalendar. By J. Mortimer, Esq. F.R.S.—The Second Edition, corrected. London. Printed by J. H. for H. Mortlock at the Phoenix, and J. Robinson at the Golden Lion in St. Paul's Church-yard, MDCCVIII. Pages 632.—Third Edition. 1712—the fourth 1716. 8. *W.* There was also an edition in 1721.
1707. LIGER.
Louis Liger Oeconomie generale de la Campagne. Amst.
1707. FLEETWOOD.
Bishop Fleetwood's Chronicon Pretiosum, or account of English Money, Price of Corn, &c. for the last 600 years. *W.*—My edition is 1745.
Curiosities of Nature and Art, in Husbandry and Gardening. 8. *W.*
1707. TOURNEFORT.
Observations sur la naissance et la culture des Champignons, par Jos. Pitton Tournefort. Mem. acad. Par. 1707. *B.*
1708. VOLKAMER.
Nurnbergische Hesperides. Nurnb. fol. By Johann Christoph Volkamer. *B.*
The Dutch Gardener, translated from the Dutch of Van Oosten. 2nd edit. Lond. 1711. 8. *B.*
1712. JAMES.
James's Theory and Practice of Gardening, and all that relates to fine Gardens, with cuts. 4. Translated from the French of Le Brun. *W.*
1713. VOLKAMER.
Joh. Christ. Volkamer Hesperidum Norimbergenfium five de Malorum Citreorum, Limonum, Aurantiumque cultura et usu libri 4. Norimbergæ. fol. *B.*
1713. WARDER.
The true Amazons, or the monarchy of Bees. By Joseph Warder. Lond. 1713. 8. Pages 160.—1716. 8. Pages 120. *B.*
1714. VOLKAMER.
Continuation der Nurnbergischen Hesperidum. ibid. fol.
Le Jardin de Hollande, par H. van Oosten. Leide. 1714. 8. *B.*
1714. LAWRENCE, or LAURENCE.
The Clergyman's Recreation: shewing the pleasure and profit of the art of Gardening. By John Lawrence, A.M. Rector of Yelvertoft in Northamptonshire, and sometime fellow of Clare Hall in Cambridge.
I have the Fifth Edition. London: Printed for Bernard Lintott, between the Temple Gates in Fleetstreet. 1717. 8. Pages 84, 115, 149. 2 Frontispieces, and several plates. Three parts, with a preface to each. Dedicated to Henry Duke of Kent. The recommendation by R. Loyd is dated March 15, 1713.
This treatise relates principally to the Fruit-garden. In the second part horizontal shelters are recommended for wall-trees. He prefers new earth to dung. Of the Kitchen-garden he says little, the subject seeming to have been exhausted. Appendix, from his Brother, on finding a Meridian line, dated Jan. 6, 1716.
The third part contains the Fruit-Garden Kalendar; preceded by an Introduction on the management of the Vine, and tables by Mr. Whiston ascertaining the proportion of heat from the sun lost or gained between 44° and 56° of Latitude, &c.—The Kalendar is followed by two letters on Blights, with Mr. Bradley's remarks: and an Appendix on the use of the Barometer.
This third part is dated 1718.—In the Preface he observes, that the modern authors have done little else but transcribe from Evelyn, Quintiney and Woolridge: that the book called the *Lady's Recreation* was never seen by him till it was in print, and that he had reason to think it was an artifice of the booksellers to impose upon the world, under the borrowed name of Evelyn: He complains that so many French books were obtruded upon us, containing rules calculated for another climate, and which tend to lead us into many errors.
He also published—A System of Agriculture and Gardening, in five books folio, 1726. *W.*—Bradley accuses him of having taken much from Mortimer and others, without acknowledgement; so that he found fault with others with an ill grace.
1715. SNOW.
Arts Improvements, or Experiments in Building, Agriculture, Gardening, &c. 8. *W.*
1715. CLARKE.
The Landed Man's Assistant. By George Clarke. 12. *W.*
1716. RESSONS.
Jean. Baptiste des Chiens de Reffons: Maniere de greffer les arbres de fruits à noyaux sans perdre aucun temps. Mem. acad. Par.
1717. BRADLEY.
New Improvements of Planting and Gardening. By Richard Bradley. Lond. 8. pages 70. *B.*
The second edition I have not seen. The third edition corrected, by Richard Bradley, Fellow of the Royal Society, was London, Printed for W. Mears, at the Lamb without Temple-Bar. MDCCXIX. 8. The first part, 71 pages. Dedicated to Henry Duke of Kent.—It treats of the circulation of the Sap; the generation of Plants; of Soils and Composts; of timber Trees and Underwood. One Plate.—The second part MDCCXX. Pages 136. Plates 3. Dedicated to Thomas Lord Parker, baron of Macclesfield, Lord Chief Justice of England. This part gives a description of a new invention for designing Garden-Platts: and treats of Evergreens, their culture and use; of Flowering-Trees and Shrubs; of Perennial Flowers; of Bulbous Plants; and of Annuals.—The Third Part, MDCCXX. has 290 pages, and 2 plates. Dedicated to James Earl of Caermarvon, Viscount Wilton and Baron Chandois. This part treats of Fruit trees; of the Kitchen-garden; of the Green-house and Exotick Plants—and of the Generation of Plants.—The Gentleman and Gardener's Kalendar. Also the Design of a Greenhouse for keeping Exotick Plants, by Sign. Galilei of Florence. With an Abstract of the Acts of Parliament for encouraging Planting, &c. MDCCXX. Pages 124. 4 Plates. Dedicated to Robert Balle, of Cambden-House, Esq. F.R.S. The Kalendar was published separately several times.—The sixth edition 1731. 8. Pages 608. *B.*
Bradley published the first Decade of his History of Succulent Plants in 1716; the second in 1717; the third in 1725; the fourth and fifth in 1727. 4.

- A Philosophical Account of the Works of Nature. To which is added, An Account of the State of Gardening as it is now in Great Britain, and other parts of Europe. With many curious Cuts. By Richard Bradley, Fellow of the Royal Society, London MDCCXXI. Large quarto. Pages 194. Published by subscription. Dedicated to the Earl of Orrery.—Second edition enlarged, 1739. 8. *W*.
The virtue and use of Coffee. By R. Bradley, F.R.S. Lond. MDCCXXI. 8. 34 pages, with a figure.
There is very little of the culture in this pamphlet.
- A Philosophical Treatise of Agriculture. Translated from the German of Agricola, with remarks and cuts. Revised, with a Preface, by R. Bradley, F.R.S. MDCCXXI. Proposals for the Improvements of Waste Lands. MDCCXXIII. 8. *W*.
New Experiments and Observations relating to the Generation of Plants, occasioned by a Letter of Dr. Blair's. Together with an account of the extraordinary vegetation of Peaches, Abricots, Nectarines, Plums, Cherries, Figs, Vines, Gooseberries, Currans, &c. as they were artificially cultivated this spring 1724. By R. Bradley, R.S.S. London: Printed for T. Corbett, at Addison's Head without Temple-Bar. MDCCXXIV. 8. 32 pages.
Improvements of Planting and Gardening, with Herefordshire Orchards, by J. B. By R. Bradley. 8. MDCCXXIV. *W*.
A general Treatise of Husbandry and Gardening. By Richard Bradley, Fellow of the Royal Society. London. MDCCXXIV. 8. 3 vols.—These were tracts published monthly, and collected into volumes: and seem to have been republished with additions in four volumes. 1726. 8. Also in 1766. *W*.
A Survey of the ancient husbandry and gardening, collected from Cato, Varro, Columella, Virgil, and others the most eminent writers among the Greeks and Romans. By Richard Bradley. London, MDCCXXV. 8. Pages 373. Plates 4. *B*.
Experimental Husbandman and Gardener, and a new method of improving Estates and Gardens, with cuts. MDCCXXVI. 4. *W*.
An Appendix to the New Improvements of Planting and Gardening. Illustrated with Copper Plates. By R. Bradley, Professor of Botany in the University of Cambridge, and F.R.S. London MDCCXXVI. 8. Pages 72.
British Housewife and Gardener's Companion, with cuts, 2 vols. 8. MDCCXXVI. *W*.
The Family Dictionary, containing the most approved methods for breeding Cattle, Improving Estates, and Gardening, with methods to destroy vermin, and divers other arts. By R. Bradley. 2 vols. fol. MDCCXXVI.
Ten Practical Discourses concerning the four Elements, as they relate to the growth of Plants. By R. Bradley. 8. MDCCXXVI. *W*.—Second Edition MDCCXXXIII. 8. Pages 195. *B*.
The Country Lady and Housewife's Director in the management of a House and the delights and profits of a Farm. By R. Bradley, Professor of Botany in the University of Cambridge, and F.R.S. The Second edition. MDCCXXVII. 8.
The Country Gentleman and Farmer's Monthly Director. By R. Bradley, Professor, &c. The Second edition. MDCCXXVII. 8.—Sixth edition, with additions. 1736. 8. *W*.
A Collection for the Improvement of Husbandry and Trades, by John Houghton, F.R.S. Now revised, corrected and published by Richard Bradley, F.R.S. &c. MDCCXXVII. 8. Three vols.
A Complete Body of Husbandry, adorned with cuts. By R. Bradley, Professor, &c. & F.R.S. London: Printed for James Woodman, and David Lyon, in Russell Street, Covent-Garden MDCCXXVII. 8. Pages 372.—In this work Mr. Bradley gives several passages from Fitzherbert's *Dictionarium Botanicum*, or a Botanical Dictionary for the use of the curious in Husbandry and Gardening. By Richard Bradley. London MDCCXXVIII. 2 vols. 8. *B*.
The Gentleman and Farmer's Guide in regard to Cattle, with cuts. MDCCXXIX. 8. *W*.
The Riches of a Hop-Garden explained. By R. Bradley, Professor of Botany in the University of Cambridge, and F.R.S. London: Printed for Charles Davis in Paternoster Row, and Thomas Green at Charing-Cross. MDCCXXIX. 8. Pages 104. With a Frontispiece representing the market in Southwark.
A General Treatise of Husbandry and Gardening, containing a new system of Vegetation, illustrated with many observations and experiments formerly published monthly; and now methodised and digested under proper heads, with additions and great alterations, in four parts, Two vols. with cuts. By R. Bradley. MDCCXXIX? 8. *W*.
The Fruit-Garden displayed, Setting forth the several varieties of Fruit, ripe in every Month of the year, from June, July, and August MDCCXXXII. 4. By R. Bradley, who died in the course of this year. Pages 16, 31, 68.
He also published—A Course of Lectures upon the Materia Medica,—Lond. 1730. 8. A book which did him no credit.
1717. EVELYN CHARLES.
The Lady's recreation, or the third and last part of the Art of Gardening improved, by Charles Evelyn. Lond. 1717. 8. Pages 200. *B*.
1717. COLLINS, SAMUEL.
Paradise retrieved, demonstrating the most beneficial method of managing Fruit-trees, with a treatise on Melons and Cucumbers. Lond. 1717. 8. Pages 106. Plates 2. *B*.
The Retired Gardener in six parts; the two first being Dialogues between a Gentleman and a Gardener, translated from the second edition printed at Paris; the four last parts translated from the French of Louis Liger; heretofore published in two volumes, with alterations and additions by George London and Henry Wise. Second edition, published in one volume by Jos. Carpenter. Lond. 1717. 8. Pages 432, with cuts. *B*.
1717. JACOB.
The Country Gentleman's Vade mecum. 12. *W*.
1717. SWITZER.
Ichnographia Rustica, or the Nobleman, Gentleman's and Gardener's Recreation, with cuts, in three vols. 8. By Stephen Switzer. *W*.
The Practical Fruit-Gardener, being the newest and best method of raising, planting, and pruning all sorts of Fruit-trees agreeable to the experience and practice of the most eminent Gardeners and Nurserymen, with cuts. 8. *W*.
Again 1727.
The Practical Kitchen-Gardener: 2 vols. 8. *W*.
1719. BARHAM.
An Essay upon the Silk-worm. By Henry Barham. London, 1719. 8. Pages 180. *B*.
1722. FAIRCHILD.
The city Gardener, containing the method of cultivating such plants as will be ornamental, and thrive best in the London Gardens, by Thomas Fairchild. Lond. 1722. 8. Pages 70. *B*.
1723. MOLESWORTH.
Some considerations for the promoting of Agriculture, and employing the Poor. By Lord Molesworth. Dublin, 1723. 4. *W*.
1724.
A Treatise concerning the manner of Fallowing ground, raising of Grass-seeds, and training of Lint and Hemp. 12. *W*.
1724. TARELLO.
Ricordo d'Agricoltura di Tarello. Neap. 2. tom. *H*.
1724. MILLER.
The Gardeners and Florists Dictionary. By Philip Miller. Lond. 1724. 2 vols. 8.
For the other editions, and the rest of Mr. Miller's works, see the Preface.
1726.
Proposals for draining Bedford level. 8.
The Gentleman Farmer, or certain Observations on the Husbandry of Flanders compared with that of England. 12. *W*.
1726. WHITMILL.
The Gardeners Universal Calendar. By Benedict Whitmill. 8. *W*.
CLARICI.
Istoria e coltura della piante che sono pe'l fiore più ragguardevoli, e più distinte per ornare un giardino in tutto il tempo dell'anno; con un trattato degli Agrumi. Per Paolo Bartomoleo Clarici. Venezia, 1726. 4. Pages 761. *B*.
1727. HALES.
Hales's Vegetable Staticks, though not a treatise on Gardening, may be of great service to philosophical Gardeners. 4th edit. 2 vols. 8. 1769.
1727.
The Vineyard; being a treatise, shewing the manner of planting and cultivating Vines, in foreign parts: directions for making Wines: method of planting Vines in England. New experiments in grafting and inoculating all sorts of Fruits; the best manner of raising several sorts of compounded Fruits. 2. *W*.
1728. LE BLOND.
Le Blond's Theory and Practice of Gardening.
1728. LANGLEY.
A sure method of improving estates by plantations of Oak, Elm, Ash, Beech, and other Timber Trees. By Batty Langley, of Twickenham. London, 1728. Pages 274. Plate one. *B*.
New Principles of Gardening, London. 4. By the same. Dedicated to the King. Pages xvi, 207, 191. Plates 21.
Pomona, or the fruit-garden illustrated. By Batty Langley. London, 1729. fol. Pages 150. Plates 79. *B*.
1729.
An Essay on Inclosing, &c. in Scotland. Edinb. *W*.
1729. STAFFORD.
A Dissertation on Cyder and Cyder-fruit, by H. S. (Hugh Stafford) Esq. of Pynes in Devonshire.
Again, 1753. *W*.
1729.

1729. SWITZER.
A compendious method of raising Italian Brocoli, Spanish Chardons, Celeriac, Fenchia, and other foreign Kitchen Vegetables. By Stephen Switzer. *W*.
An account of Lucern, Saint-Foin, Clover, and of burning clay. 8.—Second edition. 1735. *W*.
1730. COWELL.
The curious and profitable Gardener. By John Cowell of Hoxton. Lond. 8. Pages 126. & 67. Said to be adorned with curious figures, but my copy has none.
The curious fruit and flower gardener. 2nd edit. 1732.
Is the same book with a new title. *B*.
1730. RYE.
Observations on Agriculture. By George Rye. Dublin. 8.
1730. DUHAMEL.
De l'importance de l'analogie, et des rapports que les arbres doivent avoir entre eux pour la réussite et la durée des greffes. Par Henri Louis Du Hamel du Monceau. Mem. acad. Par. 1730. 31. *B*.
1731. SWITZER.
A Dissertation on the true Cytisus of the Antients, for the improvement of barren land. By Stephen Switzer. 8. *W*.
A new method of Tanning without Bark. *W*.—again in 1749. *W*.
1731. TULL.
New Horse-hoeing Husbandry, or an Essay on the principles of Tillage and Vegetation. By Jethro Tull.—again 1733; fol.—Supplement, 1735.—Addenda, 1738.—Conclusion, 1739.—8vo. edit. 1762. *W*.
1732.
A compendious account of the whole art of breeding, nursing, and right ordering the Silkworm, with figures. *W*.
Essay against Inclosing common field Land. *W*.
The great improvement of Commons that are enclosed for the advantage of Lords of the Manor, the Poor, and the Public, with methods of enriching every sort of soil, and raising of timber. To ripen fruit at all times of the year; an improvement in raising Mushrooms, Cucumbers, &c. The manner of making and mending roads at a small expence. *W*.
The practical Farmer, &c. *W*.—Was this by Wm. Ellis? If so, this must have been the second edition.
Essay concerning the best methods of pruning fruit-trees, also, the method of pruning timber-trees, also, a Discourse concerning the improvement of the Potatoo. London, 8. Pages 64. *B*.
1732. MORE.
The Flower Garden displayed, in above 400 representations of the most beautiful Flowers, with the description and history of each plant, and the method of their culture. Pages 103; with 13 copper plates. London. 4. It was published in 1734, with a new title, and the addition of a small treatise by Sir Thomas More, entitled—A Flower-garden for gentlemen and ladies, or the Art of raising Flowers to blow in the depth of winter, also the method of raising Salleting, Cucumbers, &c. at any time of the year: p. 125—139. *B*.
1732. MURRAY.
An abstract of an Essay on the improvement of Husbandry, and working of Mines. By Sir Alexander Murray. *W*.
The nature and method of planting, manuring, and dieting a Vineyard. 8.
1732. ELLIS.
Complete Modern Husbandry, by William Ellis. This work came out periodically, and was completed about 1744, in 8 vols. 8vo.—There was an edition in 1750, and in 1752. An Abridgement in 2 vols, 8vo. in 1773. *W*.
This I have not seen: but I have his—Chiltern and Vale Farming explained, according to the latest Improvements, by the Author of the Practical Farmer, or the Hertfordshire Husbandman. London; Printed for the Author William Ellis of Little Gaddesden near Hempsstead in Hertfordshire: one vol. 8. 400 pages. It has no date, but it is plain from the book that it was published in 1732; and as he here refers to a former book of his, he ought to have been placed higher. The second edition of the Practical Farmer was published in 1732 or sooner. 1733.
Instructions for planting and managing Hop-poles. Dublin. *W*.
1734.
The true interest of the land-owners of Great Britain, or the Husbandman's Essay. *W*.
Discovery of the true cause of the wonderful multiplication of Corn, with some general remarks on the nature of Trees and Plants, translated from the Latin of Dr. Wolfius. *W*.
- DE VALLEMONT.
Curiositez de la Nature et de l'Art sur la Vegetation, ou l'Agriculture et la Jardinage dans leurs perfection. Par M. De Vallemont. Paris 1734. 12. Pages 293 & 293. *B*.
1735.
An account of a Threshing Machine, invented at Dalkeith in Scotland, which in a minute gives 1320 strokes, as many as 33 men. It goes while a water-mill is grinding, but may be turned with wind or horse. *W*.
1736.
Weekly Observations relating to Agriculture. Dublin. 12. *W*.
Ways and means to raise the value of land, 8. *W*.
1738.
Some thoughts on the Tillage of Ireland. *W*.
1739.
Weekly Observations relating to Agriculture. Dublin. 12. *W*.
1739. TROWEL.
A new Treatise of Husbandry and Gardening. By Samuel Trowel. 12.—Published in German at Leipzig, 1750. 8. *W*.
1739. RIVIERE.
Methode pour bien cultiver les arbres a fruit, et pour elever les treilles. Par De la Riviere et Du Moulin. Utrecht, 8. Pages 232. *B*.
1739. BUFFON.
Memoire sur la conservation et le retablissement des Forests. Par George Louis le Clerc Comte de Buffon. Mem. acad. par. Memoire sur la culture des Forests. Id. ib. 1742. *B*.
1740. DINSDALE.
The modern art of breeding Bees. By J. Dinsdale. *W*.
Essays on Trade and Husbandry. By a Dublin Society. 8. *W*.
1740. GRAY.
A Catalogue of Trees and Shrubs which are prepared for sale by Christopher Gray Nurserman at Fulham. *W*.
1741. BLACKWELL.
A new method of improving cold wet and barren Land, particularly clayey ground, practised in Great Britain. By Alexander Blackwell, M.D. Translated into Swedish at Stockholm, 1745. 4.—He also published a Treatise in Swedish at Stockholm in 1746. 12. *W*.
1743. MAXWELL.
Treatise on Agriculture in Scotland. Edinb. 8. *W*.
1744.
Adam's luxury and Eve's cookery, or the Kitchen-Garden displayed. 8.—2nd edit. 1756. *W*.
1744. CLARIDGE.
Shepherd of Banbury's Prognostics on the weather. By Claridge. 8. *W*.
1744. GIBSON.
The Husbandry of L. Junius Moderatus Columella in 12 books, with his book concerning Trees, translated from the Latin, by Gibson. 4.
1744.
A new easy and certain method for improving of Estates 30 per cent. per annum, without charge and labour. *W*.
A cheap and easy method of improving Swine's flesh, by a German method of feeding. *W*.
1744. THORLEY.
The Female Monarchy, being an enquiry into the nature, order and government of Bees. 8. *W*.
1746. STEVENSON.
The Gentleman-Gardener instructed. By H. Stevenson. 12. *W*.—8th edit. Lond. 1769. 12. Pages 293. *B*.
1746. MILHAU.
Dissertation sur le Caffeyer. Montpellier. 8. Pages 29. *B*.
1747.
The compleat Florist, consisting of 100 copper-plates of Flowers; coloured and plain. *W*.
1747. SMITH.
Chronicon Rusticum et Commerciale, or the Memoirs of Wool. By J. Smith. 2 vols. 8. *W*.
1748. DUHAMEL.
Sur les Plantes qu'on peut elever dans l'eau. Mem. acad. Par. *B*.
1749. AARON HILL.
Directions for cultivating Vines in America.
1750. DUHAMEL.
Traité de Culture des Terres. Par. 12.
1750. ROUX.
Traité de la Culture et de la Plantation des Arbres. 12.
1751. GARRIDO.
Garrido livro de Agricultura. Lissabon. 4.
1753.
The Kitchen and Flower-Garden, complete, in 4 sheets. *W*.
1753. PULLEIN.
The Silkworm, translated from the Italian of Vida. By Samuel Pulein, M.A. 8. *W*. See 1758.
1753. ROCQUE.
Treatise on the Hyacinth; the manner of cultivating that flower. *W*.
1753. WEBB.
A Catalogue of Seeds and Roots, under their proper heads. By William Webb, Seedsmen.
1754.
Select Essays on Commerce, Agriculture, Mines, and Fisheries. 8. *W*.
Gentleman, Traveller and Husbandman's best companion. *W*.
1754. R. S.
The Gardener's Pocket-book, or Country Gentleman's Recreation, being the Kitchen, Fruit, and Flower-Garden displayed in alphabetical order. By R. S. Gentleman. *W*.
1755.
A new system of Agriculture, by which a Land-owner may double the value of his estate in one year. *W*.
Police des Grains, à Berlin, 12. *H*.
1755. HILL.
A Method of raising trees from the leaves. By John Hill, M.D. 8. *W*.—1758, under the name of Thomas Barnes. *W*. Dr. Hill had published several Books before this—

- as, a general Natural History, vol. 1. 1748. vol. 2. 1751. vol. 3. 1752.—An edition of Theophrastus on stones, 1748. 8. One of his best publications. A History of the Materia Medica. 1751. 4.—A general History of Plants. 1751. fol. Review of the Works of the Royal Society. 1751. 4.—Essays in Natural History. 1752. 8. —The useful Family Herbal. 1755. 8. But these do not belong to our present subject. His other numerous works will be given below. See 1757.
1755. HITT.
A Treatise of Fruit-Trees. By Thomas Hitt, Gardener to the Right Honourable Lord Robert Manners, at Bloxholme, in Lincolnshire. 8. Second edition. London: Printed for the Author, and sold by T. Osborne and J. Shipton, in Gray's Inn; and J. Richardson, in Pater-Noster Row. MDCCCLVII. 8. 392 pages. 7 plates.—Third edition. 1768. See 1760.
1755. JUSTICE.
The Scots Gardener's Director, by James Justice. Edinb. 8. See 1764.
1755. DUHAMEL.
Traité des Arbres et Arbustes qui se cultivent en France en plaine terre. Par. 4. Tomes 4.
1755. BELGROVE.
A Treatise upon Husbandry and Planting. By William Belgrove. Boston, New England. 1755. 4. Pages 86. B.
1756.
On heat and cold of Hot-houses. 8. W.
A Treatise on Welsh Farming. W.
1756. WHITE.
Collateral Bee-boxes; a Treatise on Bees. By Stephen White, rector of Holton in Suffolk. W.
1757.
Considerations on the present dearth of Corn. W.
1757. HILL.
Eden or a compleat body of Gardening. London, fol. Pages 712. Coloured plates 60. B.
Compleat Body of Husbandry, with plates. fol. W.
The Sleep of Plants, explained. Lond. 1757. 12. Pages 57.—2nd. edit. 1762. 8. B.
The Gardener's new Kalendar. By John Hill, M.D. Lond. 8. with plates. Pages 428. B.
He also published the British Herbal in 1756 fol.—The virtues of Valerian, in 1758. 8. B. An idea of a botanical garden in England. 1758. pages 16.—The virtues of Honey in preventing and curing many diseases. 1759. W.—Flora Britannica, 1760. 8. in Linneus's method: and in his own, 1769, 70. 8.—Outlines of a System of vegetable generation, 1758. 8. B.
An account of a stone, which on being watered produces Mushrooms. London 1758. 8. Pages 38. Plates 2. B.
The usefulness of a knowledge of Plants. Lond. 1759. 8. Pages 18. B.
A Method of producing Double flowers from Single, by a regular course of culture: illustrated with figures. London: Printed for R. Baldwin in Pater-noster-row, MDCCCLVIII. Pages 40. Plates 7.—The Dedication to Haller is dated Jan. 4. 1759.
The origin and production of proliferous flowers, with the culture at large for raising double from single, and proliferous from the double. London, 1759. 8. Pages 38. Plates 7. B.
The practice of Gardening by T. Perfect, a pupil of Dr. Hill. London, 1759. 8. Pages 54. B.
Botanical Tracts. Lond. 1762. 8.—A title prefixed to pamphlets published at different times. B.
Hortus Kewensis. 1768. 8.—The family practice of Physic. 1769. 8.—The construction of timber explained by the microscope. 1770. 8.—Exotic Botany, 1772. fol.—Virtues of British herbs. 1772. 8.—The Vegetable System. 1773—1775. fol. 26 vols.—The first vol. 1762. 8.—The power of Water-Dock against the Scurvy. 1777. B.—Besides books on Fossils, insects, &c.
1757. LISLE.
Observations in Husbandry, by Edward Lisle, Esq. late of Crux-Easton, in Hampshire. London MDCCCLVII. 4. Pages 450. A portrait of the author by Ravenet.—Advertisement by the editor, his son Thomas Lisle, dated Burclere Hants Sept. 1. 1756: from which it appears that Mr. Edwd. Lisle settled at Crux-Easton in 1693 or 4, being then about 27 years of age, and that he continued his inquiries and experiments to his death in 1722. The author's Introduction is dated 1713.
Mr. Weston informs us that the notes and observations from the best modern writers are by his Son Thomas Lisle, D.D. And that there was another edition in 2 vols. 8.
1757. HOME.
The Principles of Agriculture and Vegetation, by Francis Home, M.D. 8.—2nd. edit. 1759. W. 1762.
1757. MAXWELL.
The Practical Husbandman, by R. Maxwell, Esq. of Arkland. 8. W.
1757. SMITH.
Chronicon rusticum et commerciale, or memoirs of Wool. 2nd. edit. in 2 vols. 4. W.
- VOL. I.
1757. THOMPSON.
The distinguishing properties of a fine Auricula, by John Thompson of Newcastle. W.
1757. WOOD.
A new compendious Treatise of Farming, by John Wood. 8. W.
1757. DUHAMEL.
Memoires sur la Garance et sa culture. Par. 4. Pages 80. Plates 8. B.
1758. GAVELLI.
Storia distinta, e curiosa del Tabacco—la maniera di coltivarlo, &c. di Niccolo Gavelli. Pefaro. 8. Pages 84. B.
The Dutch Florist. Newcastle. 12. W.
1758. HANBURY.
An Essay on planting, and a scheme to make it conducive to the glory of God, and the advantage of Society, by the Rev. W. H. Rector of Church-Langton, Leicestershire. W.
1758. PULLEIN.
The culture of Silk for the use of the American colonies, and the culture of Mulberry-trees, with copper-plates, by Samuel Pullein, V.D.M. 8. W.
Institution of the general Company for the culture of the Vineyards of Alto Douro. W.
1759. BROWN.
The Complete Farmer, by R. Brown of Hill Farm in Somersetshire. 2 vols. 12.
1759. MILLS.
A Practical Treatise on Husbandry, translated from the French of M. Du Hamel du Monceau, with additions, and copper-plates of new instruments, by John Mills, F.R.S. 4. W. See 1762.
1759. NORTH.
Treatise on Grasses, and the Norfolk Willow. W.
Gardeners Catalogue of hardy Trees, Shrubs, Flowers, Seeds, &c. 8. W.
1759. STILLINGFLEET.
Miscellaneous Tracts relating to Natural History, Husbandry, and Physick. To which is added the Kalendar of Flora, (made in 1755.) By Benj. Stillingfleet. London, 1759. 8.—2nd. edition 1761, greatly augmented.—3d. edit. 1775. Pages 591.—11 plates of Grasses. Dedicated to Lord Lyttelton.—Preface, &c. xxxi pages.—The Tracts are from the Amoenitates Academicæ published by Linneus; with notes by the translator.—Dedication to Lord Viscount Barrington, and Preface to Berger's Calendar of Flora, by Stillingfleet; and his own Calendar at Stratton in Norfolk in 1755.—A Siberian or Lapland year; and the Calendar of Flora by Theophrastus at Athens.—The Swedish Pan by Hasselgren, giving an account of the plants eaten by cattle; from the Amoenitates, with notes. And lastly observations on Grasses, an original work of Stillingfleet's.
1759. GIOVANNI.
Francesco Giovanni delle Malattie del grano. Pefaro. 4. B.
1760.
The honour, &c. of Agriculture.
An Essay on Agriculture. 8.
The Farmer's Guide. 8.
The London Gardener. W.
1760. HITT.
Treatise on Husbandry, on the Improvement of dry and barren lands, by Thomas Hitt. 8. W.
Obstacles to the Improvement of Land in Scotland. Aberdeen. 8. W.
1760. PULLEIN.
Observations towards a method of preserving the seeds of plants in a state of vegetation, during long voyages. By Samuel Pullein, V.D.M. 8. W.
1760. ROCQUE.
Practical Treatise on cultivating Lucern, By Bartholomew Rocque. 8. W. See 1765.
The Art of making Wines from Fruits, Flowers, &c. W.
Treatise on Forest Trees, by Lord Haddington. 8. W.
1760. DUHAMEL.
Traité des Semis et Plantations des Arbres, et de leur Culture. Par M. Duhamel. Par. 4.—with additions to his book on trees. 1755.
Observation sur divers moyens de soutenir et d'encourager l'Agriculture. Tom. 1, 2. Par. 12.
A Treatise of Agriculture. Lond. 8.
Memoire sur la pratique de Semoir. Lyon.
D'Ardene Traité des Tulipes. Avignon, 12. Pages 252. Plates 2. B. See 1762.
1761.
Dissertation sur l'Agriculture. Zurich. H.
1762.
A Discourse on the Cultivation of Waste and Barren Lands, translated from the *Memoire sur les Defrichemens* of the Marquis of Turbilly. 12. W.
1762. MILLS.
A new and complete system of practical Husbandry: containing all that experience has proved to be most useful in Farming, either in the old or new method, with a comparative view of both; and whatever is beneficial to the Husbandman, or conducive to the ornament or improvement of

- of the Country Gentleman's Estate. By John Mills, F.R.S. in 5 vols. 8.—This work was published in sixpenny weekly numbers, and completed in 1763. It was translated into German, and published both at Leipzig and Vienna in 1764. *W.*
1762. BARNES.
A new method of propagating Fruit-trees and Flowering-shrubs, from their parts. By Thomas Barnes. Lond. 1762. 3rd. edit. Pages 40. Plates 2. *B.* See 1755.
1762. DUHAMEL.
Practical Husbandry. 4. *W.* See 1763.
1762. D'ARDENE.
D'Ardene Traité des Oeillet. Avignon, 12. Pages 403. Plates 2. *B.* See 1763.
1763.
An Essay on the Theory of Agriculture, intended as an Introduction to a rational system of the Art. 12. *W.*
1763.
Propositions for improving the Manufactures, Agriculture and Commerce of Great Britain. 8. *W.*
1763. WHEELER.
The Botanist's and Gardener's Dictionary and Calendar, on the Linnæan System, by James Wheeler, nurseryman at Gloucester. 8. *W.*
1763. DUHAMEL.
Elemens d'Agriculture. Par. 8.
Memorias sobre la Granza o Rubia, y su cultivo. Madrid, 4. Pages 126. Plates 5. From Duhamel. *B.*
- BERTRAND.
Essai sur l'Agriculture. Berne, 8. *H.* or 1760. *H.*
1763. D'ARDENE.
Trattato sulla cognizione, e cultura de Giacinti, tradotto del Francese. Viterbo, 8. Pages 112. Plates 2. *B.*
1764. MUSEUM RUSTICUM.
Museum Rusticum et Commerciale: or Select Papers on Agriculture, Commerce, Arts and Manufactures. Drawn from Experience, and communicated by Gentlemen engaged in these pursuits. Revised and digested by several Members of the Society for the Encouragement of Arts, Manufactures and Commerce: in 6 vols. 8.—vol. 1 and 2. 1764. vols. 3, 4 and 5. 1765. vol. 6. 1766.—It was translated into German.
1764. BILLINGS.
A Treatise on Carrots, shewing their great use in feeding and fattening of Cattle. By Robert Billings. 8. *W.*
1764. DICKSON.
Small Farms destructive to the Country in its present situation, by Adam Dickson, M.A. Minister of Dunfermline in Scotland. 8. *W.* See 1765.
1764. ELLIOT.
Elliot's Essays on Field Husbandry in New England. *W.*
Complete Farmer, or Dictionary of Husbandry. 4.—2nd. edit. 1768. *W.*
Foreign Essays on Agriculture and Arts, containing the Discoveries made in the several provinces of France, Germany, Flanders, Sweden and Switzerland. 8. *W.*
1764. GRAINGER.
The Sugar-cane, a Poem, by James Grainger. 4.
1764. HARTE.
Essays on Husbandry. Essay 1, A general Introduction. 2. On Lucerne. 8.—The 2nd. Edition. Lond. 1770. 8. Illustrated with 5 copper-plates, and 25 representations cut on wood. To which is prefixed an epistle dedicatory in verse. The whole corrected and enlarged. By the Rev. Walter Harte, A.M. Canon of Windsor, and Chaplain to the Right Hon. the Earl of Chesterfield. Pages 232. The Essays are preceded by a full table of Contents, and a list of writers on Agriculture.—He also published the life of Gustavus Adolphus; and a volume of Religious Poems entitled the Amaranth. Harte was vice-principal of St. Mary Hall in Oxford, and died Jan. 5. 1768, on the eve of his intended marriage with Mrs. Hopkins. There is a handsome monument to their memory in St. Helen's church at Abingdon.
1764.
A Treatise on Hemp: translated from the French of M. Marcandier.—*Memoire sur une nouvelle maniere de préparer le Chanvre*, 1757.—et *Traité du Chanvre*, 1758. Par. 12. *W.*
1764. RANDAL.
Semi-Virgilian Husbandry, by John Randal. 8. *W.*
New Construction of Ploughs: a new invented universal seed-furrow Plough: a Potatoe Drill-Plough, &c. 4. *W.*
1764. SHENSTONE.
Unconnected thoughts on Gardening, by William Shenstone, Esq. 23 pages. *W.* In his Works.
1764. VAN CAMPEN.
The Dutch Florist, or true method of managing all sorts of Flowers with Bulbous roots, by Nicholas van Campen. 4. *W.*
1764. JUSTICE.
The British Gardener's Director, chiefly adapted to the Climate of the Northern Counties: Directing the Necessary Works in the Kitchen, Fruit and Pleasure Gardens, and in the Nursery, Green-house, and Stove. By James Justice, F.R.S. one of the principal Clerks of Session. Edinburgh; MDCCCLXIV. 8. Pages 443.—The Advertisement, dated September 1763, sets forth, that the first impression being sold off, the Author set about correcting mistakes, and making additions; but that his death deprived the world of his after-labours, which the memorandums and notes left behind him gave room to think he intended to have laid before the public.—This is an original and truly valuable work, founded upon reflection and experience. It wants a good alphabetical index. Mr. Weston mentions an edition in 1767, which I have not seen.
1764. DUHAMEL.
De l'exploitation des Bois. Par. 4. Pages 708. Plates 36. *B.*
1765.
Agriculture and Commerce, a Dialogue. *W.*
- DICKSON.
A Treatise on Agriculture, by Adam Dickson. 8.—vol. 2. in 1769. *W.*
- BAKER.
Experiments in Agriculture, made under the direction of the Dublin Society, by John Wynn Baker. 8. *W.*
- FORDYCE.
Elements of Agriculture, and Vegetation: by George Fordyce, M.D. Edinb. 8. 2nd. edit. 1771. Lond. Johnson. *W.*—To which is added an Appendix, for the use of Practical Farmers. 3rd. edit. Lond. MDCCCLXXIX. 8. Pages 104 and 8.
- ROCQUE.
A Practical Treatise on cultivating Lucern Grass. Improved and enlarged. And some hints relative to Burnet and Timothy Grasses. By B. Rocque, of Walham Green. London: MDCCCLXV. 8. Pages 55. Comprehending a new method of improving land. Dedicated to the Society for the encouragement of Arts, Manufactures and Commerce.—Extracts from Hartlib's Legacy, about Lucern.
- MONNEREAU.
Le parfait Indigotier; Amst. 12. *B.* par Elie Monnerneau.
1766.
An impartial view of English Agriculture, from the permitting the Exportation of Corn in 1663, to the present times. 8.
Three Tracts on the Corn laws. 8.
Present state of Great Britain and North America, in regard to Agriculture. 8.
Observations on some papers in the Museum Rusticum, with new theoretical and practical pieces on Husbandry. 8.
An enquiry into the cause of the great scarcity of Timber. 8. *W.*
- GILES.
The method of raising Pines and Melons. 8. *W.*
- HARRISON.
A new method of making the Banks in the Fens almost impregnable: with a new but certain method of preparing lands therein for the growth of Timber; by John Harrison, Botanist, Nurseryman in Cambridge. Cambr. 8. Pages 61. Dedicated to John Duke of Bedford.
- HOMER.
The nature and method of ascertaining the specific shares of proprietors upon the Inclosure of Common Fields. *W.*
- LIGHTOLER.
The Gentleman and Farmer's Architecture, being plans for Parsonage and Farm Houses, with Pineries, Green-houses, &c. on 25 plates, by J. Lightoler. fol. *W.*
- LOCKE.
Observations upon the growth and culture of Vines and Olives, the production of Silk, and the preservation of Fruits, Written at the request of the Earl of Shaftesbury, to whom it is inscribed, by Mr. John Locke: now first printed from the original manuscript in the possession of the present Earl of Shaftesbury. *W.*
- MAWE.
Every man his own Gardener, being a new Gardener's Calendar, with complete and useful lists of Forest-trees, Flowering-shrubs, Fruit-trees, Ever-greens, annual biennial and perennial Flowers: Hot-house, Green-house, and Kitchen-garden plants, with the varieties of each sort cultivated in the English gardens. 12. *W.*
Of this very useful and popular work the editions have been numerous. In the British Fruit-Gardener, 1779, it is said that seven editions had then been printed; and that this work, from "a diffidence in the writer, was first published as the production of Thomas Mawe, Gardener to his Grace the Duke of Leeds, and other Gardeners; but that it was entirely written by the author of the following sheets: whose claim has since been, in some measure, asserted, by subjoining to the Title-page of the latter editions, the name of John Abercrombie, to the more popular one of Mr. Mawe." It is to be lamented that so respectable a performance should be accompanied by this deceit and book-craft; and it is singular that it has been continued after the above declaration.
I have the eleventh edition, printed in 1787; and the sixteenth in 1800. Pages 758, besides a copious index. In the last is a frontispiece, with John Abercrombie, aged 72, standing in his garden.—Eighteenth edition in 1806.
The Universal Gardener and Botanist; or a General Dictionary

- onary of Gardening and Botany. By Thomas Mawe and John Abercrombie, Authors of Every Man his own Gardener. London, Printed for G. Robinson, in Pater-noster-Row; and T. Cadell, in the Strand. MDCCCLXXVIII. 4. Second edition 1779 or 80.—According to Mr. Weston the first edition was printed for Griffin in 1770. 4.
- The British Fruit-Gardener; and Art of Pruning. By John Abercrombie; of Tottenham-Court, Gardener: Author of Every Man his own Gardener, First published under the name of Tho. Mawe. London: Printed for Lockyer Davis, in Holborn. MDCCCLXXIX. Pages 346.
- The Complete Forcing-Gardener. By John Abercrombie, of Tottenham-Court, Gardener. Author of Mawe's Gardener's Kalendar. London: Printed for Lockyer Davis, in Holborn. MDCCCLXXXI. 12. Pages 192.
- The Garden Mushroom, its nature and cultivation. By John Abercrombie. MDCCCLXXIX. London. L. Davis. 8. Pages 54.
- The Gardener's Pocket Dictionary, or a Systematic Arrangement of Trees, Shrubs, Herbs, Flowers, and Fruits, agreeable to the Linnæan Method. By John Abercrombie, Author of Mawe's Gardener's Calendar, and other Works. 3 vols. 12. London: Printed for Lockyer Davis in Holborn. MDCCCLXXXVI.—How this and the quarto Dictionary, in which the plants are ranged alphabetically, can be said to be a systematical arrangement, agreeable to the Linnæan Method, I am at a loss to conceive.
- The Garden Vade-mecum, or Compendium of General Gardening; and descriptive display of the Plants, Flowers, Shrubs, Trees, and Fruits, and General Culture. By John Abercrombie, upwards of 40 years Practical Gardener, and Author of Every man his own Gardener. London, Printed for John Stockdale, Piccadilly. 1789. 12. Pages 585.
- The Complete Kitchen Gardener, and Hot-bed Forcer. By John Abercrombie, Author of Every man his own Gardener, commonly called Mawe's Gardener's Kalendar; but the Work of J. A. only. London, Printed for John Stockdale, Piccadilly. MDCCCLXXXIX. 12. Dated from Newington, Surry. Oct. 25. 1788. Pages 509.
- The Universal Gardener's Kalendar, and System of Practical Gardening, by John Abercrombie. I have not seen.
- MILLS.
Essay on the management of Bees, by John Mills, F.R.S. 8. Translated into German at Leipzig. *W.*
- Mr. Harte says there are 60 treatises on Bees and Silkworms.
- TEMPLEMAN.
Practical Observations on the Culture of Lucern, Burnet, Timothy-grass, Fowl's Meadow-grass, &c. by Peter Templeman. *W.*
- ARDUINO.
Pietro Arduino, Memorie di osservazioni, e di sperienze sopra la coltura, e gli usi di varie piante, che servono, o che servir possono utilmente alla tintura, all'economia, &c. Tomo 1. Padova, 1766. 4. Pages 105. Plates 19. *B.*
- DUCHESNE.
Histoire Naturelle des Fraisières, par Ant. Nic. Duchesne. Paris, 1766. 12.
1767.
Examination of an Impartial View of English Agriculture. 8. Wilkie.
- Ananas, a Treatise on the Pine-Apple.
- Select Scotch Essays, from the Museum Rusticum, tried in Scotland. 8.
- The practical Farmer, or Herefordshire Husbandman. 12.
- A plan of an experimental Farm, addressed to Lord Clive. 8.
- Uniting and monopolizing Farms, proved disadvantageous to the Landholders. Smith.
- Observations on the Farmers three Letters, to a Member of Parliament. 8. Almon.
- The Complete Grazier, or Gentleman and Farmer's Directory. 8.
- The rise and progress of the present taste of planting Parks and Gardens. 8.
- A Discourse concerning the Irritability of some Flowers, a new discovery, translated from the Italian. 8. Doddsley. *W.*
- RUTTEN.
Modern Eden, or the Gardeners Universal Guide, by John Rutten. 8. *W.*
- YOUNG.
The Farmer's Letters to the People of England, containing the Sentiments of a Practical Husbandman on various subjects of great importance. To which are added, Sylva; or occasional Tracts on Husbandry and Rural Oeconomics. London, printed for W. Nicoll. MDCCCLXVII. 8. *W.*
- I have the second edition. MDCCCLXVIII. 8. Pages 482.
- There was a third edition in 2 vols. 1770. or 71.
- The Farmer's Guide in hiring and stocking Farms, in 2 vols. By the Author of the Farmer's Letters. London. Strahan, Nicoll, &c. MDCCCLXX. 8. Pages 458 and 500.
- A Six Months Tour through the North of England; in 4 volumes. The second edition, corrected and enlarged, London, Strahan, Nicoll, Cadell, &c. MDCCCLXXI. 8. Pages 359, 459, 464, 466.—The first edition was probably in 1769. The tour was made in 1768.
- A Six Weeks Tour through the Southern Counties of England and Wales. By the Author of the Farmer's Letters. The third edition, corrected and enlarged. London, Strahan, Nicoll, Cadell, &c. MDCCCLXXII. 8. Pages 488.—This tour was made in 1767.
- The Farmer's Tour through the East of England. By the author of the Farmer's Letters, and the Tours through the North and South of England. In 4 volumes. 8. London, Strahan, Nicoll, &c. MDCCCLXXI. Pages 495, 560, 483, 523.
- An Essay on the management of Hogs. ed. 1, 2. 1770.
- An Essay on the Culture of Coleseed.—Both published by desire of the Society for the Encouragements of Arts, &c. 1770.
- The expediency of a free exportation of Corn: ed. 1, 2, with an Appendix. 1770. 8.
- Proposals to the Legislature for Numbering the People. 1771. 8.
- A Tour in Ireland, with general observations on the present state of that Kingdom. Made in the years 1776, 7 and 8, and brought down to the end of 1779. By Arthur Young, Esq. F.R.S. &c. &c. The second edition; in two volumes. London: Printed by H. Goldney, for T. Cadell, in the Strand, MDCCCLXXX. 8. 539, 416.
- Annals of Agriculture and other useful Arts, collected and published by Arthur Young, Esq. F.R.S. &c. &c. Bury St. Edmund's 1790, &c. 8.—Published monthly till July 1805; then quarterly—from the 40th vol. printed in London.
- The Farmer's Calendar: containing the business necessary to be performed during every month of the year. By Arthur Young, Esq. F.R.S. Secretary to the Board of Agriculture, &c. A new edition, greatly enlarged and improved. London, Phillips, 1804. 8. Pages 575.—I believe the first edition was printed in 1771.
1768.
The Fruit-Gardener, containing the method of raising Stocks for multiplying Fruit-trees, with directions for laying out and managing Fruit-gardens. 8. *W.*
- An Essay on Design in Gardening. 8. White. *W.*
- De Re Rustica, or the Repository of select papers on Agriculture, Arts and Sciences. 8. A periodical work in numbers, succeeding the Museum Rusticum, completed in 10 numbers: vol. 1. in 1769: vol. 2. in 1770. *W.*
- DOSSIE.
Memoirs of Agriculture, by Robert Dossie, Esq. 8. vol. 1. —vol. 2. 1771. Nourse. *W.*
- SAINT-SIMON.
Des Jacintes, de leur Anatomie, Reproduction et Culture. A Amsterdam, MDCCCLXVIII. 4. Pages 164. Plates 10.—Besides a Catalogue of Hyacinths known in 1767, in 15 pages; and a preliminary Discourse addressed to the royal academy of Sciences at Berlin. (By the Marquis de Saint-Simon.)
1769.
WILDMAN.
A Treatise on the management of Bees, by Thomas Wildman. 4. Cadell. *W.*—2nd. edit. with an appendix. 8. 1770.
- Letters on the French Nation, containing the comparative Agriculture between England and France. 8. *W.*
- The American Traveller, or Observations on the present state, culture and commerce of the British Colonies. 4. *W.*
- DICKS.
A new Gardener's Dictionary, or the whole art of Gardening, fully and accurately displayed; containing the most approved methods of cultivating all kinds of Trees, Plants and Flowers, in 60 numbers, small folio. *W.*
- GARTON.
The Practical Gardener and Gentleman's Directory, for every month in the year, by James Garton. 8. Dilly. *W.*
- HANBURY.
A Complete Body of Planting and Gardening, containing the Natural History, Culture and Management of Deciduous and Evergreen Forest-trees, &c. the whole forming a Complete History of Timber-trees, whether raised in Forests, Plantations or Nurseries; as well as a general system of the present practice of the Flower, Fruit, and Kitchen-Gardens. By the Rev. William Hanbury, M.A. To be completed in about 140 sixpenny weekly numbers, from December 1769, in two volumes folio. *W.* About 50 numbers published in 1770.—About 40 more in 1771.—nearly completed in 1772.
- HUNTER.
Georgical Essays, by A. Hunter, M.D. F.R.S. vol. 1. small 8. Durham. *W.* 2nd. vol. 1770.—3rd. vol. 1771. 4th. vol. 1774.—My edition is printed at York, MDCCCLXXVII. 8. Pages 530. This is a first volume, to be continued. There has been an edition since this in 6 volumes large octavo, published in 1803 and 1804. See Evelyn, 1664.
1770.
DOVE.
Strictures on Agriculture, wherein a Discovery of the physical

- fical cause of Vegetation, of the food of Plants, and the rudiments of Tillage are attempted, by John Dove. 8. Bladon. *W.*
- COMBER.**
Free and candid Correspondence on the Farmer's Letters to the People of England, by the Rev. Thomas Comber. 8. *W.* See 1771.
- MILLS.**
An Essay on the Weather, with remarks on the Shepherd of Banbury's Rules for judging of its changes, by John Mills, F.R.S. 8. Hooper.—2nd. edit. 1773.
Essays on Agriculture, &c. by the Same. 1772. Hooper. 8. *W.*
The Natural and Chemical Elements of Agriculture; translated from the Latin of Count Gustavus Adolphus Gyllenborg. By the Same. 12. Bell. *W.*
- MILNE.**
A Botanical Dictionary, by Colin Milne, L.L.D.—in which is a discussion of several curious questions in the Vegetable oeconomy, connected with Gardening. 8. Griffin.—2nd. edit. MDCCLXXVIII. Lowndes.—3rd. edit. greatly enlarged, and embellished with 25 new Plates. 1806. Symonds.
- PENNINGTON.**
Reflections on the various advantages resulting from the draining, inclosing and allotting of large Commons and Common Fields. By W. Pennington. 8. White. *W.*
- PETERS.**
The Rational Farmer, or a Treatise on Agriculture and Tillage, by Matthew Peters, member of the Dublin Society. 8. Flexney. *W.*
Winter Riches, or a Miscellany of Rudiments, &c. necessary for the laborious Farmer, by the same. 8. *W.*
- FORSTER.**
Travels into North America; containing its Natural History, and a circumstantial account of its Plantations and Agriculture in general. By Peter Kalm. Translated by John Reinhold Forster, F.A.S. Warrington, 1770. vol. 1.—London 1771. vol. 2 and 3. Pages 400, 352, 310. With a map, plates and Index; and notes by the translator.
- ELLIS.**
Directions for bringing over Seeds and Plants, from the East Indies and other distant Countries, in a state of Vegetation. By John Ellis, F.R.S. London, Lockyer Davis. 4. also 1771—addition, 1773—1775, with the Mangostan.—See Philos. Transf. vol. 51. and 58.—Transf. amer. vol. 1. Journal de Physique, tome 2.—See 1774.
- WESTON.**
The Universal Botanist and Nurseryman; containing Descriptions of the Species and Varieties of all the Trees, Shrubs, Herbs, Flowers and Fruits, Natives and Exotics, at present cultivated in the European Nurseries, Greenhouses and Stoves, or described by modern Botanists; arranged according to the Linnæan System, with the Names in English. To which are added a copious Botanical Glossary: several useful Catalogues and Indexes; illustrated with elegant Engravings, by Richard Weston, Esq. 8.—vol. 2. 1771.—vol. 3. 1772.—vol. 4. 1773. Bell.
Tracts on Practical Agriculture and Gardening; with several useful improvements in Stoves and Greenhouses. To which is added a Chronological Catalogue of English Authors of Agriculture, Botany, Gardening, &c. By R. Weston, Esq. Author of the Universal Botanist. The second edition, greatly improved. 8. London, Hooper, MDCCLXXIII. Pages 298 and 136.
The English Flora: or a Catalogue of Trees, Shrubs, Plants and Fruits, &c. Also a general Catalogue of Seeds, usually raised for sale, and those annually imported from America. By Richard Weston, Esq. Author of the Universal Botanist, &c. London, Printed for the Author, MDCCLXXV. 8. Pages 259.—Supplement, MDCCLXXX. Pages 120.
A Catalogue of Greenhouse Plants, on 2 sheets—and of Stove-Plants, on 2 sheets: cultivated in England in 1775.
The Gardener's and Planter's Calendar. 12.
The Gardener's Pocket Calendar.
The Gardener's alphabetical Calendar.
The Pocket Kitchen-Gardener.
The Pocket Flower-Gardener.
- WHEATLEY.**
Observations on Modern Gardening, illustrated by descriptions. London, Payne, 8. *W.*—My copy is the third edition, MDCCLXXI. Pages 257.
The Rural Socrates, from the Socrate Rustique of Hirzel. *W.*
A Course of Experimental Agriculture: containing an exact register of all the business transacted during 5 years, on near 300 acres of various soils,—both in the old and new methods. 2 vols. 4. Dodsley. *W.*
- 1771.
- COMBER.**
Real Improvements in Agriculture, on the Principles of Arthur Young, Esq. recommended to accompany improvements of Rents. By Thomas Comber, Rector of Buckworth and Morbone, Hunts. 8. Nicoll. 83 pages. *W.*
The Complete English Farmer, or a Practical Essay on Husbandry, &c. By a Practical Farmer, and a friend of the late Mr. Jethro Tul, author of Horse-Hoeing Husbandry. 8. Newbery. *W.*
- FORSTER.**
Voyage to China and the East Indies, with Toren's voyage to Suratt, and Eckeberg's account of the Chinese Husbandry, Translated from the Swedish of Olbeck, by John Reinhold Forster, 2 vols. 8. with plates. *W.*
- MEADER.**
The Modern Gardener, or Universal Gardener, by James Meader, from the manuscripts of the late Mr. Hitt. 8. *W.*
1772. **CHAMBERS.**
A Dissertation on Oriental Gardening. By Sir William Chambers, Knt. Comptroller General of his Majesty's Works. London, Griffin. 1772. 4. Pages 94, besides the Preface, x pages. An elegant frontispiece; bust of the King, and view of Somerset Place, in a medallion, by Cipriani and Bartolozzi. Dedicated to the King.
- BAILEY.**
Descriptions, with views and plans, of machines and models, in the repositories of the Society for the Encouragement of Arts, &c. with an account of the several discoveries and improvements which have been promoted in Agriculture, &c. By William Bailey. 4. 400 pages and 55 plates. *W.*
- LETTSOM.**
The Natural History of the Tea-Tree, by John Coakley Lettsom, M.D. F.S.A. London, Dilly. 4. Pages viii. and 64. Plate 1.—A Second edition was published in 1779. 4. Pages ix. and 102. Plates 5.
He also published Hortus Uptonensis, or a Catalogue of Stove and Green-house Plants in Dr. Fothergill's Garden at Upton, at the time of his decease (which happened in 1780.) The Catalogue is preceded by Directions for bringing over Seeds and Plants from distant countries.
- MARSHALL.**
Travels through Holland, &c. in 1768, 69, and 70. In which is particularly minutely, the present state of those countries respecting their Agriculture, &c. By Joseph Marshall, Esq. 3 vols. 8. Almon. Pages 1104. *W.*
- MASON.**
The English Garden, a Poem, by William Mason, M.A. 4. *W.*
- PATTULLO.**
An Essay upon the Cultivation of the Lands, &c. in Bengal. By Henry Pattullo, Esq. 4. Becket: 74 pages. *W.*
- ST. PIERRE.**
The Art of Planting and Cultivating the Vine, &c. according to the most approved methods in France. By Louis de Saint Pierre. 12. Wilkie: 364 pages. *W.*
- WHITE.**
A Complete Guide to the mystery and management of Bees, by William White. 8. Richardson. *W.*
1774. **ELLIS.**
An Historical Account of Coffee, with an Engraving, and Botanical Description of the Tree. To which are added sundry papers relative to its Culture and Use. By John Ellis, F.R.S. Agent for the Island of Dominica. London, Dilly. 4. Pages 69: Plate 1.
- PARMENTIER.**
Ouvrage economique sur les Pommes de Terre, Le Froment et Le Riz. Par M. Parmentier. Paris. 12. Pages 248.
Recherches sur les vegetaux nourissans, qui, dans les temps de disette, peuvent remplacer les alimens ordinaires. Par Jean Parmentier. Paris, 1781. 8. Pages 599. Plate 1. *B.*
Traité sur la Culture et les usages des Pommes de terres, de la Patate et du Topinambour. Paris, 1789. 8. Pages 386. 1775.
- MALLET.**
Beauté de la nature, ou fleurimanie raisonnée, concernant l'art de cultiver les Oeillets—avec une dissertation sur les arbrisseaux; par Robert Xavier Mallet. Paris, 1775. 12. *B.*
American Husbandry. Containing an account of the Soil, Climate, Production and Agriculture of the British Colonies in North-America and the West-Indies. By an American. In two volumes. London, Bew, MDCCLXXV. 8. Pages 472, and 319.
1778. **WIGHT.**
Present state of Husbandry in Scotland. By Robert Wight, of Ormstown, East Lothian, Scotland. 8. vol. 1; 2.—vols. 3, 4. 5. 6. were published long after, for Creech, Edinb. and Cadell, London. *Y.*
- BOUTCHER.**
A Treatise on Forest-Trees, by William Boucher, Nurseryman at Comely-garden, Edinburgh. edit. 2. Edinb. 1778. 4. Pages 259.
- SWINDEN.**
The beauties of Flora displayed, or Gentleman and Lady's pocket-companion to the Flower and Kitchen Garden, by N. Swinden. Lond. 1778. 8. Pages 86. Plates 4.
1779. **SPEECHLY.**
A Treatise on the Culture of the Pine-Apple. By William Speechly, York. 8. Pages 100. Plate 1.—Insects that infest Hot-houses, with methods of destroying them. p. 101 —174. *B.* See 1790.

CASAUX.

Système de la petite culture des Cannes à sucre. Lond. 4. pages 74: plate 1.—In *Philos. Trans.* vol. 69.—And in *Traité du Sucre*, de M. le Breton. Par. 1789. 12. B.

CARVER.

A Treatise on the Culture of the Tobacco Plant. By Jonathan Carver. Lond. 8. Pages 54. Plates 2. B.

1780. FAUDEL.

Frider. Guil. Faudel Specimen inaug. de Viticultura Richovillana Argent. 4. Pag. 30. B.

1783. BERCHEM.

Van Berchem, pere; sur une methode particuliere de cultiver les Pommes de terre et les Raves. mem. soc. Lau-fanne. B.

1783.

This year the Society instituted at London for the Encouragement of Arts, Manufactures, and Commerce, commenced the publication of their Transactions, and have continued to publish a volume in octavo annually ever since.

1784. ANDERSON.

Essays relating to Agriculture and Rural Affairs. By James Anderson, L.L.D. Farmer at Monk's-hill, Aberdeenshire, Edinb. MDCCCLXXXIV. 2 vols. 8. 3rd. edit. Pages 461 and 410.—The Dedication to the second edition is dated aug. 1776.—I have not seen that, or the first edition.—A third volume was published in 1796. Pages 631.

1785. SECONDAT.

Memoire sur la culture des Vignes de la Guienne, et sur les vins de cette province, par M. De Secondat; dans ses Memoires sur l'histoire naturelle. Paris, fol. p. 63—89. B.

1786. BROCC.

A Description of certain methods of planting, training, and managing all kinds of fruit-trees. By Philip le Brocq. London, 8. Pages 43. B.

1787. MARSHALL, WILLIAM.

The Rural Economy of Norfolk. By Mr. Marshall, author of Minutes of Agriculture in Surry, &c. 2 vols. 8. London, Cadell. Pages 490 and 392.

In 1780, Mr. Marshall submitted to the Society of Arts, a plan for promoting Agriculture, which is printed with this book.—The same year he went into Norfolk, as Agent to Sir Harbord Harbord's estates. Mr. Marshall's career therefore should be dated from that year, if not earlier.

The Rural Economy of Yorkshire. By Mr. Marshall: in 2 vols. 8. Lond. Cadell, MDCCCLXXXVIII. Pages 413 and 365. Mr. M. is a native of Yorkshire, which he left in 1783. He paid a second visit to it in 1787.

The Rural Economy of Gloucestershire, including the Dairy; together with the Dairy management of North Wiltshire, and the management of Orchards and Fruit-liquor in Herefordshire. By Mr. Marshall: in 2 vols. 8. Gloucester for Nicol. MDCCCLXXXIX. Pages 332 and 401.

The Rural Economy of the Midland Counties. By Mr. Marshall: in 2 vols. 8. London, Nicoll, MDCCXC. Pages 492 and 445.

Mr. M. resided chiefly at Statfold, near the junction of the four counties of Leicester, Warwick, Stafford, and Derby, from march 1784 to april 1786; and spent three months besides, in the summer of 1789, in Leicestershire.

The Rural Economy of the West of England. By Mr. Marshall: in 2 vols. 8. Lond. Nicol. MDCCXCVI. Pages 332 and 358.

Minutes, Experiments, Observations, and general Remarks on Agriculture, in the Southern Counties: a new Edition. To which is prefixed a sketch of the Vale of London, and an outline of its Rural Economy: now first published. By Mr. Marshall. London, Nicol, &c. 1799, 2 vols. 8. Pages 414 and 387.

In these 12 volumes we have the Practice of Rural Economy, throughout nearly the whole of England.

Mr. Marshall's lists of Provincialisms will assist materially in composing a Dictionary of Rural Terms, for want of which persons living in distant counties cannot converse with each other on agricultural subjects with precision.

Besides these local works, Mr. Marshall published—Planting and Rural Ornament, in one volume octavo 1785—and a second edition, with large additions of Planting and Ornamental Gardening, a Practical Treatise in 2 volumes. London, Nicol. MDCCXCVI. 8. Pages 408 and 454. Without his name.—And,

A Review of the Landscape, a didactic Poem: also an Essay on the Picturesque: together with Practical Remarks on Rural Ornament. By the Author of Planting, &c. London, Nicol, &c. 1795. 8. Pages 275.

Mr. Marshall's first Works must not be forgotten—his Minutes of Agriculture made on a Farm of 300 acres, near Croydon in Surrey.—And, Experiments and Observations concerning Agriculture and the Weather. Which are lately united in one volume quarto.

The Botanical Magazine, by William Curtis, began its career in this year 1787, and contains occasional hints on the culture of exotic plants.

1788.

Letters and Papers on Agriculture, Planting, &c. Selected from the Correspondence Book of the Society instituted at Bath (in 1777) for the Encouragement of Agriculture, &c. vol. 1. edit. 3. Bath. 8. Pages 362.—vol. 2. ed. 2. VOL. I.

1788. pages 383.—vol. 3. ed. 2. 1788. pages 447.—vol. 4. 1788. pages 433.—vol. 5, 1790. pages 472.—vol. 6. 1792. pages 394.—vol. 7. 1795. pages 390.—vol. 8. 1796. pages 390. A ninth and tenth volume of this respectable work have been published.

De Badier Observations sur differences especes de Cotonniers cultivées à la Guadeloupe. Mem. agr. Par. 1788. B.

De Commerell. Memoire et instruction sur la Culture, l'usage, et les avantages de la Racine de disette, ou Betterave champetre. Paris 1788. 8. Pages 47. Plates 2. B.

1789. GOUFFIER.

De Gouffier Memoire sur la culture du Riz. Mem. agr. Par. B.

COSSIGNY.

De Cossigny de Palma: Memoir, containing an abridged Treatise, on the Cultivation and Manufacture of Indigo. (With several Memoirs on the process observed in different parts of India.) Calcutta, 1789. 4. Pages 172. B.

BROUSSE.

Mélanges d'Agriculture. Nîmes, 1789. 8. B.

GRÆFER.

A Descriptive Catalogue of upwards of 1100 species and varieties of Herbaceous or Perennial Plants; with a list of hardy Ferns, and ornamental Annuals. By John Græfer, Botanic Gardener to the King of Naples. London, 8. Pages 139.

EMMERICH.

The culture of Forests, by A. Emmerich. Lond. 1789. 8. Pages 122 and 21. B.

1790. BRULLES.

The mode of cultivating and dressing Hemp. London, 1790. 4. Pages 15. B.

Hints for the management of Hot-beds, and Directions for the Culture of early Cucumbers and Melons. To which are added, brief Instructions for Pruning Wall and Espalier Trees. Bath, MDCCXC. 8. Pages 31.

SPEECHLY.

A Treatise on the Culture of the Vine. York, 1790. 4. Pages 224. Plates 5. B. It has been since republished in one volume octavo, with 6 plates.

DUTRONE.

Precis sur la Canne, et sur les moyens d'en extraire le sel essentiel. Paris, 1790. 8. par Dutrone la Couture. Pages 332. Plates 6. B.

1791. DALRYMPLE.

Account of the cultivation of Pepper: in Dalrymple's Oriental Repertory, vol. 1. 1791—93. 4°. B.

1791. FORSYTH.

Observations on the Diseases, Defects and Injuries in all kinds of Fruit and Forest Trees. With an account of a particular method of cure invented and practised by William Forsyth, Gardener to his Majesty at Kensington. London: Printed for the Author; and sold by Nicol. MDCCXCI. 8. Pages 71.

1792. MARTYN.

Flora Rustica: exhibiting accurate figures of such plants as are either useful or injurious in Husbandry: drawn and engraved by F. P. Nodder, botanic painter to her Majesty: with scientific characters, popular descriptions, and useful observations, by Thomas Martyn. B.D. and F.R.S. &c. London, 4 vols. 8.—vol. 1, 2, 3. 1792.—vol. 4. 1794. Leaves and coloured Plates 144.

MADDOCK.

The Florist's Directory, or a Treatise on the Culture of Flowers (Hyacinth, Tulip, Ranunculus, Anemone, Auricula, Carnation, Pink, and Polyanthus.) By James Maddock, Florist, at Walworth, near London. 8. 1792. Pages 272. Plates 6.

1793. STEELE.

An Essay upon Gardening, containing a Catalogue of Exotic Plants; the best method of planting the hot-house Vine; observations on the history of Gardening, &c. By Richard Steele, late of Thirsk, but now of Sion-hill, in the County of York. York, MDCCXCIII. 4. Pages 102, with plans and elevations of a stove and greenhouses.

1794. S. H.

A Practical Treatise on Planting; and the management of Woods and Coppices. By S. H. Esq. M.R.L.A. and Member of the Committee of Agriculture of the Dublin Society, &c. &c. Dublin, Sleater, MDCCXCIV. 8. Pages 139.

This treatise announces, as just published by Sleater, a Practical Treatise on Husbandry—and, as speedily to be published, the Young Gardener's best Companion for the Kitchen and Fruit-Garden; by S. Fullmer and other Gardeners; corrected and improved by Alexander Hamilton: to which is added a complete monthly Kalender.—Also, the young Gardener's best Companion for the Pleasure Ground and Flower-Garden, &c. By Samuel Fullmer.

This year General Views of the Agriculture of many of the Counties in England, Wales and Scotland, drawn up for the consideration of the Board of Agriculture, were printed in quarto, under the direction of the Board.

MONK.

An Agricultural Dictionary, consisting of Extracts from the most

most celebrated authors and papers. By John Monk. London, 1794. 2 vols. 8. Pages 384, 372.—I have not seen a third volume. It is a mere compilation, but arranged under heads.

McPHAIL.

A Treatise on the Culture of the Cucumber—with Hints and Observations for the improvement of Agriculture. By James Mc Phail, Gardener to Lord Hawkelbury. London, Cadell, 1794. 8. Pages 528, of which 300 are on the Cucumber, which the author's method is to raise every month in the year, from the same plants.

KNIGHT.

The Landscape, a Didactic Poem, in 3 books; addressed to Uvedale Price, Esq. By R. P. Knight. London. Nicol. 4. 1794.

ROXBURGH.

An account of the Hindoo method of cultivating the Sugar-cane, &c. by William Roxburgh. In Dalrymple's Oriental Repertory, vol. 2. 1794. 4. B.

1795. WHITE.

A Naturalist's Calendar, with Observations on various branches of Natural History; extracted from the papers of the late Rev^d. Gilbert White, M.A. London, 8. Pages 170. Besides the Calendar and observations on the Weather, there are a few scattered remarks that regard Husbandry and Gardening.

MASON, GEORGE.

An Essay on Design in Gardening, first published in 1768, now greatly augmented. Also a revival of several late publications on the same subject. By George Mason. London, White. 8. Pages 215.—An Appendix was published in 1798. Pages 19.

REPTON.

Sketches and Hints on Landscape Gardening, collected from Designs and Observations now in the possession of the different Noblemen and Gentlemen, for whose use they were originally made; the whole tending to establish fixed principles in the art of Laying out Ground. By H. Repton, Esq. London, Boydell and Nicol. 1795. fol. See 1803.

KNIGHT.

Observations on the Grafting of Trees, by Thomas Andrew Knight, Esq. in Philos. trans. for 1795. See 1797.—There are some interesting papers on the fecundation of Vegetables, and on the Sap of trees, by this ingenious gentleman in the later volumes of the Philosophical Transactions, for 1799, 1801, and 1803.

Report of the Committee of the Board of Agriculture—concerning the Culture and Use of Potatoes. Lond. Nicol. 1795. 4. Pages 177.

The Board of Agriculture this year commenced the republication of the General Agricultural Views of Counties, or Reports, as they are commonly called, with additional Remarks, in octavo. Lancashire, by Mr. John Holt, was published this year.—As was also that of Mid-Lothian, by George Robertson. 1796. COYTE.

Dr. Coyte's Hortus Botanicus Gippovicensis. Lond. White, 4. It contains indications of the mode of culture; and information on the natural produce of some Grass lands in High Suffolk.

An Account of the Culture of Potatoes in Ireland. 1796. 8. 28 pages.

Large Farms recommended, in a national view. A Reply to Mr. Wright's Address to the Public, on the Monopoly of Small Farms. Lond. Scatcherd. 8. 27 pages.

ANSTRUTHER.

Remarks on the Drill Husbandry. By Sir John Anstruther, Bart. Lond. Egerton. 8. 199 pages.

Memoirs of the Literary and Philosophical Society of Manchester, vol. 4. This volume has—Experiments and Observations on the Vegetation of Seeds, by Mr. John Gough—and, Observations on the advantages of planting Waste-Lands, by Tho. Richardson, Esq.

This year the Agricultural Reports of Kent, by John Boys; of Norfolk, by Nathaniel Kent; and of Staffordshire, by W. Pitt, were published in octavo.

1797. BUCKNALL.

The Orchardist: or a System of close Pruning and Medication for establishing the science of Orcharding. By Tho. Skip Dyot Bucknall, Esq. London: Nicol. 1797. 8. Pages 122.

ELKINGTON.

An account of the most approved mode of Draining Land according to the system practised by Mr. Joseph Elkington. With an Appendix, containing hints for the farther improvement of bogs, together with observations on hollow and surface draining in general. Drawn up for the consideration of the Board of Agriculture, by John Johnstone. Edinb. 1797. 4. Pages 182. Plates 12.—and 1801. 8.

KNIGHT.

A Treatise on the Culture of the Apple and Pear, and on the Manufacture of Cider and Perry. By T. A. Knight, Esq. Ludlow, Proctor. London, Longman. 1797. 12. Pages 185.

DE LILLE.

The Gardens, a Poem, translated from the French of the Abbé de Lille. By Mrs. Montolieu. 4.

Transactions of the Linnean Society, vol. 3. 4°.—The first volume was published in 1791, and the second in 1794; but they contained nothing on the subjects of Husbandry and Gardening.—This has an interesting paper on the Insects that infested the Corn in the year 1795; in a Letter to the Rev^d. Sam. Goodenough, L.L.D. &c. By Thomas Markham, Esq. the Secretary.

The Agricultural Reports for Northumberland, by J. Bailey and G. Culley; of Cumberland, by the Same; of Westmoreland, by A. Pringle; and Suffolk, by Arthur Young, Esq. Secretary to the Board, were published this year, in octavo.

Communications to the Board of Agriculture: on Subjects relative to the Husbandry and internal improvement of the Country, Vol. 1. London, Nicol. 1797. 4.

1798. MARSHALL, CHARLES.

An Introduction to the Knowledge and Practice of Gardening, by Charles Marshall, Vicar of Brixworth, Northamptonshire. The second edition, considerably enlarged and improved. Rivington. 12. 408 pages.—I don't recollect to have seen the first edition.—The third in 1802. The fourth edition was published in 1805. Pages 420.

Transactions of the Linnean Society, vol. 4.—Description of the Blight of Wheat, Uredo Frumenti; by A. B. Lambert, Esq.—Further Observations on the Wheat Insect, by Mr. Marshall.—History of Tipula Tritici, and Ichneumon Tipulæ, with some Observations upon other Insects that attend the Wheat, in a letter to Thomas Marshall, Esq. By the Rev^d. William Kirby.

Agricultural Reports (in octavo) for Middlesex, by John Middleton, Esq.—Nottinghamshire, by Robert Lowe, Esq.—Somersetshire, by John Billingsley, Esq.—Argyllshire, by John Smith, D.D.—Clydesdale, by John Naismith—Roxburgh and Selkirk, by Robert Douglas, D.D.

Essays on the Picturesque, by Uvedale Price, Esq.

Practical Observations on the British Grasses. By William Curtis. Lond. 8. 3rd. edit. Pages 73. Plates 6.

1799. BOOKER.

The Hop-Garden, a didactic Poem. By Luke Booker; L.L.D. London, Rivingtons. 8. 118 pages.

WRIGHT.

The art of Floating Land, as practised in the County of Gloucester, by T. Wright, Author of large Farms recommended. (See 1796.) London, Scatcherd. 8. Pages 95. with 3 plates.

Agricultural Reports were published this year in octavo—for Lincolnshire, by the Secretary to the Board (Arthur Young, Esq.)—the West Riding of Yorkshire, by Robert Brown—and the County of Perth, by James Robertson, D.D.

DELILLE.

L'Homme des Champs, ou les Georgiques Francoises: par M. L'Abbé Delille. 12.

1800. FALCONER.

Observations on Agriculture. Lichfield, 8. 29 pages. (By Dr. Falconer of Lichfield.)

STACY.

Observations on the failure of Turnip crops. By the Rev. H. P. Stacy, L.L.B. F.L.S. 8. Hatchard. Pages 24.

TATHAM.

An historical and practical Essay on the Commerce and Culture of Tobacco. By William Tatham. 8. Vernor and Hood. Pages 330.

In the Fifth volume of the Linnean Transactions published in this year, we have—a Continuation of Mr. Kirby's History of Tipula Tritici; and, Observations upon certain Fungi, which are Parasitics of Wheat, by the same accurate Naturalist. Also, his Observations on Insects that prey upon timber.—Dr. Pulteney's Observations on the economical use of Ranunculus aquatilis—and Mr. Maton's on the Orcheston Long Grass.

Agricultural Reports (in octavo) published this year are, the North Riding of Yorkshire, by John Tuke; and the County of Fife, by John Thomson, D.D.

Communications to the Board of Agriculture; vol. 2. 4. 1800.

1801. SIMONDE.

Tableau de l'Agriculture Toscane; par J. C. L. Simonde de Geneve. M.C. d l'Academie Royale des Georgofiles de Florence. Geneve, 8. 327 pages: 1 plate.

Recreations in Agriculture, &c. By James Anderson, L.L.D. &c. 4 vols. 8. 1801.

Letters from General Washington to Arthur Young, Esq. containing an account of his Husbandry, &c. 8. Pages 172.

1802. MUNNINGS.

An account of some Experiments for Drilling and Protecting Turnips, in the years 1800, 1801, and 1802; together with some Miscellaneous Observations on Agricultural subjects. By Thomas Crowe Munnings. Bacon, Norwich; Baldwin, London. 8. Pages 84.

BARTLEY.

Some cursory Observations on the conversion of Pasture Land into Tillage, &c. by Nehemiah Bartley, Secretary to the Bath Society. 8. 42 pages.

FORSYTH.

A Treatise on the Culture and Management of Fruit-trees, in which a new method of Pruning and Training is fully described. To which is added a new and improved edition of Observations on the diseases, &c. of Fruit and Forest Trees, with the method of Cure. By William Forsyth, Gardener to his Majesty at Kensington and St. James's. Lond. 4. 371 pages, and 13 plates.

NICOL.

The Practical Planter, or a Treatise on Forest Planting, by Walter Nicol. Scatcherd and Symonds.

ALDERSON.

On the improvement of poor soils, by J. Alderson, M.D. Vernor and Hood. 8. 34 pages.

HOYTE.

An Essay on the Conversion of Soils, by Henry Hoyte. 4. 44 pages.

BELL.

Essays on Agriculture; with a plan for the speedy and general Improvement of Land in Great Britain, by Benjamin Bell, F.R.S. Edinb. &c. 8. 594 pages.

In the Sixth volume of Linnean Transactions, published this year, we have—Observations on Aphides, chiefly intended to shew that they are the principal cause of Blights in Plants, and the sole cause of the Honey-dew. By the late Mr. William Curtis.—Observations on the Curculio Trifolii, or Clover Weevil, by W^m. Markwick, Esq. With additional remarks by Mr. Marshall. And further Observations on it, by Martin Christian Gottlieb Lehmann, M.A. of Gottingen.

Communications to the Board of Agriculture; vol. 3. 1802. 4.

1803. REPTON.

Observations on the Theory and Practice of Landscape Gardening, by H. Repton, Esq. London, Taylor. 4.

1804. HARRISON.

An Inquiry into the rot in Sheep, by Edward Harrison, M.D. 8. 56 pages.

AMOS.

Minutes on Agriculture and Planting, by William Amos, of Brothertoft, near Boston, Lincolnshire, Author of the Theory and Practice of the Drill Husbandry, &c. &c. 4. 92 pages, with plates.

1805. BANKS.

A short account of the Disease in Corn, called the Blight, the Mildew, and the Rust; by the Right Hon. Sir Joseph Banks. Lond. 4. 14 pages and 2 plates.

DICKSON.

A Complete System of Practical Agriculture, by R. W. Dickson, M.D. of Hendon, in Middlesex. 2 vols. 4. with plates.

FORSYTH.

The Principles and Practice of Agriculture systematically explained by Robert Forsyth, Esq. 8. 2 vols.

MAC DONALD.

A Complete Dictionary of Practical Gardening, by Alexander Mac Donald, Gardener; 2 vols. 4. with plates. Kearsley.

COCHRANE.

Two Tracts: 1. on Clay Marl, or Manure. 2. on the uses of Agricultural Salts, &c. Also, an Appendix, concerning puncturing Wood for its preservation, and the erection of kilns to extract tar from pit-coal; by the Hon. and Rev. James Cochrane. Mawman. 8. 65 pages.

MALCOLM.

A Compendium of Modern Husbandry; by James Malcolm. 3 vols. 8.

The Farmer's daily Journal, and Complete Accountant; by a Practical Farmer. 4. 140 pages. Rivingtons.

I wish that the above list of books on the subjects of Husbandry and Gardening was less imperfect and more free from errors than I fear it is. I see daily *Complete Systems*, and *Complete Dictionaries*: but alas! I cannot discover this perfection in any of my performances, which after all my labour and pains, most provokingly still continue incomplete and erroneous. This list, however, with all its errors and defects, may yet perhaps assist in tracing the progress and improvements of Husbandry and Gardening in this Country, during almost three Centuries. So far as I have actually seen the Books myself, or could appeal to the very accurate Catalogue of Sir Joseph Banks's noble Library, I have little fear of error; but I have been too frequently compelled to rely on various authorities, in which an implicit dependance could by no means be placed: in such articles therefore errors must be expected sometimes to arise. On the older writers I have been most careful, full and particular; because I have collected most of them, and they are in general become very scarce. Some of the modern books are omitted, because they are either of little worth, or do not strictly belong to our subjects. Some are merely controversial, and others relate more properly to politics or oeconomics. If

any one should expect that I might have added a list of Botanical Authors, I would beg leave to refer him to the List of Books employed in the compilation of this Work; and if that does not satisfy him, let him turn over the third volume of Mr. Dryander's Catalogue of Sir Joseph Banks's Library, consisting of 656 pages, and he will there see what a prodigious task I should have imposed upon myself; in my opinion, without necessity, or any great utility. I have not noticed the ancient Greek and Roman writers on Geoponics. This may appear to some an unpardonable omission; but to the learned they are sufficiently known, and with the unlearned, who form the great mass of Husbandmen and Gardeners, they can have little interest. The most defective is the more modern part of the list; for I have been least solicitous to enumerate such books as are in every body's hands, although I have not totally neglected them.

It would be a curious speculation, to ascertain how much, or rather perhaps I should say how little, in this copious list of Authors and their Works, is truly original. The venerable Judge Fitzherbert, the father of English Husbandry, gave a good example, but it was not followed by many, except Sir Hugh Plat, Gabriel Plantes, and the writers in the time of the Commonwealth, Sir Richard Weston, Hartlib, and Bliih. The old Gardening books previous to the Restoration, are of very inferior value, with scarcely any pretence to originality, if we except Scot, Lawson, Parkinson, and Aulsen.

Evelyn made a new era in Planting and Gardening. His first little work was from the French, and published before the Restoration; but his great work, the *Silva*, was original, delivered before the Royal Society in 1662, and first printed in 1664. The same year his *Gardener's Almanac* was also published, and maintained its ground until Mr. Miller's *Kalendar* appeared. Cook attended him in the article of Planting; Sharrock and Rea in that of Gardening; which Cowley and Rapin ornamented with the flowers of Poetry. Worlidge at the same time seems to have reigned alone in Husbandry.—Quintinye, with his followers London and Wife figured in Gardening at the end of the same century: Liger, Laurence and Bradley at the beginning of the next; these were followed by Switzer and Fairchild, who lead us to the time of Miller, in 1724. Mortimer is the principal writer in Husbandry at the opening of the eighteenth century, but he has not much that is original. Bradley has something on the same subject. Contemporaries with Mr. Miller were Batty Langley, and Cowell. Duhamel in France; Tull and Ellis in England, appeared about the same time. But it is not necessary to pursue the progress of these subjects any farther, the followers of these being within the recollection of many, and their works not difficult to be obtained.

Mr. Miller, during his long career, had no considerable competitor, until he approached the end of it, when several writers took the advantage of his unwearied labours of near half a century, and fixed themselves upon him, as various marine insects do upon a decaying shell-fish. I except Hitt and Justice, in 1755; who are both originals, as is also Hill, after his fashion, but his Gardening is not much founded in experience. Hanbury first appeared in 1758. Wheeler in 1763. Abercrombie, under the name of Mawe in 1766. Dicks in 1769.

Husbandry has received considerable improvements within the last 30 years, by the united efforts of the Societies at London and Bath. The Board of Agriculture, the writings and experiments of Arthur Young, Esq. and Mr. Marshall, and in an inferior degree, by many others. Mr. Young's career began so early as the year 1767, and has therefore continued near 40 years.

The first considerable treatise on ornamental Gardening is Mr. Wheatley's, entitled *Observations on Modern Gardening*, and published without his name. My copy is the third edition, in 1771. Shenstone published his unconnected thoughts, in 1764. There is an anonymous pamphlet on the rise and progress of the present taste of planting parks and gardens, in 1767. And, an *Essay on Design in Gardening*, in 1768.—The *English Garden*, a Poem, by Mr. Macon, appeared in 1772. Mr. Knight published the *Landscape*, a didactic Poem, in 1794.—Mr. George Macon, the year following, an *Essay on design in Gardening*—Mr. Repton, the same year, *Sketches and Hints on Landscape Gardening*—Mr. Marshall, a *Review of the Landscape*; and in 1796 he treated on *Ornamental Gardening*, in the second edition of his work on *Planting*.—*Essays on the Picturesque*, by Uvedale Price, Esq. in 1798.—And in 1803, a second magnificent work by Mr. Repton, entitled *Observations on the Theory and Practice of Landscape Gardening*.

The following Abbreviations are used at the end of those articles which are not original.

B. Sir Joseph Banks's Library.

H. Mr. Harte's Essays.

W. Mr. Weston's Tracts.

In order to render the above List more useful, I have here added

AN ALPHABETICAL INDEX

OF THE

NAMES OF AUTHORS.

Abercrombie	-	-	-	1766	Elkington	-	-	-	1797	Malcolm	-	-	-	-	1805
Alderfon	-	-	-	-	1802	Elliot	-	-	-	1764	Mallet	-	-	-	1775
Amos	-	-	-	-	1804	Ellis, John	-	-	1770, 1774	Marino	-	-	-	-	1528
Anderfon	-	-	-	1784, 1801	Ellis, William	-	-	-	1732	Markham	-	1623, 1631, 1648,	-	-	1664
Anstruther	-	-	-	-	1796	Emmerich	-	-	-	1789	Marshall, Charles	-	-	-	1798
Ardene	-	-	-	1760, 1762	Etienne	-	-	-	1565	Marshall, Joseph	-	-	-	-	1772
Arduino	-	-	-	-	1766	Evelyn, Charles	-	-	1600	Marshall, William	-	-	-	-	1787
Atwell	-	-	-	-	1662	Evelyn, John	-	-	1658, 1664	Martyn	-	-	-	-	1792
Austen	-	-	-	1631, 1653	Facio	-	-	-	1699	Mascall	-	-	-	-	1572
Badier	-	-	-	-	1788	Fairchild	-	-	-	1722	Mason, George	-	-	-	1795
Bailey	-	-	-	-	1772	Falconer	-	-	-	1800	Mason, William	-	-	-	1772
Baker	-	-	-	-	1765	Faudel	-	-	-	1780	Mawe	-	-	-	1766
Banks	-	-	-	-	1805	Ferrarius	-	-	-	1633	Maxie	-	-	-	1606
Barham	-	-	-	-	1719	Fitzherberd	-	-	-	1534	Maxwell	-	-	-	1748, 1757
Barnes	-	-	-	-	1762	Fleetwood	-	-	-	1707	Meador	-	-	-	1771
Bartley	-	-	-	-	1802	Folli	-	-	-	1670	Meager	-	-	-	1682
Bate	-	-	-	-	1635	Fordyce	-	-	-	1765	Milhau	-	-	-	1746
Beati	-	-	-	1594, 1653	Forster	-	-	-	1770, 1771	Miller	-	-	-	-	1724
Belgrove	-	-	-	-	1755	Forfith, Robert	-	-	-	1805	Milne	-	-	-	1770
Bell	-	-	-	-	1802	Forfith, William	-	-	1791, 1802	Mills	-	1759, 1762, 1766,	-	-	1770
Belon	-	-	-	-	1558	Gallo	-	-	-	1550	Mizaldus	-	-	-	1560
Berchem	-	-	-	-	1783	Gardiner	-	-	-	1599	Molesworth	-	-	-	1722
Bertrand	-	-	-	-	1763	Garrido	-	-	-	1751	Monk	-	-	-	1794
Billings	-	-	-	-	1764	Garton	-	-	-	1769	Monnereau	-	-	-	1765
Blackwell	-	-	-	-	1747	Gavelli	-	-	-	1758	Moore	-	-	-	1695, 1705
Blagrave	-	-	-	-	1669	Geffe	-	-	-	1607	More	-	-	-	1732
Blake	-	-	-	-	1664	Gendre	-	-	-	1660	Morinus	-	-	-	1658
Bliith	-	-	-	-	1649	Gentil	-	-	-	1706	Mortimer	-	-	-	1706
Booker	-	-	-	-	1799	Gibson	-	-	-	1744	Mountain	-	-	-	1571
Boutcher	-	-	-	-	1778	Gilbert	-	-	-	1683	Munnings	-	-	-	1802
Boyceau	-	-	-	-	1638	Giles	-	-	-	1766	Murray	-	-	-	1732
Bradley	-	-	-	-	1717	Giovanni	-	-	-	1759	Nicol	-	-	-	1802
Brocq	-	-	-	-	1786	Googe	-	-	-	1578	Norden	-	-	-	1607
Bromelius	-	-	-	-	1687	Gouffier	-	-	-	1789	North	-	-	-	1759
Brouffe	-	-	-	-	1789	Græfer	-	-	-	1789	Nourse	-	-	-	1700
Brown	-	-	-	-	1759	Grainger	-	-	-	1764	Oosten, van.	-	1706, 1711,	-	1714
Brulles	-	-	-	-	1790	Gray	-	-	-	1740	Parkinson	-	-	-	1629
Bucknall	-	-	-	-	1797	Hales	-	-	-	1727	Parmentier	-	-	-	1774
Buffon	-	-	-	-	1739	Hall	-	-	-	1645	Pattullo	-	-	-	1772
Buffalo	-	-	-	-	1592	Hanbury	-	-	1758, 1769	Pennington	-	-	-	-	1770
Butler	-	-	-	-	1609	Harrison, Edward	-	-	-	1804	Peters	-	-	-	1770
Campen, Van	-	-	-	-	1764	Harrison, John	-	-	-	1766	Plat	-	-	1593, 1594,	1600
Carpenter	-	-	-	-	1717	Harte	-	-	-	1764	Plattes	-	-	1633, 1638,	1653
Carver	-	-	-	-	1779	Hartlib	-	-	1650, 1651,	1655	Price	-	-	-	1798
Cafaux	-	-	-	-	1779	Hervet	-	-	-	1557	Pullein	-	-	-	1753, 1760
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Clarici	-	-	-	-	1726	Hill, Aaron	-	-	-	1749	Randal	-	-	-	1764
Claridge	-	-	-	-	1744	Hill, John	-	-	1755, 1757	Rapin	-	-	-	-	1665
Clarke	-	-	-	-	1715	Hitt	-	-	1755, 1760	Rathbone	-	-	-	-	1616
Cochrane	-	-	-	-	1805	Home	-	-	-	1757	Rea	-	-	-	1665
Collins	-	-	-	-	1717	Homer	-	-	-	1766	Remnant	-	-	-	1637
Comber	-	-	-	1770, 1771	Houghton	-	-	-	-	1681	Repton	-	-	-	1795, 1803
Commelin	-	-	-	-	1676	Hoyte	-	-	-	1802	Reffons	-	-	-	1716
Commerell, De	-	-	-	-	1788	Hughes	-	-	-	1665	Riviere	-	-	-	1739
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Cowell	-	-	-	-	1730	James	-	-	-	1712	Roxburgh	-	-	-	1794
Cowley	-	-	-	1662, 1688	Justice	-	-	-	1755, 1764	Rudbeck	-	-	-	1664, 1686	
Coyte	-	-	-	-	1796	Knight, R. P.	-	-	-	1794	Rutten	-	-	-	1767
Crawfskey	-	-	-	-	1696	Knight, T. A.	-	-	1795, 1797	Rye	-	-	-	-	1730
Crescenzo	-	-	-	-	1478	Lambert	-	-	-	1683	St. Pierre	-	-	-	1772
Curtis	-	-	-	1787, 1798	Langford	-	-	-	-	1680	St. Simon	-	-	-	1768
Dalrymple	-	-	-	-	1791	Langley	-	-	1728, 1729	Scot	-	-	-	-	1574
De Lille	-	-	-	1797, 1800	Laurembergius	-	-	-	1654	Secondat	-	-	-	-	1735
Dicks	-	-	-	-	1769	Laurence	-	-	-	1714	Serres	-	-	-	1600
Dickson, Adam	-	-	-	1764, 1765	Lawson	-	-	1597, 1665,	1668	Sharrock	-	-	-	-	1660
Dickson, R. W.	-	-	-	-	1805	Le Blond	-	-	-	1728	Shenstone	-	-	-	1764
Digges	-	-	-	-	1631	Lettfom	-	-	-	1772	Simonde	-	-	-	1801
Dinsdale	-	-	-	-	1740	Levet	-	-	-	1634	Smith	-	-	-	1670, 1704
Donaldson	-	-	-	-	1697	Liebault	-	-	-	1565	Smith, J.	-	-	-	1747
Doffie	-	-	-	-	1768	Liger	-	-	1706, 1707,	1717	Snow	-	-	-	1715
Dove	-	-	-	-	1770	Lightoler	-	-	-	1766	Southern	-	-	-	1593
Drope	-	-	-	-	1672	Lille	-	-	-	1757	Speechly	-	-	-	1779, 1790
Duchefne	-	-	-	-	1766	Locke	-	-	-	1766	Speed	-	-	-	1651, 1659
Duckett	-	-	-	-	1659	London	-	-	1699, 1706,	1711	Stacy	-	-	-	1800
Dugdale	-	-	-	-	1662	Mac Donald	-	-	-	1805	Stafford	-	-	-	1729
Duhamel	-	1730, 1748, 1750, 1755,	-	1764	Mc Phail	-	-	-	1794	Standish	-	-	-	-	1613
Dutrone	-	1757, 1760, 1762, 1763,	-	1790	Maddock	-	-	-	1792	Steele	-	-	-	-	1792
														1554, 1565	
														Sterbeck	

Sterbeeck	-	-	-	-	1682	Tull	-	-	-	-	-	1731	White, Stephen	-	-	-	1756
Stevenfon	-	-	-	-	1746	Tuffer	-	-	-	-	-	1562	White, William	-	-	-	1772
Stillington	-	-	-	-	1759	Vallemont, De	-	-	-	-	-	1734	Whitmill	-	-	-	1726
Surfleet	-	-	-	-	1600	Van Campen	-	-	-	-	-	1764	Wight	-	-	-	1778
Swinden	-	-	-	-	1778	Volkamer	-	-	-	-	-	1708	Wildman	-	-	-	1769
Switzer	-	-	1717, 1729,	1731	Vredmannus	-	-	-	-	-	-	1647	Williams	-	-	-	1650
Tarello	-	-	-	-	1724	Ward	-	-	-	-	-	1595	Wife	-	-	1699, 1706,	1717
Tatham	-	-	-	-	1800	Warder	-	-	-	-	-	1715	Wood	-	-	-	1757
Taylor	-	-	-	-	1652	Washington	-	-	-	-	-	1801	Woolridge	-	-	-	1677
Templeman	-	-	-	-	1766	Webb	-	-	-	-	-	1753	Worlidge	-	-	-	1668
Thompson	-	-	-	-	1757	Weston, Sir Richard	-	-	-	-	-	1645	Worlidge	-	-	-	1678
Thorley	-	-	-	-	1744	Weston, Richard, Esq.	-	-	-	-	-	1770	Wright	-	-	-	1799
Tournefort	-	-	-	-	1707	Wheatley	-	-	-	-	-	1770	Yarranton	-	-	-	1677
Tradescant	-	-	-	-	1656	Wheeler	-	-	-	-	-	1763	Young	-	-	-	1767
Trowell	-	-	-	-	1739	White, Gilbert	-	-	-	-	-	1795					

CATALOGUE OF TREES, SHRUBS, HERBS, FLOWERS AND FRUITS.

HARDY DECIDUOUS TREES.

- ACACIA. See Gleditsia, and Robinia.
- Acer campestre. *Common or small Maple*. Hedge-rows and Coppices. 10 to 25 feet.
- Acer creticum. *Cretan Maple*. About 20 feet. In sheltered situations retains its leaves almost all the year.
- Acer monspessulanum. *Montpelier Maple*. 20 feet.
- Acer montanum. *Mountain Maple*. Small.
- Acer Negundo. *Virginian Ash-leaved Maple*. 40 feet and upwards.
- Acer Opalus. *Italian Maple*. 40 feet and upwards.
- Acer pennsylvanicum. *Pennsylvanian Maple*. 15 feet.
- Acer platanoides. *Norway Maple*. 40 feet and upwards. Varieties—the Jagged-leaved and Variegated.
- Acer Pseudoplatanus. *Great Maple or Sycamore*. 40 feet and upwards. Leaves in April or May.—Varieties, with broader, and with variegated leaves.
- Acer rubrum. *Scarlet-flowering Maple*. 20 feet. Variety—Sir Charles Wager's Maple, with paler flowers, in larger clusters.
- Acer saccharinum. *American Sugar Maple*. 40 feet.
- Acer tataricum. *Tartarian Maple*. Small, 20 feet.
- Æsculus Hippocastanum. *Common Horse Chestnut*. 40 feet and upwards. Leaves in April, or May.—Varieties, with white-striped leaves, and yellow-striped leaves.
- Æsculus flava. *Yellow-flowered Horse-Chestnut*.
- Æsculus Pavia. *Scarlet-Horse-Chestnut*. 15 or 16 to 20 or 25 feet. June.
- Alnus Alder. See Betula.
- Amygdalus communis. *The Almond tree*. 15 to 20 feet. Ornamental, leafing and flowering in April or May. Variety with white flowers.
- Amygdalus orientalis. *Eaglern or Silver-leaved Almond*. Somewhat tender.
- Amygdalus Persica. *The Peach-tree*. Ornamental, especially the variety with double flowers. April.
- Apple. See Pyrus.
- Annonas cannot properly be called hardy; *triloba* and *glabra* will live in a warm situation.
- Aralias can scarcely be considered as trees.
- Ash-tree. See Fraxinus. Ash, Mountain. See Sorbus.
- Bay-tree. See Laurus.
- Beech-tree. See Fagus.
- Benjamin-tree. See Laurus.
- Betula alba. *Common Birch-tree*. From 20 to 40 feet.—Varieties, Weeping, Dwarf.
- Betula lenta. *Canada Birch*. 40 feet to 60. N. Amer. Varieties, Dusky, White-Paper, Poplar-leaved, Low.
- Betula nigra. *Black Virginia Birch*. 60 feet and upwards. N. Amer.—Varieties, Broad-leaved, Poplar-leaved, Paper, Brown, &c.—Poplar-leaved, and Paper Birch are considered as distinct species in the Kew Catalogue, where there is also a B. excelsa, or *Tall Birch* from North America. Pallas has two species from Siberia—*daurica* and *fruticosa*.
- Betula Alnus. *The Alder-tree*. 20 to 35 feet.—Varieties are, the White, Black, Cut-leaved, and Dwarf American.
- Betula incana. *Hoary or silver-leaved Alder*. Small.—Varieties, Cut-leaved, Dwarf, Long-leaved, Rose-flowered.
- Betula oblongata. *Turkey Alder*. Commonly known in the Nurseries under the name of *Long-leaved Alder*. Of this there are several varieties.
- Betula ferrulata. *Notch-leaved Alder*. N. Amer. Very ornamental.
- Betula crispa. *Curled-leaved Alder*. Newfoundland and Hudson's Bay.
- Bignonia Catalpa. *The Catalpa-tree*. 30 or 40 feet. Carolina. Leaves large but late. It flowers in august. Requires to be sheltered from wind.
- Birch. See Betula. Bird-Cherry. See Prunus.
- Carpinus Betulus. *The Hornbeam-tree*. 60 or 70 feet, but seldom seen of that height. Leaves in april.—Varieties, Eastern, Cut-leaved, Gold-striped.
- Carpinus Ostrya. *Hop Hornbeam*. About 20 feet.
- Carpinus virginiana. *Flowering Hornbeam*. 30 feet and upwards. Virginia.
- Castanea. See Fagus. Catalpa. See Bignonia.
- Celtis australis. *European Nettle-tree*. 40 or 50 feet.
- Celtis occidentalis. *American Nettle-tree*. Height the same.
- Celtis orientalis. *Oriental Nettle-tree*. 10 or 12 feet. The fruit of the first is black, of the second purple, and of the third yellow.
- Cerasus. See Prunus.
- Cercis canadensis. *Canada Judas-tree*. 12 feet to 20.
- Cercis Siliquastrum. *Common Judas-tree*. 20 feet. Both ornamental. Flower in may.
- Cherry. See Prunus.
- Chestnut. See Fagus.—Chestnut, Horse. See Æsculus.
- Christ's-thorn. See Rhamnus.
- Cornus mascula. *Cornelian Cherry*. 20 feet high. The other species are Shrubs.
- Corylus Avellana. *The Hazel-nut-tree* is properly a Shrub.
- Crab. See Pyrus.
- Cratægus Aria. *White-Beam-tree*. 20 and 30 to 40 feet. Ornamental, particularly from the whiteness of the leaves. It leafs in april and flowers in may.
- Cratægus terminalis. *Wild Service*. 40 or 50 feet. A fruit tree.—An Alpine variety, 20 feet high. The other species are Shrubs.
- Cupressus disticha. *Deciduous Cypress-tree*. 30 feet high and more. Native of America, where it is very large, above 70 feet high.
- Cytisus Laburnum, commonly called *Laburnum*, may be trained as a tree, and will grow to the height of 15 or 20 feet. —Varieties are, Variegated broad-leaved, Scotch short-flowered, and Long-spiked narrow-leaved Laburnum. It is commonly cultivated as a flowering-shrub, and all the other species are shrubs.
- Diospyros Lotus. *European Date-Plum*. 20 feet.
- Diospyros virginiana. *American-Date-Plum*, or *Pisbamin*, or *Perfimon*. 15 or 16 feet.
- Elæagnus angustifolia. *Narrow-leaved Oleaster*. Height 18 feet. Leaves and twigs white. South of Europe, the Levant, and Russia.
- Elder. See Sambucus.—Elm. See Ulmus.
- Euonymus europæus. *Common or narrow-leaved Spindle-tree*. 20 feet.
- Euonymus latifolius. *Broad-leaved Spindle-tree*. 25 feet.—The first varies with white fruit; and the second with variegated leaves. They commonly appear as Shrubs in plantations.
- Fagus Castanea. *Common or Sweet Chestnut-tree*. One of the largest timber trees; but most excellent in coppice. Variety with gold stripes.
- Fagus pumila. *Dwarf Chestnut*, or *Chinquapine*. 12 or 14 feet North America.
- Fagus sylvatica. *The common Beech-tree*; attains a great height, size, and spread.—Varieties, with yellow, and with white stripes; and with brown-purple leaves; when it has a rougher bark, the woodmen call it *Hay-Beech*. Some trees retain their leaves, others not.
- Fothergilla alnifolia obtusa. *Broad-leaved Fothergilla*. N. Amer.
- Fraxinus americana. *American Ash-tree*. There are several varieties of this. White Ash. Red Ash. Black Ash, &c.
- Fraxinus excelsior. *Common Ash-tree*. Lofty. Varieties, with simple leaves, which however sometimes become lobed and even ternate.—With pendulous branches, the *Weeping Ash*—gold-striped and silver-striped.
- Fraxinus Ornus. *Flowering Ash-tree*.
- Fraxinus rotundifolia. *Manna Ash-tree*. 15 or 16 feet.
- Ginkgo. See Salisburia.
- Gleditsia triacanthos. *Triple-thorned Acacia*. In Amer. *Honey-Locust*. 30 to 40 feet. Leaves in june: flowers at the end of july.—Variety with fewer thorns, and one seed in a pod. *Water-Acacia*.—Another with stronger spines.
- Guilandina dioica. *Hardy Bonduc* or *Canada Nickar-tree*. 30 feet and more.
- Judas-tree. See Cercis. Hazel tree. See Corylus.
- Hornbeam. See Carpinus.
- Juglans alba. *White Walnut-tree* or *Hickery*. N. Amer.
- Juglans angustifolia. *Narrow-leaved Walnut-tree*. N. Amer.
- Juglans cinerea. *Ash-coloured Walnut-tree*. N. Amer.
- Juglans compressa. *Flat-fruited Walnut-tree*. N. Amer.
- Juglans nigra. *Black Walnut-tree*. N. Amer.
- Juglans oblonga. *Oblong-fruited Walnut-tree*. N. Amer.
- There are other species in North America. The Black Virginia Walnut grows 50 or 60 feet high; and the others 30 or 40. They have very branching heads.
- Juglans regia. *Common Walnut-tree*. 50 or 60 feet. Leaves and flowers in may.—Varieties, Large, Thin-shelled, Double-bearing, Late-ripe, &c.
- Jujube. See Rhamnus.
- Laburnum. See Cytisus.
- Larch. See Pinus.
- Lalurus æstivalis. *Willow-leaved Bay-tree*. N. Amer. South wall.
- Laurus Benzoin. *Common Benjamin-tree*. Virginia.
- Laurus Sassafras. *Sassafras-tree*.
- Lime-tree. See Tilia.
- Liquidambar imberbe. *Oriental Liquidambar*.
- Liquidambar styraciflua. *Maple-leaved Liquidamber* or *Sweet Gum*. 40 feet and upwards. North Amer.
- Liriodendron Tulipifera. *Common Tulip-tree*. 70 or 80 feet. N. Amer. In England about 40 feet.

Magnolia

Magnolia acuminata. *Blue Magnolia.* 30 to 40 feet. N. Amer.
Magnolia glauca. *Swamp Magnolia.* 15 or 16 feet. N. Amer.
Magnolia tripetala. *Umbrella Magnolia* or *Umbrella-tree.* 16 to 20 feet. N. Amer.
 Maple. See *Acer.* *Nettle-tree.* See *Celtis.*
Nyssa integrifolia. *Mountain Tupelo,* or *Sour Gum.* 30 to 40 feet. N. Amer.
Nyssa denticulata. *Water Tupelo.* 80 to 100 feet in Carolina and Florida.
Oleaster. See *Elæagnus.* *Oak.* See *Quercus.*
Peach-tree. See *Amygdalus.* *Pear.* See *Pyrus.*
Pinus Larix. *Common White Larch-tree.* 50 feet. Leaves in April. Pishamin. See *Diospyros.*
Pistacia officinalis. *Pistacia-tree.*—*trifolia,* *narbonensis,* *vera.* *Levant.*
Pistacia Terebinthus. *Turpentine-tree.* South of Europe.
Platanus occidentalis. *American Plane-tree.* Height 60 to 70 feet. N. Amer.
Platanus orientalis. *Oriental Plane-tree.* Asia. Varieties, *Maple-leaved,* *Spanish,* and *Wave-leaved.*
Pomegranate. See *Punica.*
Populus alba. *White Poplar.*—Variety, *Great White Poplar* or *Abele.*
Populus angulata. *Carolina Poplar.*
Populus balsamifera. *Common Tacamahaca Poplar-tree.* N. Amer. and Siberia. Leaves in April.
Populus candicans. *Heart-leaved Tacamahaca Poplar-tree.* Canada.
Populus dilatata. *Lombardy* or *Po Poplar-tree.* 40 to 60 feet. Leaves in May.
Populus græca. *Athenian Poplar-tree.* Archipelago.
Populus heterophylla. *Various-leaved Poplar-tree.* Virginia and New York.
Populus lævigata. *Smooth Poplar-tree.* N. Amer.
Populus monilifera. *Canadian Poplar-tree.* N. Amer.
Populus nigra. *Black Poplar-tree.*
Populus tremula. *Trembling Poplar-tree* or *Asp.*
Prunus avium. *Wild Cherry-tree.* Varieties, with black or red fruit, and with double flowers.
Prunus canadensis. *Canadian Bird-Cherry-tree.*
Prunus Cerasus. *Cultivated Cherry-tree,* with double flowers.
Prunus domestica. *Common Plum-tree.* Ornamental Varieties are, *Double-blossomed,* *Gold-striped,* *Silver-striped,* and *Stoneless.*
Prunus Mahaleb. *Perfumed Cherry-tree.* Low and crooked. The wood has an agreeable odour. Flowers in April and May. Germany and S. of Europe, Crimea, Caucasus.
Prunus nigra. *Canadian Black Cherry-tree.*
Prunus Padus. *Common Bird-Cherry-tree.* 10 or 12 feet. Flowers in May.
Prunus pensylvanica. *Pennsylvanian* or *upright Cherry-tree.* Flowers in May.
Prunus rubra. *Cornish* or *red Bird-Cherry-tree.*
Prunus virginiana. *Common American Bird-Cherry-tree.*
Punica Granatum. *Pomegranate-tree.* 18 or 20 feet. Variety with double flowers. Requires a warm situation, and is commonly planted against a wall.
Pyrus angustifolia. *Narrow-leaved Crab-tree.* Flowers in May. N. Amer.
Pyrus baccata. *Small-fruited Crab-tree.* April. Siberia.
Pyrus communis. *Common Pear-tree.* Varieties. Double-flowering, and Twice-flowering.
Pyrus coronaria. *Sweet-scented Crab-tree.* N. Amer. May.
Pyrus Malus. *Common Apple-tree.* Variety with double flowers.
Pyrus nivalis. *Alpine Pear-tree.*
Pyrus Polluceria. *Woolly leaved Pear-tree.* Germany.
Pyrus prunifolia. *Siberian Crab-tree.*
Pyrus salicifolia. *Willow-leaved Crab-tree.* Siberia, Caucasus, Persia. Low and bushy.
Pyrus spectabilis. *Chinese Apple-tree.* 20 to 30 feet. Flowers large and beautiful. Beginning of May. Sheltered situation.
Quercus Ægilops. *Great prickly-cupped Oak-tree.* S. of Europe and the Levant.
Quercus alba. *White Oak-tree.* N. Amer.
Quercus aquatica. *Water Oak-tree.* N. Amer.
Quercus Cerris. *Turkey Oak-tree.* S. of Europe—Varieties, *Rough-leaved,* *Narrow-leaved,* *Lucombe* or *Devonshire.*
Quercus discolor. *Downy-leaved Oak-tree.* N. Amer.
Quercus Esculus. *Italian* or *small prickly cupped Oak-tree.* S. of Europe.
Quercus nigra. *Black Oak-tree.* N. Amer.
Quercus Phellos. *Willow-leaved Oak-tree.* N. Amer. Varieties, *Short,* *long,* and *various leaved.*
Quercus Prinus. *Chestnut-leaved Oak-tree.* Varieties, *Broad-leaved* and *Long-leaved.*
Quercus rubra. *Red Oak-tree.* N. Amer. Varieties, *Champion,* *Scarlet,* and *Mountain Red Oak.*
Quercus Robur. *Common Oak.* Varieties, *Stalk-fruited,* *Sessile-fruited,* and *Dwarf Silver-striped.*
Rhamnus Paliurus. *Common Christ's-thorn.* S. of Europe, Levant, Caucasus and Barbary.
Rhamnus Spina Christi. *Syrian Christ's-thorn.* Palestine, Barbary, Egypt.
Rhamnus Zizyphus. *Jujube.* S. of Europe, Africa, China, Cochinchina and Japan.

These can scarcely be called hardy, since they will live only against a wall in mild winters.

Robinia Pseud-Acacia. *Common* or *Falſe Acacia,* or *Locust-tree.* Large. Leaves late. N. America.

Salisburia adiantifolia. *Ginkgo,* or *Maidenhair-Tree.* Commonly planted against a wall.

Salix alba. *White Willow.* Large and Lofty. Leaves silvery.

Salix amygdalina. *Broad-leaved* or *Almond-leaved Willow.* Scarcely rises to a tree.

Salix babylonica. *Weeping Willow.* Large. Admired for its pendulous branches. Levant. Leaves early.

Salix caprea. *Round-leaved Sallow.* Sometimes becomes a large tree.—There is a striped-leaved variety in the nurseries.

Salix cinerea. *Cinereous-leaved Sallow,* which is the *common Sallow* of Britain, is rather a shrub or coppice-plant than a tree.

Salix fragilis. *Crack Willow.* Very large.

Salix hastata. *Halbert-leaved Willow.* A little tree, never tall.

Salix Helix. *Rose Willow.* A small slender tree, 10 or 12 feet high.

Salix lanata. *Woolly leaved Willow.* A dwarf tree.

Salix pentandra. *Sweet* or *bay-leaved Willow.* 10 or 12 feet high.

Salix triandra. *Long-leaved three-stamened Willow.* 30 feet, but generally kept low for Offices. Ornamental.

Salix vitellina. *Yellow Willow.* Middle-sized.

Sambucus nigra. *Common Elder-tree.*—12 or 16 feet.—Varieties, *Green-berried,* *White-berried,* *Parſley-leaved,* *Silver-striped,* *Silver-dotted,* *Gold-striped.*

Sambucus racemosa. *Red-berried* or *Mountain Elder.* 10 or 12 feet. This with the *Canadensis* are rather a Shrub; and the common Elder appears more frequently in that form than as a tree.

Sassafras-tree. See *Laurus.* *Service.* See *Sorbus.* *Service,* *Wild.* See *Cratægus.*

Sorbus aucuparia. *Mountain Ash.* Leaves in April.

Sorbus domestica. *Service-tree.*

Sorbus hybrida. *Bastard Service-tree.*

These are middle-sized trees, of slow growth.

Spindle-tree. See *Euonymus.*

Styrax officinale. *Official Storax.* 12 or 14 feet. Italy and the Levant.—This however, with the *grandifolium* and *lævigatum* can scarcely be called hardy trees.

Sycamore. See *Accr.*—*Tacamahaca.* See *Populus.*

Tamarix gallica. *French Tamarisk.* Middle-sized, in England 14 or 16 feet. An elegant tree. S. of Europe, Tartary, &c.

Tamarix germanica. *German Tamarisk,* is rather a shrub.

Tilia alba. *White Lime-tree.*

Tilia americana. *Broad-leaved American Lime-tree.*

Tilia europæa. *Common* or *European Lime* or *Linden-tree.* Varieties, *Large-leaved,* *Small-leaved,* *Elm-leaved.* *Stripe-leaved,* *Red-twigged.*

Tilia pubescens. *Pubescent Carolina Lime-tree.* Tooth ach Tree. See *Xanthoxylum.*

Tulip-tree. See *Liriodendron.* *Tupelo.* See *Nyssa.* *Turpentine-tree.* See *Pistacia.*

Viburnum Lantana. *Wayfaring-tree.*

Viburnum Opulus. *Water-Elder.*

These are rather Shrubs than Trees—The American variety of the first is much larger—the striped variety is in no great esteem.—Varieties of the second, the American with red shining twigs, and the Guelder-Rose, both plain and striped.

Ulmus americana. *American Elm.* Varieties, *Red,* *White,* *Drooping.*

Ulmus campestris. *Common Elm.*—Varieties, *Narrow-leaved* or *English Elm,* *Weeping,* *Silver-striped* and *Gold-striped.*

Ulmus montana. *Broad-leaved Elm,* *Wych-Haſt,* *Wych* or *Witch-Elm.*—Variety, the *Smooth-leaved.*

Ulmus nemoralis. *Hornbeam-leaved Elm.* N. Amer.

Ulmus suberosa. *Dutch Elm.*

Walnut. See *Juglans.* *Willow.* See *Salix.* *Water-Elder* and *Wayfaring-tree.* See *Viburnum.*

Xanthoxylum Clava Herculis. *Common Toothach-tree.*

HARDY EVERGREEN TREES.

Abies. *Fir.* See *Pinus.* *Adam's Needle.* See *Yucca.*—*Alaternus.* See *Rhamnus.*

Arbor vitæ. See *Thuja.*

Arbutus Andrachne. *Oriental Strawberry-tree.* Middle-sized. Levant.

Arbutus laurifolia. *Laurel-leaved Strawberry-tree.* N. Amer.

Arbutus Unedo. *Common Strawberry-tree.* 20 to 30 feet. Flowers and Fruits in October and November. Ireland, S. of Europe, Greece, Palestine and other parts of Asia. Varieties, with white, red, and double flowers, with round and oval fruit, with leaves broad or narrow, smooth or rough, cut or curled.

Bay. See *Laurus.*

Buxus sempervirens. *Box-tree.* 12 or 15 feet high. Varieties, *Narrow-leaved,* *Dwarf* used for edging, *Myrtle-leaved,* *Gold-striped* or *edged,* *Silver-striped* or *edged,* *Gold-tipped.*

Cedar of Lebanon. See *Pinus.* *Cork-tree.* See *Quercus.* *Cupressus*

- Cupressus pendula*. *Portugal Cypress*. Tender.
- Cupressus sempervirens*. *Evergreen Cypress*. 30 feet. Varieties. Upright and Spreading.
- Cupressus thyoides*. *White Cedar*, or *Arbor vitæ-leaved Cypress*. Fir-tree. See *Pinus*.
- Holly. See *Ilex*.
- Ilex Aquifolium*. *Common Holly*. 20 to 30 feet. Varieties very numerous, Hedge-hog, Yellow-berried, Gold-edged, Silver-edged, &c. &c. mostly too fanciful to name.
- Ilex Caffeine*. *Dahoon Holly*. Tender. Florida and Carolina. Varieties, Broad-leaved and Narrow-leaved.
- Ilex opaca*. *Carolina Holly*.
- Ilex vomitoria*. *South-sea Tea*, or *Evergreen Caffeine*. Caffeine *Peruvia Mill.* and *Catesb.* 10 or 12 feet. West Florida. These are tender.
- Ilex* or *Evergreen Oak*. See *Quercus*.
- Juniperus bermudiana*. *Bermudas Juniper*. Can scarcely be called hardy.
- Juniperus communis*. *Common Juniper*, is a Shrub; but the Variety called *Swedish Juniper*, rises from 10 or 12 to 15 or 16 feet in height.
- Juniperus lycia*—*Oxycedrus*, *phoenicia*, should rather be ranged among Shrubs, with *Sabina*.
- Juniperus thurifera*. *Spanish Juniper*. 25 or 30 feet.
- Juniperus virginiana*. *Virginian Juniper* or *Red Cedar*. A large tree.
- Laurus nobilis*. *Common Sweet Bay*. 20 or 30 feet high in the S. of Europe, Asia, &c. In England it appears as a Shrub.—Varieties, Broad-leaved, Narrow-leaved, Waved-leaved, Striped-leaved, Double-flowered.
- Magnolia grandiflora*. *Laurel-leaved Magnolia*. 70 or 80 feet in Carolina and Florida. Impatient of cold in England.
- Oak. See *Quercus*.
- Olea europæa*. *Common Olive-tree*. It can scarcely be called hardy, and should be planted against a S. wall. The *Lucca* and *Box-leaved* varieties are the least tender.
- Philadelphus aromaticus*. *Sweet-scented New-Zealand Tea-tree*, may be preserved with care against a S. wall.
- Pinus Abies*. *Norway Spruce Fir-tree*. Height 125 to 150 feet. Denmark, Norway, Sweden, &c.
- Pinus alba*. *White Spruce Fir-tree*. N. Amer.
- Pinus Balsamea*. *Balm of Gilead Fir-tree*. N. Amer.
- Pinus canadensis*. *Hemlock Spruce Fir-tree*. N. Amer.
- Pinus Cedrus*. *Cedar of Lebanon*. Lebanon, Amanus and Taurus. Height from 50 to 70 feet, spread 100 feet.
- Pinus Cembra*. *Siberian Stone Pine-tree*. Switzerland and Siberia.
- Pinus halepensis*. *Aleppo Pine-tree*.
- Pinus inops*. *Jersey Pine-tree*. N. Amer.
- Pinus nigra*. *Black Spruce Fir-tree*. N. Amer.—Red Spruce seems not to be different from this; and the long-coned Cornish Fir of the nurseries, is only a variety of it.
- Pinus orientalis*. *Oriental Fir-tree*. Levant.
- Pinus palustris*. *Swamp Pine-tree*. Carolina and Georgia. 25 or 30 feet there.
- Pinus picea*. *Silver Fir-tree*. Beautiful and lofty. Switzerland, Germany, Austria, Dauphiné, Siberia, Caucasus.
- Pinus Pinaster*. *Pinaster* or *Cluster Pine-tree*. S. of Europe.
- Pinus Pinea*. *Stone Pine-tree*. S. of Europe.
- Pinus resinosa*. *American Pitch Pine-tree*.
- Pinus sylvestris*. *Wild Pine-tree*, called in Britain *Scotch Fir*. 80 feet. N. of Europe.—Varieties, Tartarian, Mountain, Mugho, or Torch Pine, Hudson's Bay Pine, and Sea Pine which grows on the coast of the S. of France and of Italy.
- Pinus Strobus*. *Weymouth Pine-tree*, or *White Pine* in N. Amer. 100 feet.
- Pinus Tæda*. *Frankincense Pine-tree*. N. Amer.—Varieties, three-leaved Virginian, Variable, and Foxtail Pine.
- Quercus coccifera*. *Kermes Oak-tree*. 12 or 14 feet. S. of Europe, Levant, &c. Rather a bushy Shrub than a tree.
- Quercus gramuntia*. *Holly-leaved Evergreen Oak*. S. of France.
- Quercus Ilex*. *Evergreen* or *Holm Oak-tree*. 40 or 50 feet. S. of Europe.—Varieties, Entire-leaved, Serrate-leaved, Long-leaved.
- Quercus Suber*. *Cork-tree*. S. of Europe. Killed in England in severe winters.—Varieties, Broad and Narrow-leaved.
- Quercus virens*. *Live Oak-tree*. 40 feet. N. Amer.
- Strawberry-tree. See *Arbutus*.
- Taxus baccata*. *Common Yew-tree*.
- Thea viridis et Bohea*. *Green and Bohea-tree*. It commonly appears in China as a Shrub, but it is said that it will attain 30 feet or more, if left to its natural growth.
- Thuya occidentalis*. *Common Arbor vitæ*. 30 or 40 feet. N. Amer. Varieties, Stripe-leaved, and Sweet-scented.
- Thuya orientalis*. *Chinese Arbor vitæ*.
- Yew-tree. See *Taxus*.
- Yucca filamentosa*. *Virginian thready-leaved Yucca*. Virginia.
- Yucca gloriosa*. *Canadian Yucca* or *Adam's Needle*.—These must have a warm dry situation.
- Annona glabra*. *Smooth Custard Apple*, 16 feet. N. America.
- Annona triloba*. *Trifid-fruited Custard Apple* or *Papaw-tree*. 10 or 12 feet. Carolina, Virginia, and the Bahama Islands.—These are tender whilst young, and the Fruit is little esteemed even in America.
- Apple. See *Pyrus*.
- Apricot. See *Prunus*.
- Arbutus Unedo*. *Strawberry-tree*. Eaten in the S. of Europe by Rustics.
- Berberis vulgaris*. *Barberry*. Varieties, common Red, and without seeds, White, and Black sweet.
- Bilberry. See *Vaccinium*.
- Blackberry and Bramble. See *Rubus*.
- Celtis australis*. *European Nettle-tree*, or *Lote-tree*. S. of Europe. Berries eaten by children.
- Cherry. See *Prunus*.
- Chestnut. See *Fagus*.
- Cornus mascula*. *Cornelian Cherry*. The fruit, which is of a shining scarlet, and the size of a small Olive or Acorn, was used formerly in tarts, and in medicine in form of a rob.
- Citrus Aurantium*. *Orange*. C. Limon. Lemon. In Green houses.
- Cloud-berry. See *Rubus*.
- Corylus Avellana*. *Hazel-nut-tree*.—Varieties, common Wood-nut, with red-skinned kernels, large Cob-nut, large Long Nut, Barcelona or Spanish Nut, large Cluster Wood-nut, Filbert with white, and with red kernels.
- Corylus Columna*. *Byzantine Hazel-nut*. C. rostrata. *American Cuckold-nut*.
- Cranberry. See *Vaccinium*.
- Cratægus Azarolus*. *Parsley-leaved Hawthorn*, or *Azarole*. S. of Europe and Levant, and served up there in the Desert.
- Cratægus torminalis*. *Wild Service-tree*. Europe. Fruit eaten as Medlars, and sold in the London markets.
- Currants. See *Ribes*.
- Cydonia. See *Pyrus*.
- Dew-berry. See *Rubus*.
- Diospyros Lotus*. *European Date-Plum*. S. Europe, Asia, and E. coast of Africa. Fruit size of a Cherry, yellow; sweet with astringency.
- Diospyros virginiana*. *American Date-Plum*. N. America, where it is called *Pisshamin* or *Perfimon*. Fruit like a Date, almost as firm and sweet, from the end of September.
- Elder. See *Sambucus*.
- Fagus Castanea*. *The Chestnut-tree*, commonly called the Spanish Chestnut. Naturalized in Europe, but originally from Asia.
- Fagus Pumila*. *Dwarf Chestnut-tree* or *Chinquapine*. 12 or 14 feet. N. America.
- Ficus Carica*. *Common Fig-tree*. Mr. Forsyth mentions 27 varieties.
- Filbert and Hazel-nut. See *Corylus*.
- Gooseberry. See *Ribes*.
- Juglans alba*. *White Walnut-tree* or *Hickory*. N. Amer.
- Juglans angustifolia*. *Narrow-leaved Walnut-tree*. N. Amer.
- Juglans cinerea*. *Ash-coloured Walnut-tree*. N. Amer.
- Juglans compressa*. *Flat-fruited Walnut-tree*. N. Amer.
- Juglans nigra*. *Black Virginia Walnut-tree*.
- Juglans oblonga*. *Oblong-fruited Walnut-tree*. N. Amer.
- Juglans regia*. *Common Walnut-tree*. From Asia to Europe.—Varieties, Double, Large, French, Thin-shelled, Late.
- Lemon. See *Citrus*.
- Medlar. See *Mespilus*.
- Mespilus Amelanchier*. *Alpine Mespilus*. Fruit small, black, sweet like honey.
- Mespilus germanica*. *Dutch Medlar*.—Varieties, Narrow leaved, Broad-leaved. Nottingham.
- Morus nigra*. *Common Mulberry-tree*. Persia.
- Nectarine. See *Amygdalus*.
- Nut. See *Corylus*.
- Olca europæa*. *European Olive*.
- Orange. See *Citrus*.
- Peach. See *Amygdalus*.
- Pear. See *Pyrus*.
- Pinus Pinea*. *The Stone Pine*.
- Pistacia vera*. *Pistacia Nut Tree*.
- Plum. See *Prunus*.
- Pomegranate. See *Punica*.
- Prunus Armeniaca*. *The Apricot*. Principal Varieties are, Algiers, Breda, Brussels, Masculine, Moor Park or Anson's, Orange, Roman, Turkey.
- Prunus cerasifera*. *Myrobalan Plum*. N. Amer.
- Prunus Cerasus*. *The Cherry*.—Principal Varieties are the Dukes, Hearts, Corone, Morello, &c.
- Prunus domestica*. *The Plum*.—Varieties numerous, the most useful are, The Jaunhaive, Early Damask, Orleans, Royal, Green Gage, Drap d'Or, Saint Catharine, Imperatrice. The Bonum Magnum for baking, and the Winefour for preserving.
- Prunus insititia*. *The Bullace Plum*.—Varieties, Black and White or rather Yellow.
- Prunus spinosa*. *The Sloe Plum*.

FRUIT TREES, AND SHRUBS.

- Amygdalus communis*. *Common Almond*.—Varieties, Bitter, Sweet, Jordan, Tender-shelled, hard-shelled.
- Amygdalus Persica*. *The Peach* and *Nectarine*.

Punica Granatum. The Pomegranate.
Pyrus communis. The Pear.—Varieties very numerous, the most useful are, for Summer, Musk, Green Chisel, Jargonelle, Summer Bergamot, and Summer Boncretien—for Autumn, Orange Bergamot, Autumn and Gansel's Bergamot, brown Beurré, Doyen or St Michael, and Swan's-egg—for Winter, Crasane, Chaumontelle, St Germain, Colmar, D'Anch, L'Eschafferie, Winter Boncretien, and Bergamot de Pasque.

Pyrus Cydonia. The Quince.—Varieties, Oblong, Apple, Portugal, &c.

Pyrus Malus. The Apple.—Varieties, very numerous, the following may suffice for a small garden and orchard:—Juneting, Golden Pippin, Nonpareil, Ribstone Pippin, Nonpareil, Queen's, Golden Renet, Aromatic Pippin, Lemon Pippin, Scarlet Pearmain, Pomme Grée; with different Russetins and Codlins for baking.

Pyrus prunifolia. The Siberian Crab: for baking.

Quince. See *Pyrus Cydonia*.

Raspberry. See *Rubus*.

Ribes alpinum. Tasteless Mountain Currant. Eaten only by Children.

Ribes diacantha. Two-spined Gooseberry. Siberia.

Ribes floridum. American Black Currant.

Ribes fragrans. Fragrant Currant. Siberia.

Ribes glandulosum. Glandulous Currant. N. Amer.

Ribes Grossularia. Rough-fruited—and *Uva-crispa*, Smooth-fruited Gooseberry. Principal varieties, Green Gascoin, Smooth Green, Early Black, Small Early Red, Large Smooth Dutch Yellow, Hairy and Smooth Red, Large Rough and Smooth Yellow, Common and Large White, Champagne. Subordinate varieties infinite, some weighing 17 penny-weights and upwards.

Ribes nigrum. Black Currant.

Ribes oxycanthoides. Hawthorn-leaved Gooseberry. Canada.

Ribes petraeum. Rock Currant. England, &c.

Ribes procumbens. Trailing Currant. Dauria.

Ribes reclinatum. Procumbent Gooseberry. Germany and Switzerland.

Ribes rubrum. Common Currant.—Varieties, Common Red, Champagne large Pale and Red, Long-bunched Red, Large Pale and Red Dutch, White Dutch, White Crystal.

Ribes Saxatile. Mountain Gooseberry. Siberia.

Ribes spicatum. Acid Mountain Currant. England.

Ribes trifide. Dark Currant. Siberia.

Rubus arcticus. Dwarf Crimsen Bramble. N. Europe, Asia, America.

Rubus cæsius. Dewberry.

Rubus canadensis. Canadian Raspberry.

Rubus Chamæmorus. Mountain Bramble or Cloud-berry.

Rubus corylifolius. Hazel-leaved Bramble.

Rubus fruticosus. Common Bramble.

Rubus idæus. Raspberry.—Varieties, Large Red, Antwerp, Early White, Double-bearing, Large Common, Large White, Smooth Cane Double-bearing.

Rubus occidentalis. Virginian Raspberry. Black with little flavour.

Rubus odoratus. Flowering Raspberry. N. Amer. It bears no fruit here. There are many other species natives of S. America, Japan, &c. but of no account here for fruit.

Sambucus nigra. Common Elder. Varieties, with Black, Green and White Berries.

Sambucus canadensis. Canadian Elder.

Sambucus racemosa. Red-berried Elder. Germany, Switzerland, Italy and Siberia.

Service. See *Cratægus* and *Sorbus*.

Sorbus domestica. True or cultivated Service or Sorb.—Varieties, Apple-shaped, Pear-shaped.

Sorbus aucuparia, or Mountain Ash, bears fruit fit only for birds.

Vaccinium hispidulum. Hairy-stemmed American Cranberry. Common in London for tarts.

Vaccinium macrocarpon. Smooth-stemmed American Cranberry.

Vaccinium Myrtillus. Bilberry, Bleaberry, Whortle-berry, or Black Whorts. Europe, Siberia and Barbary.

Vaccinium Oxycoccus. European Cranberry. Europe on bogs.

Vaccinium Vitis idæa. Red Bilberry or Whortleberry, or Cowberry. Europe.

Vaccinium uliginosum. Great or Marsh Bilberry or Whortleberry. Europe and Siberia.

Vitis vinifera. Common Vine.—Varieties very numerous; the best to be cultivated in England are, The White Muscadine, White Sweet-water, Black-Sweet Water, Large and Small Black Cluster, and Miller. St Peter's and Black Hamburg will do very well in favourable seasons.

Walnut. See *Juglans*.

Whortleberry. See *Vaccinium*.

CLIMBING TREES AND SHRUBS.

Bignonia radicans. Rooting or Ash-leaved Trumpet-flower.
Bignonia sempervirens. Carolina or Evergreen Trumpet-flower, or Yellow Jasmine.

Bignonia Unguis. Four-leaved Trumpet-flower.

Celastrus scandens. Climbing Staff-tree.

Clematis calycina. Minorca Virgin's Bower.

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Clematis cirrhosa. Evergreen Virgin's Bower.

Clematis crispa. Curled Virgin's Bower.

Clematis Flammula. Sweet-scented Virgin's Bower.

Clematis florida. Large-flowered Virgin's Bower.

Clematis Viorna. Leathery-flowered Virgin's Bower.

Clematis virginiana. Virginian Virgin's Bower.

Clematis Vitalba. Common Virgin's Bower, wild Climber, or Traveller's Joy.—Variety *C. canadensis*, Broad-leaved Canada Virgin's Bower, or Climber.

Clematis Viticella. Purple Virgin's Bower.—Varieties, Blue, Purple, Red, and Double Purple.

Glycine Apios. Tuberous-rooted Glycine.

Glycine frutescens. Shrubby Glycine, or Carolina Kidney-Bean Tree.

Hedera Helix. Common Ivy.—Varieties, Silver-striped, Gold striped, Black-berried, Yellow-berried, Dwarf.

Hedera quinquefolia. Five-leaved Ivy, or Virginian Creeper.

Jasminum fruticans. Common Yellow Jasmine.

Jasminum officinale. Common White Jasmine. These are not properly Climbers, but require support. *Jasminum scandens* is a Climber, but is not hardy, being a native of Bengal.

Lonicera Caprifolium. Italian Honeysuckle.—Varieties, Early White, Yellow, Red, late Red, Evergreen late Red.

Lonicera Periclymenum. Common Honeysuckle or Wood-bind.—Varieties, late Red, large Dutch Red, Long-blowing Dutch, late-flowering German, Evergreen German, Striped-leaved, Oak-leaved, Variegated Oak-leaved.

Lonicera sempervirens. Trumpet Honeysuckle, or Evergreen Scarlet T. H. of Virginia.—Varieties, Great and Small.

Menispermum canadense. Canadian Moon-seed. 12 or 14 feet. Virginia, Canada and Siberia. June and July.

Passiflora cærulea. Common or Blue Passion-flower. Against a high South wall.

Periploca græca. Common Virginian Silk.

Rhamnus volubilis. Twining Rhamnus. Carolina. June and July.

Smilax aspera. Rough Smilax.

Smilax China. Chinese Smilax.

Smilax excelsa. Tall Smilax. Syria.

Smilax laurifolia. Bay-leaved Smilax. Virginia and Carolina.

Smilax rotundifolia. Round-leaved Smilax. Canada.

Smilax Sarsaparilla. Medicinal Smilax or Sarsaparilla. America.

Smilax tamnoides. Black-Bryony-leaved Smilax. N. Amer.

Solanum Dulcamara. Woody Nightshade or Bittersweet.—Varieties, White-flowered, Silver-striped, Gold-striped.

HARDY DECIDUOUS SHRUBS, INCLUDING SOME SMALL TREES COMMONLY CULTIVATED WITH SHRUBS IN ORNAMENTAL PLANTATIONS.

Acacia, Rose. See *Robinia*.

Althæa Frutex. See *Hibiscus*.

Amorpha fruticosa. Bastard Indigo. Carolina.

Amygdalus nana. Common Dwarf Almond. Asia.

Amygdalus pumila. Double-flowered Dwarf Almond.

Andromeda acuminata. Acute-leaved Andromeda. N. Amer.

Andromeda arborea. Tree Andromeda or Sorrel-tree. Virginia and Carolina, Asia and America.

Andromeda coriacea. Thick-leaved Andromeda. N. Amer.

Andromeda Daboecia. Trailing Andromeda, Irish Whorts, or Cantabrian Heath. Ireland.

Andromeda ferruginea. Rusty Andromeda. N. Amer.

Andromeda mariana. Maryland Andromeda.—Varieties, Oval-leaved, oblong-leaved.

Andromeda paniculata. Panicked Andromeda. Virginia.

Andromeda racemosa. Branching or Pennsylvania Andromeda.—Some of these are Evergreen.

Aralia nudicaulis. Naked-stalked Aralia. Virginia and Canada.

Aralia spinosa. Thorny Aralia or Angelica-tree. Virginia.

Aristolochia arborescens. Tree Birthwort.

Artemisia Abrotonum. Southernwood.

Ascyrum Crux Andree. Common Ascyrum.

Ascyrum Hypericoides.

Ascyrum villosum.—All three natives of N. Amer.

Astragalus Tragacantha. Goat's-thorn. S. Europe, &c.

Azalea nudiflora. Naked-flowered Azalea. N. Amer.—Varieties, deep Scarlet, deep Red, pale Red, early White, Red and White, Variegated, Downy.

Azalea procumbens. Procumbent Azalea. Europe.

Azalea viscosa. Viscid Azalea. N. Amer.—Varieties, Common White, Stripe-flowered, Narrow-petalled, Cluster flowered, Glauous.

Berberis vulgaris. Common Barberry.—Varieties Purple-fruited, White-fruited, Canada broad-leaved.

Berberis cretica. Cretan or Box-leaved Barberry.

Betula nana. Smooth Dwarf Birch. N. Europe.

Betula pumila. American or hairy Dwarf Birch.

Broom. See *Genista* and *Spartium*.

Buckthorn. See *Rhamnus*.

Calycanthus floridus. Carolina All-spice. A warm situation and dry soil.—Varieties, Long-leaved and Round-leaved.

Cassioberis-bush. See *Viburnum*.

Ceanothus americanus. New Jersey Tea. Sheltered situation and dry soil.

Cephalanthus occidentalis. American Button-wood. Moist soil.

- Chaste-tree. See Vitex.
 Chionanthus virginica. *Virginia Fringe-tree* or *Snowdrop-tree*. S. Carolina. Moist soil and sheltered situation.—Varieties, Broad or ovate-leaved, and narrow or lance-leaved.
 Clethra alnifolia. *Alder-leaved Clethra*. N. Amer. Varieties, Smooth-leaved, and white underneath. Moist soil.
 Colutea arborescens. *Common Bladder-Senna*. 12 or 14 feet. S. Europe.
 Colutea eruenta. *Oriental Bladder-Senna*. 7 or 8 feet. Levant.
 Colutea frutescens. *Scarlet Bladder-Senna*. 2 to 4 feet. Cape. Destroyed in severe winters.
 Colutea Pocockii. *Pocock's Bladder-Senna*. 6 or 7 feet. Levant.
 Coriaria myrtifolia. *Myrtle-leaved Sumach*. S. Europe. Sheltered situation.
 Cornus alba. *White-berried Dogwood*. N. Amer. and Siberia.
 Cornus alternifolia. *Alternate-leaved Dogwood*. N. Amer.—Variety, with Red twigs.
 Cornus florida. *Great-flowered* or *Virginia Dogwood*. 7 or 8 feet.—Variety with a rose-coloured involucre.
 Cornus mascula. *Cornelian Cherry*.
 Cornus paniculata. *New Holland Dogwood*. N. Amer.
 Cornus sanguinea. *Common Dogwood*. 4 or 5 to 8 or 10 feet. Europe.—Variety with striped leaves.
 Cornus sericea. *Blue-berried Dogwood*. 10 or 12 feet. N. Amer.
 Cornus stricta. *Upright Dogwood*. 10 or 12 feet. N. Amer.
 Coronilla Emerus. *Scorpion Senna*. S. Europe.
 Coronilla coronata. *Crowned Coronilla*. S. Europe.
 Coronilla valentina. *Small Shrubby Coronilla*. Spain and Italy.
 Cratægus Azarolus. *Parley-leaved Hawthorn* or *Azarole*. 20 feet.
 Cratægus coccinea. *Great American Hawthorn*. 20 feet. Virginia and Canada.
 Cratægus cordata. *Maple-leaved Hawthorn*. 4 feet. N. Amer.
 Cratægus Crus galli. *Cockspur Hawthorn*. 10 or 12 feet. N. Amer.
 Cratægus elliptica. *Oval-leaved Hawthorn*. N. Amer.
 Cratægus flava. *Yellow Pear-berried Hawthorn*. N. Amer.
 Cratægus glandulosa. *Hollow-leaved Hawthorn*. N. Amer.
 Cratægus Oxyacantha. *Common Hawthorn* or *White-thorn*.—Varieties, Glastenbury, fine-leaved, Double-flowered, Great-fruited, Yellow-fruited, White-fruited.
 Cratægus parvifolia. *Gooseberry-leaved Hawthorn*. 6 or 7 feet. Virginia.
 Cratægus punctata. *Great-fruited Hawthorn*. America.—Varieties, with red fruit, with yellow fruit.
 Cratægus pyrifolia. *Pear-leaved Hawthorn*. N. Amer.
 Cratægus tomentosa. *Woolly-leaved Hawthorn*. N. Amer.—Variety, Carolina Hawthorn.
 Cratægus viridis. *Green-leaved Virginian Hawthorn*. N. Amer.
 Cytisus austriacus. *Austrian* or *Siberian Cytisus*. 4 feet. Austria, Hungary, Silesia, Italy, Siberia.
 Cytisus biflorus. *Smooth Cytisus*. May.
 Cytisus capitatus. *Cluster-flowered Cytisus*. Low. Austria and Silesia. June.
 Cytisus divaricatus. *Clammy Cytisus*. S. France, Spain and Madeira. July.
 Cytisus græcus. *Grecian Cytisus*. 6 or 7 feet. Archipelago. July.
 Cytisus Laburnum. *Laburnum*. See Trees. May.
 Cytisus nigricans. *Black Cytisus*. 3 or 4 feet. Silesia, Austria, Hungary, Italy. July.
 Cytisus sessilifolius. *Common Cytisus* or *Cytisus secundus Clusii*. 7 or 8 feet. S. of Europe. May.
 Cytisus supinus. *Trailing Cytisus*. S. Europe and Siberia. May to August.
 Cytisus volgaricus. *Winged-leaved Cytisus*. 2 feet. Siberia. These are ornamental Shrubs, with yellow flowers.
 Daphne alpina. *Alpine Daphne*. 2 feet. S. Europe.
 Daphne Cneorum. *Trailing Daphne*. Flowers early, sweet, red; sometimes white. S. Europe.
 Daphne Gnidium. *Flax-leaved Daphne*. 2 feet. S. Europe.
 Daphne Mezereum. *Mezereum*. 3 or 4 feet. Europe. Flowers in Feb. or March.—Varieties, Crimson, pale red, purple, white with yellow berries, and with variegated leaves.
 Daphne Tartonraia. *Silvery-leaved Daphne*. Low. S. France.
 Dirca palustris. *Marsh Leather-wood*. N. Amer. in swamps.
 Elæagnus angustifolia. *Narrow-leaved Oleaster*.
 Elder. See Sambucus.—Elder, Marsh. See Viburnum.
 Empetrum nigrum. *Black-berried Heath*, *Crow* or *Crake-berry*. Decumbent. N. Europe.
 Ephedra distachya. *Great Shrubby Horsetail*. France and Spain.
 Ephedra monostachya. *Small Shrubby Horsetail*. Siberia.
 Epigæa repens. *Creeping Epigæa*, or *trailing Arbutus*. Virginia and Canada.
 Euonymus atropurpureus. *Purple-flowered Spindle-tree*, 6 feet. N. Asia.
 Euonymus europæus. *Common Spindle-tree*.
 Euonymus latifolius. *Broad-leaved Spindle-tree*. Austria, Hungary.
 Euonymus verrucosus. *Warted Spindle-tree*. Austria. The two first sorts may be trained as trees, and vary with white seeds. The leaves are often variegated.
 Fothergilla alnifolia acuta. *Narrow-leaved Fothergilla*. Carolina.
 Genista anglica. *English Genista*, *Petty Whin*, or *Needle Furze*. Thorny. Britain.
 Genista candicans. *Hoary Genista* or *Montpelier Cytisus*. 7 or 8 feet. S. Europe.
 Genista florida. *Spanish Dyer's Genista* or *Broom*. 2 or 3 feet. Spain and Italy.
 Genista germanica. *German Genista* or *Broom*. 18 inches. Germany and S. Europe.
 Genista hispanica. *Dwarf prickly Genista* or *Broom*. 2 or 3 feet. Spain, S. France.
 Genista lusitanica. *Portugal Genista* or *Broom*.
 Genista pilosa. *Hairy Genista* or *Broom*. Procumbent. Europe. England.
 Genista sagittalis. *Jointed Genista* or *Broom*. Procumbent.
 Genista tinctoria. *Common Dyer's Genista* or *Broom*. 1 to 2 feet. Europe, England.
 Halefia tetraptera. *Four-winged Halefia* or *Snow-drop Tree*.
 Hamamelis virginica. *Witch-Hazel*. 2 to 3 feet. N. Amer.
 Hawthorn. See Cratægus.
 Hibiscus syriacus. *Syrian shrubby Hibiscus*, or *Althæa Frutex*.—6 or 7 feet. Syria. August.—Varieties, with Red, Red and white, Purple, pale Purple, Yellow and White flowers: with gold-striped and silver-striped leaves.
 Hippophae canadensis. *Canadian Sea Buckthorn*.
 Hippophae rhamnoides. *Common Sea Buckthorn*. 3 or 10 feet. Europe, Tartary.
 Honeyfuckle. See Lonicera.
 Hydrangea arborescens. *Shrubby Hydrangea*. 3 to 4 feet. Virginia and Canada.
 Hypericum Androsæmum. *Common Tutsan*. S. Europe and Britain.
 Hypericum calycinum. *Great-flowered St. John's-wort*, or *Tutsan*. Constantinople.
 Hypericum elatum. *Tall St. John's-wort*. N. Amer.
 Hypericum hireinum. *Stinking Shrubby St. John's-wort*. 3 feet. S. Europe.—Varieties, Common or Great, and Smaller or Dwarf.
 Hypericum olympicum. *Olympian St. John's-wort*. 1 foot. Levant.
 Hypericum prolificum. *Proliferous St. John's-wort*. N. Amer. The flowers in all are yellow.
 Jasminum fruticans. *Common Yellow Jasmine* 8 or 10 feet, if supported. S. Europe and Levant.
 Jasminum humile. *Italian yellow Jasmine*.
 Jasminum officinale. *Common White Jasmine*.—Varieties, Gold-striped, Silver-striped.
 Itea virginica. *Virginian Itea*. 6 or 7 feet.—Varieties, Greater and Smaller.
 Iva frutescens. *Shrubby Iva*, or *Bastard Jesuit's Bark-tree*. 8 or 10 feet. Virginia and Peru.
 Lavandula Spica. *Common Lavender*.—Varieties, Narrow-leaved and Broad-leaved.
 Lavandula Stoechas. *French Lavender*, or *Stoechas*. S. Europe.
 Laurus æstivalis. *Willow-leaved Bay*. N. Amer. Properly a Greenhouse plant, but may be planted against a S. wall.
 Ledum buxifolium. *Box-leaved Ledum*. Small. New Jersey and Carolina.
 Ledum latifolium. *Broad-leaved Ledum* or *Labrador tea-tree*. 3 or 4 feet. Greenland, Hudson's-bay, Labrador, Newfoundland and Nova Scotia.
 Ledum palustre. *Marsh Ledum*. N. Europe.—A dwarf or decumbent Variety, from Hudson's Bay. These Shrubs flower in april and may, and require a moist soil with bog earth.
 Ligustrum vulgare. *Common Privet*. 6 feet. Europe.—Varieties, Gold-striped and Silver-striped, Broad-leaved, and Evergreen Italian Privet.
 Lilæ. See Syringa.
 Lonicera alpigena. *Red-berried upright Honeyfuckle*. S. Europe. May.
 Lonicera cærulea. *Blue berried upright Honeyfuckle*. 3 to 5 feet. Switzerland, Austria, Siberia. April.
 Lonicera Caprifolium. *Italian Honeyfuckle*. S. Europe.
 Lonicera Diervilla. *Yellow-flowered upright Honeyfuckle*. 3 feet. N. Amer.
 Lonicera dioica. *Glaucous Honeyfuckle*. N. Amer. June and July.
 Lonicera implexa. *Minorca Honeyfuckle*. June to September.
 Lonicera nigra. *Black-berried upright Honeyfuckle*. 3 or 4 feet. March—May.
 Lonicera Periclymenum. *Common Honeyfuckle*. Europe.—Varieties, Wild or Woodbind, late Red, Dutch, oak-leaved, &c.
 Lonicera tatarica. *Tartarian upright Honeyfuckle*. 3 or 4 feet. April.
 Lonicera Xylosteum. *Fly Honeyfuckle*. 6 or 8 feet. Europe, Siberia, &c. May.
 Lotus hirsutus. *Hairy Bird's-foot Trefoil*. S. Europe. 3 feet. June—August.
 Lotus reclus. *Upright Bird's-foot Trefoil*. S. Europe. 3 or 4 feet. An Undershrub.
 Lycium barbarum. *Willow-leaved Box-thorn*. Europe and Asia. Broad-leaved, Narrow-leaved. Scarcely to be called Hardy. Against a wall.

- Marsh Elder. See *Viburnum*.
- Mespilus arbutifolia*. *Arbutus-leaved Mespilus*. 5 or 6 feet. Virginia. May.—Varies with red, black, and white fruit.
- Mespilus canadensis*. *Snowy Mespilus*. 5 feet. Canada and Virginia. April and May.
- Mespilus Chamæ-Mespilus*. *Bastard Quince or Mespilus*. 4 or 5 feet. Europe.
- Mespilus Cotoneaster*. *Dwarf Mespilus*. 4 or 5 feet. Europe and Siberia. April and May.
- Mespilus tomentosa*. *Quince-leaved Mespilus*. April and May. Mezerion. See *Daphne*.
- Myrica cerifera*. *American Candleberry Myrtle*. Shrub or tree, 30 feet. N. Amer.—Variety, broad-leaved.
- Myrica Faya*. *Azorian Candleberry Myrtle*. Madcira and the Azores. June and July.
- Myrica Gale*. *Sweet Gale*, or *Sweet Willow*. 2 to 4 feet. N. Europe and Amer. May.
- Ononis fruticosa*. *Shrubby Rest-harrow*. 1 foot high. A beautiful low Shrub. S. France. Flowers red or purple. May and June.
- Osier. See *Salix*.
- Philadelphus coronarius*. *Syringa*. 7 or 8 feet. S. Europe. June.—Variety, Dwarf.
- Potentilla fruticosa*. *Shrubby Cinquefoil*. 3 or 4 feet. Oeland, England, Siberia, China, N. Amer. June and July.
- Prinos verticillata*. *Deciduous Winter-berry*. 8 or 10 feet. N. Amer. July.
- Privet. See *Ligustrum*.
- Prunus pumila*. *Dwarf Canadian Cherry-tree*. 3 or 4 feet. Canada. May.
- Ptelea trifoliata*. *Three-leaved Ptelea or Shrubby Trèfoil*. 10 or 12 feet. N. Amer.
- Raspberry. See *Rubus*.
- Rhamnus alpinus*. *Alpine Buckthorn*. Germany, Switzerland, S. France, Piedmont.
- Rhamnus alnifolius*. *Alder-leaved Buckthorn*. N. Amer. May.
- Rhamnus catharticus*. *Purging Buckthorn*. 12 or 14 feet. Europe. May and June.
- Rhamnus Frangula*. *Berry-bearing Alder*. 10 or 12 feet. Europe and Siberia.
- Rhamnus infectorius*. *Dwarf, or yellow-berried Buckthorn*. Procumbent. S. Europe.
- Rhamnus latifolius*. *Azorian Buckthorn*. Azores. July.
- Rhamnus saxatilis*. *Rock Buckthorn*. Low. Switzerland, Austria, S. France. Italy.
- Rhodora canadensis*. *Canadian Rhodora or Rose-bay*. Newfoundland. 2 feet.
- Rhus aromaticum*. *Aromatic Sumach*. Carolina. May.
- Rhus copallinum*. *Lentiscus-leaved Sumach*. N. Amer. Aug. and Sept.
- Rhus Coriaria*. *Elm-leaved Sumach*. S. Europe and Levant. July.
- Rhus Cotinus*. *Venice Sumach*. Italy and Austria. June and July.
- Rhus elegans*. *Carolina Sumach*. S. Carolina. July.
- Rhus glabrum*. *Scarlet Sumach*. N. Amer. July and August.
- Rhus radicans*. *Poison-oak or Sumach*. Virginia and Canada. June and July.—Varieties, Common upright and Small-leaved.
- Rhus suaveolens*. *Sweet Sumach*. N. Amer. May.
- Rhus Toxicodendron*. *Trailing Poison-oak or Sumach*. N. Amer. June and July.
- Rhus typhinum*. *Virginian Sumach or Stag's-horn tree*. Virginia and Carolina. July.
- Rhus Vernix*. *Varnish Sumach*. N. Amer. July.
- Robinia Caragana*. *Caragana*. Siberia. 20 feet. April and May.
- Robinia Chamlagu*. *Shining Robinia*. China? May and June.
- Robinia frutescens*. *Shrubby Robinia*. Siberia. April and May.
- Robinia Halodendron*. *Salt-tree Robinia*. Siberia.
- Robinia hispida*. *Rose Robinia or Rose Acacia*. Carolina. May—September.
- Robinia pygmaea*. *Dwarf Robinia*. Siberia. April and May. Weak and low.
- Robinia spinosa*. *Thorny Robinia*. Siberia. April and May. 6 or 7 feet.
- Rosa alba*. *White Rose*.—Varieties, Single, Double, Small Maiden's-blush, Great Maiden's-blush, Cluster Maiden's-blush.
- Rosa alpina*. *Alpine Rose*. Flowers single, red.
- Rosa arvensis*. *White Dog Rose*. Wild. Flower single.
- Rosa blanda*. *Hudson's-Bay Rose*. May—August.
- Rosa canina*. *Dog Rose, wild Briar, or Hep-tree*. Wild. Varieties, White, Double.
- Rosa Carolina*. *Carolina Rose*. N. Amer. Red, Single.
- Rosa centifolia*. *Hundred-leaved Rose*. Flowers very double and deep red.—Varieties, Dutch, Blush, and Singleton's Hundred-leaved Rose. Burgundy, Single and Double Velvet, Sultan, Stepney, Garnet, Bishop, Lisbon.
- Rosa cinnamomea*. *Cinnamon Rose*. Single, Double. May.
- Rosa damascena*. *Damask Rose*. S. France. June and July.—Varieties, Red, Blush, York and Lancaster, Red, Monthly, White Monthly, Blush Belgick, Great Royal, Imperial Blush.
- Rosa gallica*. *Red Rose*. S. Europe. June and July.—Varieties, *Rosa mundi*, Marbled, Virgin.
- Rosa lucida*. *Shining-leaved American Rose*. Single. July.
- Rosa lutea*. *Single Yellow Rose*. Germany, S. France, Italy.—Variety, Red and Yellow Austrian.
- Rosa moschata*. *Musk Rose*. Africa. July.—Varieties, Single, Double. Flowers white in clusters.
- Rosa muscosa*. *Moss Provence Rose*. June and July.
- Rosa parviflora*. *Small-flowered American or Pennsylvanian Rose*. Varieties, Single, Double.
- Rosa pendulina*. *Smooth pendulous Rose*. Single. N. Amer. May.
- Rosa pimpinellifolia*. *Small Burnet-leaved Rose*. S. Europe, Asia. May and June.
- Rosa provincialis*. *Provence Rose*. Spain and Italy. June to August.—Varieties, Red or Scarlet, Blush, White, Rose de Meaux Great and Small, Blandford or Portugal.
- Rosa pumila*. *Dwarf Austrian Rose*. Austria and Italy. June and July.
- Rosa rubiginosa*. *Sweet Briar Rose*. Europe. May and June.—Varieties, Common Double, Mossy Double, Evergreen Double, Marbled Double, Red Double, Royal, and Yellow.
- Rosa spinosissima*. *Scotch Rose*. Europe. June and July. Single. White.—Varieties, Tall, Striped, Red, Double.
- Rosa sulphurea*. *Double Yellow Rose*. Levant. July.
- Rosa tomentosa*. *Downy-leaved Dog-rose*. Britain. June and July.
- Rosa turbinata*. *Frankfort Rose*.
- Rosa villosa*. *Apple Rose*. Europe and Asia. June.—Variety, Double.
- Rose Acacia. See *Robinia*.
- Rubus Dalibarda*. *Simple-leaved Bramble*.
- Rubus fruticosus*. *Bramble*. The variety with double flowers is introduced into ornamental plantations. Other varieties, with white fruit, with cut leaves, with variegated leaves, and smooth without thorns.
- Rubus hispidus*. *Bristly Bramble*. Canada. August.
- Rubus odoratus*. *Flowering Raspberry*. N. Amer.
- Rubus saxatilis*. *Stone Bramble*. Europe. June.
- Rubus villosus*. *Hairy Bramble*. N. Amer. July.
- Saint John's-wort. See *Hypericum*.
- Salix*. *Willow*.—Several of this genus have been given above among the Trees. Others belong to the Shrubs: as, *Salix purpurea*. *Bitter Purple Willow*. 3 or 4 feet. Europe. It flowers at the end of February or in March.
- Salix filix*. *Basket Osier*. 4 or 5 feet. Europe. Preferred for basket-work.
- Salix rubra*. *Green Osier*. England and France. Flowers in April and May. Excellent as an Osier.
- Salix myrtilloides*. *Whortle-leaved Willow*.
- Salix reticulata*. *Round-leaved or Net-work Willow*. Europe on mountains. May.
- Salix myrtilloides*. *Bilberry-leaved Willow*. Small. Sweden and Iceland. Switzerland, S. France, Ingria and Siberia.
- Salix aurita*. *Round-eared Willow*. Europe. May.
- Salix arenaria*. *Sand Willow*. Europe.
- Salix acuminata*. *Long-leaved Sallow*. 6 feet. Europe. March and April.
- Salix tristis*. *Narrow-leaved American Willow*. Pennsylvania. April.
- Salix viminalis*. *Common Osier*. Europe. Much cultivated for the larger kinds of basket-work. There are many other Shrubby Species, but they are insignificant in cultivation, either for use or ornament.
- Sambucus canadensis*. *Canadian Elder-tree*.
- Sambucus nigra*. *Common Elder-tree*.—Varieties, with green or white berries, and with cut leaves.
- Sambucus racemosa*. *Red-berried Elder*.
- Sarsaparilla. See *Smilax*.
- Sideroxylon lycioides*. *Willow-leaved Ironwood*. Canada.
- Smilax aspera*. *Rough Smilax*. S. Europe and Syria. September.—Varieties, Simple-leaved, and Ear-leaved.
- Smilax bona nox*. *Ciliated Smilax*. N. Amer. June and July.
- Smilax eaduca*. *Deciduous Smilax*. Canada.
- Smilax lanceolata*. *Spear-leaved Smilax*. N. Amer.
- Smilax laurifolia*. *Laurel-leaved Smilax*. Virginia and Carolina. July.
- Smilax rotundifolia*. *Round-leaved Smilax*. Canada. July and August.
- Smilax Sarsaparilla*. *Medicinal Smilax or Sarsaparilla*. America. July and August.
- Smilax tamnoides*. *Black Briony-leaved Smilax*. N. Amer. June and July.
- Spartium decumbens*. *Trailing Broom*. France and Switzerland. May and June.
- Spartium junceum*. *Spanish Broom*. S. Europe. July—September.—Variety, with Double flowers.
- Spartium monospermum*. *White-flowered single-seeded Broom*. Spain and Portugal. June and July.
- Spartium multiflorum*. *Portugal White Broom*. Portugal. May.
- Spartium patens*. *Woolly-podded Broom*. Portugal. June and July.
- Spartium radiatum*. *Starry Broom*. Italy. June and July.
- Spartium scoparium*. *Common Broom*. Europe. April—June.
- Spartium

Spartium Scorpium. *Scorpion Broom*. S. Europe. March and April.
Spartium sphaerocarpum. *Yellow-flowered Single-seeded Broom*. S. Europe. June and July.
Spartium spinosum. *Prickly Broom* or *Prickly Cytisus*. S. Europe. June and July.
 Spindle-tree. See *Enonymus*.
Spiraea crenata. *Hawthorn-leaved Spiraea*. Spain and Siberia. April and May.
Spiraea hypericifolia. *Hypericum-leaved Spiraea*. *Hypericum Frutex*, vulg. Canada. April and May.
Spiraea laevigata. *Smooth-leaved Spiraea*. Siberia. April—June.
Spiraea opulifolia. *Virginian Gelder-rose* or *Spiraea*. Canada and Virginia. June and July.
Spiraea salicifolia. *Willow-leaved Spiraea*. June—August.—Varieties, Flesh-coloured, Siberia. Panicked, and Broad-leaved. N. Amer.
Spiraea torbifolia. *Service-leaved Spiraea*. Siberia. August.
Spiraea tomentosa. *Scarlet Spiraea*. Pennsylvania. August and September.
Staphylea pinnata. *Five-leaved Bladder-nut*. 10 or 12 feet. S. Europe. April—June.
Staphylea trifolia. *Three-leaved Bladder-nut*. Virginia. May and June.
Stuartia Malacodendron. *Common Stuartia*. Carolina and Virginia. July and August. 10 or 12 feet.
 Sumach. See *Rhus*.
 Syringa. See *Philadelphus*.
Syringa Persica. *Persian Lilac*. 5 or 6 feet. Persia. May.—Varieties, Blue, White, Cut-leaved.
Syringa vulgaris. *Common Lilac*. 18 or 20 feet. Persia. April and May.—Varieties, Blue, Purple, White.
Tamarix germanica. *German Tamarisk*.—*Tamarix gallica*, which is a middling tree, is commonly cultivated among Shrubs.
Teucrium capitatum. *Round-headed Germander*. Spain. July and August.
Teucrium flavum. *Yellow-flowered shrubby Germander*. S. Europe. July—September.
Teucrium lucidum. *Shining Germander*. S. Europe. June—September.
Teucrium Marum. *Marum Germander*, or *Cat-thyme*. Spain. July—September. Dry warm situation.
Teucrium montanum. *Dwarf Germander*. France, Switzerland, Germany. July—October.
Teucrium Polium. *Poley*, or *Sea Germander*. S. Europe and Levant. July—September. These are low Shrubs, Several other species which are kept in the Greenhouse, may be ventured abroad in a dry warm soil and situation, and will live through a mild winter.
Vaccinium amoenum. *Broad-leaved Whortle-berry*. N. Amer. May and June.
Vaccinium angustifolium. *Narrow-leaved Whortle-berry*. Newfoundland and Labrador. April and May.
Vaccinium diffusum. *Shining-leaved Whortle-berry*. S. Carolina. May—July.
Vaccinium frondosum. *Obtuse-leaved Whortle-berry*. N. Amer. June.
Vaccinium fuscum. *Cluster-flowered Whortle-berry*. N. Amer. May and June.
Vaccinium Myrtillus. *Common Bla-berry* or *Whortle-berry*. Europe, Britain. April.
Vaccinium pallidum. *Pale Whortle-berry*. N. Amer. May and June.
Vaccinium resinifolium. *Clammy Whortle-berry*. N. Amer. May and June.
Vaccinium stamineum. *Green-wooded Whortle-berry*. N. Amer. May and June.
Vaccinium tenellum. *Gale-leaved dwarf Whortle-berry*. N. Amer. May and June.
Vaccinium venustum. *Red-twigg'd Whortle-berry*. N. Amer. May and June.
Vaccinium virgatum. *Privet-leaved Whortle-berry*. N. Amer. April and May.
Vaccinium uliginosum. *Marsh-Bilberry* or *Whortle-berry*. Europe, Britain. April and May.
Viburnum acerifolium. *Maple-leaved Viburnum*. Virginia. July.
Viburnum Cassinoides. *Thick-leaved Viburnum*. N. Amer. June.
Viburnum dentatum. *Tooth-leaved Viburnum*. N. Amer. June and July.—Varieties, Shining and Downy.
Viburnum Lantana. *Common Wayfaring tree*. Europe, Britain, June.—Variety, Large-leaved. N. Amer.
Viburnum laevigatum. *Cassio-berry-bush*. Carolina. July and August.—This is *V. Cassinoides* of Mill. *dict.* and *Cassino Peragua*. *Linn. mant.*
Viburnum Lentago. *Pear-leaved Viburnum*. N. Amer. July.
Viburnum nitidum. *Shining-leaved Viburnum*. N. Amer. May and June.
Viburnum nudum. *Oval-leaved Viburnum*. N. Amer. May and June.
Viburnum Opulus. *Marsh Elder* or *Viburnum*. Europe, Britain. May and June.—Variety, Snowball Viburnum, or Gelder-rose.

Viburnum prunifolium. *Plum-leaved Viburnum*. N. Amer. May and June.
Vitex Agnus castus. *Official Chaste-tree*. 8 or 10 feet. S. Europe, Asia, Africa, Virginia.—Variety, Broad-leaved.
 Wayfaring-tree. See *Viburnum*.
 Whortleberry. See *Vaccinium*.
 Willow. See *Salix*.

HARDY EVERGREEN SHRUBS.

Adam's-needle. See *Yucca*.
 Alaternus. See *Rhamnus*. Alexandrian Laurel. See *Ruscus*.
Andromeda polifolia. *Marsh Andromeda*. 6 inches to a foot. America, N. Europe, Britain. May.—Varieties, Broad-leaved, Narrow-leaved.
Andromeda axillaris. *Notch-leaved Andromeda*. Carolina. May to August.
Andromeda caliculata. *Calyced Andromeda*. Sweden, Siberia, N. Amer.—Varieties, Globe-flowered, Broad-leaved, Narrow-leaved.
Arbutus acadiensis. *Acadian Strawberry-tree*. Low. N. Amer. in swamps.
Arbutus alpina. *Alpine Arbutus*. Trailing. Europe, Scotland, Siberia. May.
Arbutus Andrachne. *Oriental Strawberry-tree*. It grows to a middle-sized tree, but with us is cultivated among Shrubs. Levant, Syria, Greece, Crete.
Arbutus thymifolia. *Thyme leaved Arbutus*. N. Amer. in swamps.
Arbutus Unedo. *Common Strawberry-tree*. 20 or 30 feet, but commonly branching from the bottom, and cultivated as a Shrub. S. Europe, Ireland, Asia.—Varieties, with white, red, and double flowers; with leaves curled, cut smooth, broad and narrow; with oval fruit.
Arbutus Uva ursi. *Trailing Arbutus* or *Bear-berry*. Trailing. Europe, Britain, Siberia.
 Bay. See *Laurus*. Butcher's-broom. See *Ruscus*.
Buxus sempervirens. *Box*. Commonly cultivated as a Shrub. See the varieties among the Trees.
Cistus albidus. *White-leaved Cistus* or *Rock Rose*. Spain and France. June and July. Flowers purple.
Cistus anglicus. *Hairy Cistus*. England and Wales. June and July. Flowers yellow.
Cistus apenninus. *Apennine Cistus*. Mountains of Italy. June—August. Flowers white.
Cistus canus. *Myrtle-leaved dwarf Cistus*. S. Europe. June and July. Flowers yellow.
Cistus creticus. *Cretan Cistus*. Levant. June and July. Flowers Rose-purple.
Cistus crispus. *Curled-leaved Cistus* or *Rock-rose*. Portugal. June and July. Flowers white.
Cistus halimifolius. *Sea Purslane-leaved Cistus*. Portugal. June and July. Flowers yellow.
Cistus Helianthemum. *Dwarf Cistus*. Europe, Britain. May—September. Flowers full yellow, varying to lemon-colour, white and even rose-colour.
Cistus incanus. *Hoary leaved Cistus* or *Rock-rose*. S. Europe. June—August. Flowers purple.
Cistus ladaniferus. *Spanish Gum Cistus*. Spain and Portugal. June and July. Flowers white, or with a large purple spot at the base of each petal.—Varieties, with waved leaves, and flat leaves.
Cistus laurifolius. *Laurel-leaved Cistus*. Spain. June and July. Flowers white.
Cistus laxus. *Broad waved-leaved Cistus*. Spain and Portugal. June and July. Flowers white.
Cistus marifolius. *Marum-leaved Cistus*. S. Europe. May and June. Flowers white.
Cistus monspeliensis. *Montpelier Cistus*. S. France and Spain. July. Flowers white.
Cistus polifolius. *Mountain Cistus*. S. Europe and England. May and June. Flowers white.
Cistus populifolius. *Poplar-leaved Cistus*. Portugal. May and June. Flowers white.—Varieties, Greater and Smaller.
Cistus salvifolius. *Sage-leaved Cistus* or *Rock-rose*. S. Europe. June and July. Flowers white.
Cistus scabrosus. *Rough Cistus*. Italy and Portugal. June and July. Flowers Yellow.
Cistus serpyllifolius. *Serpyllum-leaved Cistus*. Austria. May—September. Flowers yellow.
Cistus furreianus. *Small-flowered Cistus*. England. July—October. Flowers yellow.
Cistus thymifolius. *Thyme-leaved Cistus*. France and Spain. June and July. Flowers yellow.
Cistus umbellatus. *Umbelled Cistus*. France and Spain. June—August. Flowers white. Most of these Shrubs are low, and some trailing. *C. ladaniferus*, *incanus*, and some others are beautiful, but somewhat tender, and the flowers fall in a few hours.
Cneorum tricoccum. *Widow-wail* or *Spurge-Olive*. 2 or 2 feet and a half. S. Europe. May.
 Cranberry. See *Vaccinium*.
Cytisus hirsutus. *Hairy* or *Evergreen Cytisus*. 8 or 10 feet. S. Europe and Siberia. June.

- Daphne Laureola*. *Spurge Laurel*. 2 or 3 feet. S. Europe, Britain. February.
- Erica arborea*. *Tree Heath*. S. Europe and Madeira. February—may.
- Erica australis*. *Spanish Heath*. Spain and Portugal. April and may.
- Erica mediterranea*. *Mediterranean Heath*. S. Europe. March—may.
- Erica multiflora*. *Many-flowered Heath*. S. Europe. June—november.
- Erica Tetralix*. *Cross-leaved Heath*. Britain. June—august. —Flowers red; variety with white flowers.
- Erica vulgaris*. *Common Heath*. Europe; June—august. Variety with white flowers, and double flowers.
- Euonymus americanus*. *Evergreen Spindle-tree*. 8 or 10 feet. July.
- Furze. See *Ulex*.
- Gaultheria procumbens*. *Trailing Gaultheria*. Canada. Heath. See *Erica*.
- Holly. See *Ilex*.
- Honeyfuckle. See *Lonicera*.
- Jerusalem Sage. See *Phlomis*.
- Ilex Aquifolium*. *Holly*. See among the trees: but all the varieties are cultivated among Shrubs. May and June.
- Ilex Cassine*. *Dahoon Holly*. August.
- Ilex opaca*. *Carolina Holly*. May and June.
- Ilex vomitoria*. *South-sea Tea*. See Trees.
- Juniperus communis*. *Common Juniper*.—Varieties, Swedish Juniper, upright, and Mountain or Procumbent Juniper. Europe.
- Juniperus Oxycedrus*. *Brown-berried Juniper*. Spain and Portugal. May and June.
- Juniperus phoenicea*. *Phenician Cedar or Juniper*. S. Europe and Levant. May and June.
- Juniperus Sabina*. *Savin*. S. Europe and Levant.—Varieties Tamarisk-leaved Savin, and Striped-leaved.
- Kalmia angustifolia*. *Narrow-leaved Kalmia*. N. Amer. May—July.—Varieties, dark-red and pale-red flowers.
- Kalmia glauca*. *Glaucous Kalmia*. Newfoundland. April and May.
- Kalmia latifolia*. *Broad-leaved Kalmia*. N. Amer. May—July.
- Laurel. See *Prunus*.
- Laurel, Alexandrian. See *Ruscus*.
- Laurus nobilis*. *Common Sweet Bay*. See Trees. The broad-leaved is less hardy than the narrow-leaved, and is commonly cut down in severe winters.
- Laurus-tinus*. See *Viburnum*.
- Ledum buxifolium*. *Box-leaved Ledum*. Carolina and New Jersey. April and May.
- Ledum latifolium*. *Broad-leaved Ledum or Labrador Tea*. April and May.
- Ledum palustre*. *Marsh Ledum*. N. Europe.—A dwarf or decumbent variety from Hudson's-bay.
- Ligustrum italicum*. *Italian or Evergreen Privet*. A variety of *L. vulgare*, or common Privet, which frequently retains its leaves.
- Lonicera grata*. *Evergreen Honeyfuckle*. N. Amer. June.
- Lonicera implexa*. *Minorea Honeyfuckle*. June to September.
- Lonicera sempervirens*. *Trumpet Honeyfuckle*. N. Amer. May—August.—Varieties, Great and Small.
- Mespilus Pyraeantha*. *Pyracantha or Evergreen Thorn*. S. Europe. May.
- Myrica cerifera*. *Evergreen Candleberry Myrtle*. N. Amer. May and June.
- Phillyrea angustifolia*. *Narrow-leaved Phillyrea*.—Varieties, Rosemary-leaved and Dwarf.
- Phillyrea latifolia*. *Broad-leaved Phillyrea*.—Varieties, Smooth, Prickly, and Ilex-leaved.
- Phillyrea media*. *Middle Phillyrea*.—Varieties, Prived-leaved, Long-branched, Drooping, Olive-leaved, and Box-leaved.
- These Shrubs are all natives of the S. of Europe, and flower in May and June.
- Phlomis frutescens*. *Shrubby Phlomis or Jerusalem Sage*. Spain and Sicily. June.—Varieties, Broad-leaved, Narrow-leaved.
- Phlomis italica*. *Blunt-leaved Purple Phlomis*. Italy and Portugal. June—August.
- Phlomis purpurea*. *Sharp-leaved Purple Phlomis*. Spain. June.
- Prinos glabra*. *Evergreen Winter-berry*. Canada. July and August.
- Prinos lucida*. *Shining Winter-berry*. July.
- Privet. See *Ligustrum*.
- Prunus Laurocerasus*. *Common Laurel*. Levant. April.—Varieties, Narrow-leaved, Gold and Silver-striped.
- Prunus lusitanica*. *Portugal Laurel*. 20 feet. Portugal. June.
- Pyraeantha*. See *Mespilus*.
- Rhamnus Alaternus*. *Common Alaternus*. S. Europe. April—June.—Varieties, Broad-leaved, Jagged-leaved, Blotched, Silver-striped, Gold-striped.
- Rhododendrum dauricum*. *Dotted-leaved Rhododendron*. Siberia.
- Rhododendrum ferrugineum*. *Rusty-leaved Rhododendron*. Alps. May—July.
- Rhododendrum hirsutum*. *Hairy Rhododendron*. Alps. May and June.
- Rhododendrum maximum*. *Broad-leaved Rhododendron*. N. Amer. June—August.
- Rhododendrum ponticum*. *Purple Rhododendron*. Levant and Gibraltar. May and June.
- Rosmarinus officinalis*. *Official Rosemary*. 8 or 10 feet. S. Europe, Levant and Barbary. June—May. Varieties, Broad and Narrow-leaved, Silver-striped and Gold-striped.
- Ruscus aculeatus*. *Prickly Butcher's-broom*. Europe, Asia, Africa. March and April.
- Ruscus Hypoglossum*. *Double-leaved Butcher's-broom*. Hungary and Italy. April and May.
- Ruscus Hypophyllum*. *Broad-leaved Butcher's-broom*. Italy. May and June.
- Ruscus racemosus*. *Alexandrian Laurel*. Portugal. June.
- Ruta graveolens*. *Common Rue*. S. Europe. June—September.
- Ruta montana*. *Mountain Rue*. S. Europe. August and September.
- Santolina Chamæcyparissus*. *Lavender-Cotton*. S. Europe. July.—Varieties, Hoary, Dark-green, and Dwarf or Decumbent.
- Santolina rosmarinifolia*. *Rosemary-leaved Lavender-Cotton*. Spain. July—September.
- Spurge-Laurel. See *Daphne*.
- Strawberry-tree. See *Arbutus*.
- Thymus Mastichina*. *Mastic Thyme*. Spain.
- Thymus Serpyllum*. *Wild Thyme*. Europe.—Varieties, Smooth, Hoary, Hairy, Lemon.
- Thymus virginicus*. *Virginian, or Savory Thyme*. N. Amer. July.
- Thymus vulgaris*. *Garden Thyme*. S. Europe. May—August. Varieties, Narrow-leaved, Broad-leaved.
- Vaccinium macrocarpon*. *American Cranberry*. N. Amer. May.
- Vaccinium Oxyoccos*. *European Cranberry*. Europe. May and June.
- Vaccinium Vitis idæa*. *Red Bilberry, or Whortleberry*. Europe. April and May.
- Viburnum Tinus*. *Laurustinus or Laurestine*. S. Europe, Winter.—Varieties, Hairy, shining, upright.
- Vinca major*. *Great Periwinkle*.
- Vinca minor*. *Small Periwinkle*.
- Ulex Europæus*. *Common Furze*. It flowers great part of the year.
- Ulex nanus*. *Dwarf Furze*. August to October.
- Winter-berry. See *Prinos*.—Whortleberry. See *Vaccinium*.
- Yucca aloifolia*. *Aloe-leaved Adam's Needle*. S. Amer. August and September. This is rather a Greenhouse plant.
- Yucca dracœnis*. *Drooping-leaved Adam's Needle*. S. Carolina. Oct. and Nov.
- Yucca filamentosa*. *Thready Adam's Needle*. Virginia. Sept. and Oct.
- Yucca gloriosa*. *Superb Adam's Needle*. America. July and August.

HARDY HERBACEOUS PLANTS. PERENNIAL.

- Acanthus mollis*. *Smooth Acanthus*. Italy and Sicily. July—September.—Variety, Portuguese.
- Acanthus spinosus*. *Prickly Acanthus*. Italy. July—September.
- Achillea abrotanifolia*. *Southernwood-leaved Milfoil*. Levant. June and July. Yellow.
- Achillea Ageratum*. *Sweet Milfoil or Maudlin*. S. Europe. August—October. Yellow.
- Achillea alpina*. *Alpine Milfoil*. Siberia and Switzerland. July—November. White.
- Achillea atrata*. *Chamomile-leaved or black Milfoil*. Austria and Switzerland. July—September. White.
- Achillea Clavennæ*. *Silvery-leaved Milfoil*. Austria. June and July. White.
- Achillea cristata*. *Slender branched Milfoil*. July and August. White.
- Achillea macrophylla*. *Feverfew-leaved Milfoil*. Italy and Switzerland. July and August. White.
- Achillea magna*. *Great Milfoil or Yarrow*. S. Europe.—June—November. White.
- Achillea Millefolium*. *Common Milfoil or Yarrow*. Europe. White flowers varying to purple.
- Achillea moschata*. *Musk Milfoil or Swiss Genipi*. Switzerland and Italy. June and July. White.
- Achillea nobilis*. *Shewy Milfoil*. Germany and France. June—August. White.
- Achillea Ptarmica*. *Sneezewort*. Europe. July—November. White. Variety with double flowers.
- Achillea pubescens*. *Downy Milfoil*. Levant. June to September. Yellow.
- Achillea Santolina*. *Lavender-cotton-leaved Milfoil*. Levant. June—August. Yellow.
- Achillea serrata*. *Notch-leaved Milfoil*. August and September. White.
- Achillea squarrosa*. *Rough-headed Milfoil*. July and August.
- Achillea tomentosa*. *Woolly Milfoil*. S. Europe. May—October. Yellow.
- Acnida cannabina*. *Virginian Hemp*.

- Aconitum album*. *White Wolf's-bane* or *Monk's-hood*.
Aconitum orientale. *Mill. dict.* Levant. July and august.
 4—6 feet high. Flower white.
Aconitum Anthora. *Wholesome Wolf's-bane*. Alps and Pyrenees. June and July. 12—18 inches. Flower sulphur-coloured.
Aconitum Cammarum. *Purple Wolf's-bane*. Germany, July. 4—6 feet. Flowers blue.
Aconitum lycoctonum. *Great Yellow Wolf's-bane*. Alps. July and August. 18 inches to 3 feet. Yellow varying to blueish ash.—Variety above 4 feet.
Aconitum Napellus. *Common Wolf's-bane* or *Monk's-hood*. Europe, Siberia, Virginia. May—July. 3—5 feet. Blue varying to rose, white, &c. Long-spiked. *A. pyramidale*. *Mill. dict.*
Aconitum pyrenaicum. *Pyrenean Wolf's-bane*. July. 2—4 feet. Flowers yellow.
Aconitum variegatum. *Variegated Wolf's-bane*. S. Europe. June—August. 2 feet. Flowers white and blue.
Aconitum uncinatum. *American Wolf's-bane*. Pennsylvania. July and August. 2 feet. Flowers blue.
Acorus Calamus. *Sweet Rush* or *Flag*. Europe. June and July. Moist ground or in water.
Aëæa racemosa. *American black Snake-root*. July and August.
Aëæa spicata. *Herb Christopher*. April and May. Berries black. 2 feet. Europe, Britain. Varieties, with white and red berries. N. Amer. Flowers white.
Adonis vernalis. *Perennial* or *Spring Adonis*. Bohemia and Oeland. March and April. 18 inches. Flowers yellow.
Adoxa Moschatellina. *Tuberous Moschatel*. Britain. March and April. 4 inches.
Egopodium Podagraria. *Gout-weed*. Britain. May—July.
Ethusa fatua. *Fine-leaved Fool's-Parsley*. Aug. and Sept.
Ethusa Meum. *Spiguel*, *Mew* or *Bawd-money*. Europe. Britain. 18 inches.
Ageratum altissimum. See *Eupatorium Ageratoides*.
Agrimonia Agrimonoides. *Three-leaved Agrimony*. Italy. June and July. 18 inches. Yellow.
Agrimonia Eupatoria. *Common Agrimony*. Britain. June and July. 2 feet. Yellow.—Variety, Dwarf. Italy. White.
Agrimonia odorata. *Sweet-scented Agrimony*. Italy. July. 4—5 feet. Yellow.
Agrimonia parviflora. *Small-flowered Agrimony*. N. Amer. July.
Agrimonia repens. *Creeping Agrimony*. Levant. July—September. Yellow. 2 feet.
Agrostemma Flos jovis. *Umbelled Rose* *Campion*. Alps and Germany. July. 12 to 18 inches. Bright red.
Ajuga alpina. *Alpine Bugle*. Switzerland. May and June. 4—6 inches.
Ajuga genevensis. *Flesh-coloured Bugle*. Geneva, &c. May and June.
Ajuga orientalis. *Oriental Bugle*. Levant. May and June. 1 foot. Blue.
Ajuga pyramidalis. *Mountain Bugle*. Europe, Britain. June. Blue.
Ajuga reptans. *Common Bugle*. Europe, Britain. May and June. 6 to 9 inches. Blue varying to white.
 Alexanders. See *Smyrnum*.
 Alkanet. See *Anchusa*.
Alchemilla alpina. *Alpine Ladies Mantle*. N. Europe, Alps, England. July. 6 to 8 inches.
Alchemilla pentaphylla. *Five-leaved Ladies Mantle*. Alps. June and July. 6 inches.
Alchemilla vulgaris. *Common Ladies Mantle*. Europe, Britain. 9—12 inches. Variety, hybrid or pubescent.
Althæa cannabina. *Hemp-leaved Marsh Mallow*. S. Europe. June and July. 4—5 feet. Pale red.
Althæa hirsuta. *Hairy Marsh Mallow*. S. Europe. June and July. Low and properly biennial.
Althæa narbonensis. *Narbonne Marsh Mallow*. S. France and Spain. Aug. and Sept. 4 to 6 feet. Purple-rose coloured.
Althæa officinalis. *Common Marsh Mallow*. Europe, Siberia, England. 2—4 feet. White stained with red.
Alyssum creticum. *Cretan Madwort*. Spain and Candia. May—August.
Alyssum deltoideum. *Purple Madwort*. Levant. March—May.
Alyssum halimifolium. *Sweet-scented Madwort*. S. Europe. June—November. 1—2 feet. White. This and *A. saxatile* are inclined to be woody.
Alyssum montanum. *Mountain Madwort*. Germany and Switzerland. July. 1 foot. Yellow.
Alyssum saxatile. *Shrubby Madwort*. Candia. April and May. 12—18 inches. Yellow.
Alyssum utriculatum. *Bladder Madwort*. Levant. April—June.
 American Sanicle. See *Heuchera*.
Anchusa angustifolia. *Narrow-leaved Bugloss*. S. Europe. June—August. 1—2 feet. White and Purple.
Anchusa officinalis. *Official Bugloss* or *Alkanet*. Europe. June—October. Purple and White. 12—18 inches.
Anchusa sempervirens. *Evergreen Alkanet*. Spain, Italy, Britain. April—August. Blue.
Anchusa tinctoria. *Dyer's Alkanet*. S. Europe. June—October. 12 to 18 inches.
Anchusa undulata. *Waved-leaved Alkanet*. Spain and Portugal. July and August. 3 feet.
Androsace carnea. *Awl-leaved Androsace*. Switzerland. July and August. 3 or 4 inches. Flesh-colour.
Androsace lactea. *Grass-leaved Androsace*. Austria. June. 3 or 4 inches. White.
Androsace villosa. *Hairy Androsace*. Austria and Switzerland. June—August. 2 inches.
Andryala lanata. *Woolly Andryala*. S. Europe. May and June. 12 to 18 inches. Yellow.
Anemone alpina. *Alpine Anemone*. Switzerland and Austria. May—July. 6—9 inches. White.
Anemone apennina. *Mountain Wood Anemone*. Apennines and England. March and April. 6—9 inches. Blue.
Anemone baldensis. *Creeping-rooted Anemone*. Switzerland. M. Baldo, &c. July.
Anemone coronaria. *Narrow-leaved Garden Anemone*. Levant. April and May. 6—9 inches. Variety of colours.
Anemone dichotoma. *Forked Anemone*. Siberia. May and June.
Anemone Hepatica. *Hepatica*. Feb. to April. Europe. 6—8 inches. Blue, red and white, and double.
Anemone hortensis. *Broad-leaved Garden Anemone*. Italy, Provence, Germany, &c. April and May. 9 to 12 inches. Red, purple, yellow, white, &c.
Anemone narcissiflora. *Narcissus-flowered Anemone*. Siberia, Austria, Switzerland. May. 9—12 inches. White.
Anemone nemorosa. *Wood Anemone*. N. Europe, Britain, March—May. 6—9 inches. White, purple, double.
Anemone palmata. *Palmated Anemone*. Portugal. June.
Anemone patens. *Woolly-leaved Anemone*. Siberia. June and July. 6—8 inches. Pale yellow, or white.
Anemone pensylvanica. *Pennsylvanian Anemone*. Pennsylvania and Canada. May and June.
Anemone pratensis. *Meadow Anemone*. Germany. May and June. 4—6 inches. Dark purple.
Anemone Pulsatilla. *Pasque-flower*. Europe, England, Siberia. April. 6—9 inches. Purple.—Varieties, white, double.
Anemone ranunculoides. *Yellow Wood Anemone*. Europe, England. March and April. 4 to 6 inches. Yellow.
Anemone sylvestris. *Large white-flowered Wood Anemone*. Germany. May—June. 6—8 inches.
Anemone Thalictrifolia. *Meadow-Rue-leaved Anemone*. N. Amer. April and May. 4 to 6 inches. White.
Anemone virginiana. *Virginian Anemone*. N. Amer. May and June. 9—12 inches. Herbaceous, white.
Angelica atropurpurea. *Dark-purple Angelica*. Canada. July and Aug. 6 to 8 feet.
Angelica verticillaris. *Whorl-flowered Angelica*. Italy. June—August.
Anthemis maritima. *Sea Chamomile*. England. August.
Anthemis nobilis. *Common* or *Sweet Chamomile*. Britain, July and August.
Anthemis Pyrethrum. *Pellitory of Spain*. S. Europe. June and July. 12 to 18 inches. White.
Anthemis tinctoria. *Yellow Chamomile*, or *Ox-eye*. Britain. June—October. 1—2 feet. Yellow.
Anthyllis montana. *Mountain Anthyllis*. S. Europe. June and July. 9—12 inches. Purple.
Anthyllis Vulneraria. *Common Anthyllis* or *Kidney Vetch*. Europe. May—July. 9 inches. Yellow.—Variety with red flowers.
Antirrhinum Asarina. *Heart-leaved Toad-flax*. Italy. July.
Antirrhinum Cymbalaria. *Ivy-leaved Toad-flax*. Europe, England. June—Nov.
Antirrhinum genistifolium. *Broom-leaved Toad-flax*. Austria and Siberia. July and Aug. 2—3 feet. Yellow.
Antirrhinum Linaria. *Common yellow Toad-flax*. Europe, Britain. July—Sept. 18 inches to 2 feet. Yellow.
Antirrhinum majus. *Great Snap-dragon*. Europe, England. June—Sept. 18—24 inches. Varieties, White, Red, Variegated, Double, Long-leaved, Striped-leaved.
Antirrhinum monspessulanum. *Montpelier Toad-flax*. France. June—Aug. 18 to 24 inches. White stained with blue.
Antirrhinum organifolium. *Marjoram-leaved Snap-dragon*. S. Europe. July and Aug.
Antirrhinum pilosum. *Hairy Toad-flax*. Pyrenees. July.
Antirrhinum purpureum. *Purple Toad-flax*. S. Europe. June—Sept. 2—3 feet.
Antirrhinum repens. *Creeping Toad-flax*. Britain. July—Oct.
Antirrhinum triornithophorum. *Three-bird's-head Toad-flax*. Portugal. June—Aug.
Apocynum androsæmifolium. *Tuscan-leaved Dog's-bane*. N. Amer. July—Sept. 1—2 feet. Red striped with white.
Apocynum cannabinum. *Hemp Dog's-bane*. N. Amer. July Sept. 2—3 feet. Whitish.
Apocynum hypericifolium. *St. John's-wort-leaved Dog's-bane*. N. Amer. June and July.
Apocynum venetum. *Spear-leaved Dog's-bane*. Adriatic islands. July and Aug. 18 inches to 2 feet.
Aquilegia canadensis. *Canadian Columbine*. Canada and Virginia. April and May. 12 to 18 inches. Red and Orange.

- Aquilegia viridiflora*. *Green-flowered Columbine*. Siberia. May and June.
- Aquilegia vulgaris*. *Common Columbine*. Europe, Britain. May and June. 2—3 feet. Blue, Red, White, Purple, Variegated, Double Rose, Double Striped, Great-flowered, blue with yellow tips. Siberia.
- Arabis alpina*. *Alpine Wall-cress*. Switzerland. March—May. 9—12 inches. White.
- Arabis bellidifolia*. *Daisy-leaved Wall-cress*. Austria and Switzerland. May and June.
- Arabis grandiflora*. *Great-flowered Wall-cress*. Siberia. March—May.
- Arabis hastulata*. *Scotch Wall-cress*. May—July.
- Arabis hispida*. *Welfh Wall-cress*. May—July.
- Arabis lucida*. *Shining Wall-cress*. Hungary. June and July.
- Arabis nutans*. *Rough Wall-cress*. S. Europe. April and May.
- Aralia nudicaulis*. *Naked-stalked Aralia*. Virginia and Canada. June and July.
- Aralia racemosa*. *Berry-bearing Aralia*. Canada. June and July. 3—4 feet.
- Archangel*. See *Lamium*.
- Arenaria balearica*. *Minorca Sandwort*. June—Aug.
- Arenaria grandiflora*. *Great-flowered Sandwort*. S. Europe. June and July.
- Arenaria loricifolia*. *Larch-leaved Sandwort*. Britain. May—July.
- Arenaria montana*. *Mountain Sandwort*. France. June—July.
- Arenaria peploides*. *Sea Sandwort*. Britain. June and July.
- Arenaria saxatilis*. *Rock Sandwort*. Siberia. July and Aug.
- Arenaria striata*. *Striated Sandwort*. Switzerland. June and July.
- Arenaria tetraquetra*. *Square Sandwort*. Pyrenees. August.
- Arenaria verna*. *Spring Sandwort*. Britain. May—July.
- These are all small plants with white flowers.
- Aretia helvetica*. *Imbricated Aretia*. Switzerland. July and Aug.
- Aretia Vitaliana*. *Primrose Aretia*. Pyrenees. July.
- Aristolochia Clematitis*. *Upright Birthwort*. Europe. England. May—July. 2 feet. Greenish yellow.
- Aristolochia longa*. *Long-rooted Birthwort*. S. Europe. June—Oct. 12—18 inches. Pale purple.
- Aristolochia rotunda*. *Round-rooted Birthwort*. S. Europe. May—Aug. 2 feet. Dark purple.
- Arnica montana*. *Mountain Arnica*. Europe. July.
- Arnica scorpioides*. *Alternate-leaved Arnica*. Switzerland and Austria. July and Aug.—Both 18—24 inches. Yellow.
- Artemisia Absinthium*. *Common Wormwood*.
- Artemisia campestris*. *Field Southernwood*. England.
- Artemisia caerulea*. *Lavender-leaved Wormwood*. S. Europe. Aug. to Oct.
- Artemisia Dracunculus*. *Tarragon*. Siberia. August.
- Artemisia glacialis*. *Creeping Wormwood*. Switzerland. July and Aug.
- Artemisia maritima*. *Sea Wormwood*. Britain. Aug.
- Artemisia pontica*. *Roman Wormwood*. Austria and Hungary. September.
- Artemisia rupestris*. *Rock Wormwood*. Siberia. Aug.
- Artemisia Santonica*. *Tartarian Southernwood*. Siberia. Sept.—Nov.
- Artemisia sericea*. *Silky Wormwood*. Siberia. June and July.
- Artemisia spicata*. *Spiked Wormwood*. Austria.
- Artemisia vallesiana*. *Downy Southernwood*.
- Artemisia vulgaris*. *Mugwort*. Britain.
- Some of the above species are somewhat woody.
- Arum Arifarum*. *Hooded Arum* or *Friar's-cowl*. S. Europe. April and May. 6—9 inches.
- Arum atrorubens*. *Three-leaved purple-stalked Arum*. N. Amer. June and July.
- Arum Dracontium*. *Short-sheathed Arum*, or *Green Dragon*. N. Amer. June and July.
- Arum Dracunculus*. *Long-sheathed Arum* or *Common Dragon*. S. Europe. June and July. 2 feet. Dark purple.
- Arum italicum*. *Italian* or *White-veined Arum*. May and June. —Variety of our common *Arum*, which though named by Linneus *A. maculatum*, has not the leaves always spotted.
- Arum tenuifolium*. *Slender-leaved Arum*. S. Europe. April and May.
- Arum triphyllum*. *Three-leaved Green-stalked Arum*. N. Amer. June.
- Arundo Donax*. *Manured Reed*. S. Europe. July. 10—12 feet.—Variety, striped.
- Common Reed and several other species, wild in England.
- Aster foetida*. See *Ferula*.
- Aster canadense*. *Canadian Aster*. April to July.
- Aster europæum*. *Common Aster*. May.
- Aster virginicum*. *Sweet-scented Aster*. Virginia and Carolina. April and May.
- Asclepias amoena*. *Oval-leaved Swallow-wort*. N. Amer. July and Aug. 2—3 feet. Bright purple.
- Asclepias incarnata*. *Flesh-coloured Swallow-wort*. N. Amer. July—Sept. 18—24 inches. Pale red.
- Asclepias nigra*. *Dark-flowered Swallow-wort*. S. Europe. June—Aug. 3—6 feet. Dark purple.
- Asclepias nivea*. *Almond-leaved Swallow-wort*. N. Amer. pure white.
- Asclepias purpurascens*. *Purple Swallow-wort*. N. Amer. Aug. and Sept. 2—3 feet. Purple.
- Asclepias fibrifera*. *Siberian Swallow-wort*. July and Aug.
- Asclepias syriaca*. *Syrian Swallow-wort*. Virginia. July and Aug. 4—8 feet. Purple.
- Asclepias tuberosa*. *Tuberous Swallow-wort*. N. Amer. July and Aug. 18—24 inches. Orange.
- Asclepias variegata*. *Variegated Swallow-wort*. N. Amer. July and Aug.
- Asclepias verticillata*. *Whorl-leaved Swallow-wort*. N. Amer. 2—3 feet. Greenish white.
- Asclepias Vincetoxicum*. *Official Swallow-wort*. Europe. May—Aug. 2 feet. White.
- Asperula crassifolia*. *Thick-leaved Woodroof*. Levant. June.
- Asperula cynanchica*. *Small Woodroof* or *Squinancy-wort*. Britain. June and July.
- Asperula laevigata*. *Shining Woodroof*. S. Europe. June.
- Asperula montana*. *Mountain Woodroof*. Hungary. June and July.
- Asperula odorata*. *Sweet-scented Woodroof*. Britain. May and June. 8 or 9 inches. White.
- Asperula repens*. *Creeping Woodroof*. Portugal. June and July.
- Asperula taurina*. *Broad-leaved Woodroof*. Alps. April—June. White tinged with purple.
- Aster*. *Starwort*. Species numerous, from 18 inches or a foot, to 2, four and 5 feet, mostly from N. Amer. and chiefly with purple flowers.
- Mr. Donn's catalogue has 60 species, of which 51 are hardy perennials, and most of them ornamental in large gardens and plantations, during the autumn. The most specious are,
- Aster altissimus*. *Tall Starwort*. N. Amer. Oct. 7—8 feet. Purple.
- Aster Amellus*. *Italian* or *Virgil's Starwort*. S. Europe. 18—24 inches. Aug. and Sept.
- Aster divaricatus*. *Divaricated Starwort*. N. Amer. Sept. 2 feet. White.
- Aster dumosus*. *Bushy Starwort*. N. Amer. Sept. and Oct. 2—3 feet. White.
- Aster ericoides*. *Heath-leaved Starwort*. N. Amer. Sept. and Oct. 3—4 feet. White.
- Aster grandiflorus*. *Great flowered Starwort*. N. Amer. Oct. 2—3 feet. Dark blue.
- Aster linariifolius*. *Savory-leaved Starwort*. N. Amer. Aug. and Sept. 9—12 inches. Light blue.
- Aster linifolius*. *Flax-leaved Starwort*. N. Amer. Aug. and Sept. 2 feet. White.
- Aster mutabilis*. *Changeable Starwort*. N. Amer. Sept. 4—5 feet. Blue.
- Aster novæ angliæ*. *New England Starwort*. Aug. and Sept. 3—4 feet. Violet purple.
- Aster puniceus*. *Red-stalked Starwort*. N. Amer. Sept. and Oct. 8—10 feet. White tinged with purple.
- Aster rigidus*. *Rigid Starwort*. Virginia. Aug. and Sept. 3 feet. Purple.
- Aster umbellatus*. *Umbelled Starwort*. N. Amer. Aug. and Sept. 2—3 feet. White.
- Aster undulatus*. *Wave-leaved Starwort*. N. Amer. Sept. 2—3 feet. Pale blue.
- Some of the most common species are vulgarly confounded under the name of *Michaelmas Daisies*:
- Astragalus*. *Milk-Vetch*.
- The species of this genus are also numerous; Mr. Donn's catalogue has 40: of which 29 are hardy Perennials, 2 shrubby, and the remainder annuals.
- The principal garden species are,
- Astragalus alopecuroides*. *Fox-tail Milk Vetch*. Spain and Siberia. June and July. 2—3 feet. Pale yellow.
- Astragalus alpinus*. *Alpine Milk-Vetch*. Switzerland. June and July.
- Astragalus arenarius*. *Sand Milk-Vetch*. Germany. July.
- Astragalus Cicer*. *Bladder-podded Milk-Vetch*. S. Europe. June and July. 2—3 feet. Yellow.
- Astragalus galegiformis*. *Goat's-rue Milk-Vetch*. Siberia. June—Aug. 3—4 feet. Greenish yellow.
- Astragalus glycyphyllos*. *Wild Liquorice*. Britain. June.
- Astragalus hypoglottis*. *Purple-mountain Milk-Vetch*. Britain. June and July.
- Astragalus microphyllus*. *Small-leaved Milk-Vetch*. Germany. June and July.
- Astragalus monspessulanus*. *Montpelier Milk-Vetch*. S. France. June and July.
- Astragalus montanus*. *Mountain Milk-Vetch*. Austria. May and June.
- Astragalus Onobrychis*. *Purple-spiked Milk-Vetch*. Austria. June and July.
- Astragalus fulcatus*. *Furrowed Milk-Vetch*. Siberia. July.
- Astragalus tenuifolius*. *Slender-leaved Milk-Vetch*. Siberia. July and Aug.
- Some of these are upright and tall, but others are of low growth and trailing. Several other species are elegant little plants, but seldom seen in gardens.
- Astrantia major*. *Great Black Masterwort*. Alps. May—Sept. 18—24 inches. White tinged with purple.
- Astrantia

- Astrantia minor*. *Small Black Masterwort*. Alps. May and June. 9—12 inches. White.
- Athamanta Cervaria*. *Broad-leaved Spiguel*. Europe. July and Aug.
- Athamanta condensata*. *Close-headed Spiguel*. Siberia. July—Sept.
- Athamanta cretenfis*. *Fine-leaved Spiguel*. Austria. June and July.
- Athamanta Libanotis*. *Mountain Spiguel*. England. July and Aug.
- Athamanta Oreofelinum*. *Divaricated Spiguel*. Europe. July—Sept.
- Athamanta rigida*. *Rigid Spiguel*. Austria. June and July.
- Athamanta Sibirica*. *Siberian Spiguel*. July—Sept.
- Athamanta ficula*. *Flixweed-leaved Spiguel*. June and July.
- Athamanta Meum*. See *Æthusa*.
- Atropa Belladonna*. *Deadly Nightshade*. Europe. England. June and July. 3 feet. Dark purple.
- Atropa Mandragora*. *Mandrake*. S. Europe and Levant. March and April. Whitish.
- Avens*. See *Geum*.
- Ballota lanata*. *Woolly Black Horehound*. Siberia. June—Aug. 18—24 inches. White.
- Barren-wort*. See *Epimedium*.
- Bartfia pallida*. *Pale-flowered Bartfia*. Siberia and Hudson's-bay. June—Sept. Purple.
- Bawd-money*. See *Æthusa*. Bell-flower. See *Campanula*.
- Bellis perennis*. *Common Daisy*. Europe. April and May. —Varieties, Double, Quilled, Proliferous, White, Red, flesh-coloured, Variegated.
- Betonica Alopecuros*. *Fox-tail Betony*. S. Europe. July. 1 foot. Pale yellow.
- Betonica grandiflora*. *Great-flowered Betony*. Siberia. June and July.
- Betonica hirsuta*. *Hairy Betony*. Alps, Apennines and Pyrenees. June and July. 4 to 7 or 8 inches. Purple.
- Betonica incana*. *Hoary Betony*. Italy, June and July. Flesh-coloured.
- Betonica officinalis*. *Wood Betony*. Europe, Britain. July and Aug. 12—18 inches. Purple, varying to flesh-colour and white.
- Betonica orientalis*. *Oriental Betony*. Levant. June and July. 1 foot. Light purple.
- Betonica stricta*. *Upright Betony*. B. *daurica*. Mill. *dict.* Denmark. June and July. Purple.
- Bindweed*. See *Convolvulus*.
- Birthwort*. See *Aristolochia*.
- Bistort*. See *Polygonum*.
- Blue-bottle*. See *Centaurea*.
- Borago orientalis*. *Oriental Borage*. Constantinople. March—May. 2 feet. Pale blue.
- Buckbean*. See *Menyanthes*.
- Bugle*. See *Ajuga*.
- Bugloss*. See *Anchusa*.
- Bunias orientalis*. *Perennial Bunias*. Russia. May and June. 2—3 feet. Yellow.
- Bupthalmum grandiflorum*. *Great-flowered Ox-eye*. Austria and France. June—Oct. 12—18 inches. Yellow.
- Bupthalmum Helianthoides*. *Sunflower-leaved Ox-eye*. N. Amer. July—Oct. 5—6 feet. Yellow.
- Bupthalmum maritimum*. *Sea Ox-eye*. Sicily. July—Sept. 1 foot. Yellow.
- Bupthalmum falicifolium*. *Willow-leaved Ox-eye*. S. Europe. June—Oct. 12—18 inches. Yellow.
- Bupleurum angulosum*. *Angular-leaved Hare's-ear*. Switzerland. May—July. 18 inches.
- Bupleurum falcatum*. *Twisted-stalked Hare's-ear*. Germany. May—Aug.
- Bupleurum longifolium*. *Long-leaved Hare's-ear*. Germany and Switzerland. May—July. 2—3 feet.
- Bupleurum petraeum*. *Rock Hare's-ear*. Switzerland. May—July.
- Burnet*. See *Poterium* & *Sanguisorba*. Burnet-Saxifrage. See *Pimpinella*.
- Butomus umbellatus*. *Flowering Rush*. Europe, Britain. June and July. In water. Purple.
- Butter-bur*. See *Tussilago*.
- Cacalia alpina*. *Alpine Cacalia*. Austria and Switzerland. July and Aug. 2 feet. Purple.
- Cacalia atriplicifolia*. *Orache-leaved Cacalia*. Virginia and Canada. August. 3—4 feet. Purplish.
- Cacalia hastata*. *Spear-leaved Cacalia*. Siberia. White.
- Cacalia faracena*. *Creeping-rooted Cacalia*. S. France. Aug.—Oct.
- Cacalia suaveolens*. *Sweet-scented Cacalia*. Virginia and Canada. July—Oct. 5—7 feet. White.
- Cachrys Libanotis*. *Smooth-seeded Cachrys*. Sicily. July and Aug.
- Cachrys ficula*. *Hairy-seeded Cachrys*. Spain and Sicily. August.
- Cale* or *Colewort*. See *Crambe*.
- Calla palustris*. *Marsh Calla*. N. Europe. July and Aug.
- Caltha palustris*. *Marsh Marygold*. Britain. April.—Variety, with double flowers. May and June. Yellow.
- panula*. *Bell-flower*. A numerous genus with above 30 species, of which about 17 are hardy perennials. Of these the principal are—
- Campanula bononiensis*. *Panicled Bell-flower*. Italy. Aug. and Sept.
- Campanula carpatica*. *Heart-leaved Bell-flower*. Carpathian Alps. June and July.
- Campanula glomerata*. *Clustered Bell-flower*. Britain. May—Sept.
- Campanula grandiflora*. *Great Bell-flower*. Siberia. July.
- Campanula persicifolia*. *Peach-leaved Bell-flower*. N. Europe. —Varieties, Blue, White, Double Blue, Double White.
- Campanula pyramidalis*. *Pyramidal Bell-flower*. Carniola. June—Oct.—Varieties, Blue, White.
- Campanula rhomboidea*. *Germander-leaved Bell-flower*. Alps. July.
- Campanula Trachelium*. *Great Bell-flower*. Britain. July and Aug.
- Campion*. See *Cucubalus*.
- Caraway*. See *Carum*.
- Cardamine amara*. *Bitter Lady's Smock*. Britain. April and May.
- Cardamine asarifolia*. *Heart-leaved Lady's Smock*. Italy. June and July.
- Cardamine nivalis*. *Woad-leaved Lady's Smock*. Siberia. July.
- Cardamine pratensis*. *Common Lady's Smock* or *Cuckow-flower*. Europe. Britain. April and May.—Variety, with Double flowers.
- Cardamine trifolia*. *Three-leaved Lady's Smock*. Lapland, Austria, Switzerland. March and April.
- Carthamus Carduncellus*. *Mountain Carthamus*. S. France. May.
- Carthamus cœruleus*. *Blue-flowered Carthamus*. Spain. June and July.
- Carthamus mitissimus*. *Small Carthamus*. France. June and July.
- Carthamus tingitanus*. *Tangier Carthamus*. Barbary. June and July.
- Carum carui*. *Common Caraway*. Europe, Britain. May and June.
- Cassia marilandica*. *Maryland Cassia*. N. Amer. Aug.—Oct.
- Catananche cœrulea*. *Blue Catananche*. S. Europe. July—Oct.
- Catchfly*. See *Cucubalus* and *Silene*.
- Catmint*. See *Nepeta*.
- Cat's-tail*. See *Typha*.
- Celandine*. See *Chelidonium*.
- Centaurea Centaureum*. *Great Centaury*. Italy. July and Aug. 3—4 feet. Red.
- Centaurea Cineraria*. *White-leaved Mountain Centaury*. Italy. July and Aug. 2—3 feet. White.
- Centaurea glastifolia*. *Woad-leaved Centaury*. Siberia. June—Aug. 3—4 feet. Yellow.
- Centaurea montana*. *Mountain Blue-bottle*. Austria and Switzerland. June—August. 12—18 inches. Blue.
- Centaurea phrygia*. *Austrian Centaury*. Austria and Switzerland. June—October. 2—3 feet. Yellow.
- Centaurea sibirica*. *Siberian Centaury*.
- Above fifty species are cultivated, of which 28 are perennial.
- Cerastium arvense*. *Corn Cerastium*. Britain. May—July. White.
- Cerastium dioicum*. *Spanish Cerastium*. June.
- Cerastium latifolium*. *Broad-leaved Cerastium*. Britain. June and July.
- Cerastium repens*. *Creeping Cerastium*. France and Italy. May—July. 6 inches. White.
- Cerastium tomentosum*. *White Cerastium*. S. Europe. June. 6 inches. White.
- Chærophyllum aromaticum*. *Aromatic Chervil*. Germany. June—Aug.
- Chærophyllum aureum*. *Golden Chervil*. Germany. July.
- Chærophyllum hirsutum*. *Hairy-leaved Chervil*. Switzerland. June and July.
- Chaniomile*. See *Anthemis*.
- Cheiranthus alpinus*. *Alpine Stock*. S. Europe. May—July.
- Cheiranthus Cheiri*. *Garden Wall-flower*.—Varieties, Double, Bloody, &c. Siberia. April—July.
- Cheiranthus fruticulifolius*. *Wild Wall-flower*.
- Chelidonium Glaucium*. *Yellow Horned Poppy*. Europe, Britain. June—Oct.
- Chelidonium majus*. *Great or common Celandine*. Europe, Britain, April—Oct. Yellow.—Varieties, Jagged-leaved, and Double-flowered.
- Chelone barbata*. *Bearded-flowered Chelone*. Chili. June—Aug.
- Chelone glabra*. *White-flowered Chelone*. Virginia and Canada. Aug.—Oct.
- Chelone obliqua*. *Red-flowered Chelone*. N. Amer. Aug.—Oct.
- Chenopodium Bonus Henricus*. *English Mercury*. Britain. May—Aug.
- Cherleria Sedoides*. *Stone-crop Cherleria*. Scotland. July and Aug.
- Chervil*. See *Chærophyllum*.
- Chondrilla juncea*. *Common Gum-Succory*. Switzerland, France, and Germany. Sept. and Oct.
- Christmas Rose*. See *Helleborus*.
- Chrysanthemum Achilleæ*. *Milfoil-leaved Chrysanthemum*. Italy. June—Aug. White.

- Chrysanthemum alpinum*. *Alpine Chrysanthemum*. Switzerland. July and Aug. White.
- Chrysanthemum atratum*. *Fleshy-leaved Chrysanthemum*. Austria and Switzerland. July and Aug. White.
- Chrysanthemum Balfamita*. *Various-leaved Chrysanthemum*. Levant. July.
- Chrysanthemum corymbosum*. *Cluster-flowered Chrysanthemum*. Germany and Siberia. June—Aug. White.
- Chrysanthemum indicum*. *Purple-flowered Chrysanthemum*. China. Sept.—Nov. Warm situation.
- Chrysanthemum Leucanthemum*. *Ox-eye Daisy*. Britain. June and July.
- Chrysanthemum millefolium*. *Tansy-leaved Chrysanthemum*. Siberia. June and July.
- Chrysanthemum montanum*. *Mountain Chrysanthemum*. Italy. June and July.
- Chrysanthemum serotinum*. *Creeping Chrysanthemum*. N. Amer. Sept. Oct. 4—5 feet. White.
- Chrysocoma biflora*. *Two-flowered Goldilocks*. Siberia. Aug. and Sept. 2—3 feet. Yellow.
- Chrysocoma Linofyris*. *Flax-leaved Goldilocks*. Europe. Sept. and Oct. 18—24 inches. Yellow.
- Chrysosplenium alternifolium*. *Alternate-leaved Golden Saxifrage*.
- Chrysosplenium oppositifolium*. *Opposite-leaved Golden Saxifrage*. Both small plants, natives of Europe and Britain.
- Cichorium Intybus*. *Wild Endive or Succory*. Common in Britain, &c. July and Aug. Blue.
- Cimicifuga foetida*. *Fetid Cimicifuga*. Siberia. June. 3—4 feet. White.
- Cineraria cordifolia*. *Heart-leaved Cineraria*. Austria and Switzerland. July and Aug.
- Cineraria glauca*. *Glaucous Cineraria*. Siberia. June—Aug.
- Cineraria integrifolia*. *Mountain Fleawort*. Britain. June and July.
- Cineraria palustris*. *Marsh Fleawort*. Britain. June and July.
- Cineraria sibirica*. *Siberian Cineraria*. June—Aug.
- Cinquefoil*. See *Potentilla*.
- Circæa alpina*. *Mountain Enchanter's Nightshade*. Britain. June—Sept. 4—5 inches.
- Circæa huetiana*. *Common Enchanter's Nightshade*. Britain. June—Aug.
- Cistus Tuberaria*. *Plantain-leaved Cistus*. S. Europe. June and July.
- Claytonia virginica*. *Virginian Claytonia*. N. Amer. March—May.—Varieties, Linear-leaved, Spear-leaved.
- Clematis angustifolia*. *Narrow-leaved Virgin's-bower*. Austria. June—Aug.
- Clematis integrifolia*. *Entire-leaved Virgin's-bower*. Hungary and Austria. June—Aug. 2 feet. Light blue.
- Clematis ochroleuca*. *Yellow-flowered Virgin's Bower*. N. Amer. June and July. 18 inches.
- Clematis recta*. *Upright Virgin's Bower*. Hungary, Austria and France. June—Aug. 3—4 feet. White.
- Clinopodium incanum*. *Hoary Clinopodium*. N. Amer. July—Oct. 18—24 inches. Pale Purple.
- Clinopodium vulgare*. *Wild Basil*. Britain. June and July. 9—12 inches. Bright Purple.
- Cnicus Centauroides*. *Artichoke-leaved Cnicus*. Pyrenees. July and Aug.
- Cnicus cernuus*. *Siberian Cnicus*. June and July. 6—7 feet. Yellow.
- Cnicus Eristhales*. *Clammy Cnicus*. France and Austria. June—Aug.
- Cnicus oleraceus*. *Pale-flowered Cnicus*. Europe. July.
- Cnicus spinosissimus*. *Prickly Cnicus*. Siberia. June—Aug.
- Collinsonia canadensis*. *Nettle-leaved Collinsonia*. N. Amer. Aug.—Oct. 2—3 feet. Yellowish.
- Colt's-foot*. See *Tussilago*.
- Columbine*. See *Aquilegia*.
- Comarum palustre*. *Marsh Cinquefoil*. Britain. June. 18—24 inches. Dark Purple.
- Comfrey*. See *Symphytum*.
- Commelina erecta*. *Upright Virginian Commelina*. Aug. and Sept. 18 inches. Pale blue.
- Convallaria bifolia*. *Least Solomon's-seal*. N. Europe. May and June. 4—5 inches. White.
- Convallaria latifolia*. *Broad-leaved Solomon's-seal*. N. Amer. May and June.
- Convallaria majalis*. *Lily of the valley*. Europe, Britain. June. 6—9 inches. White. Varieties, Red, and Double Flowers.
- Convallaria multiflora*. *Many-flowered or broad-leaved Solomon's-seal*. Europe, England. May and June. 2—3 feet. Greenish White.
- Convallaria Polygonatum*. *Common Solomon's-seal*. Europe, England. May and June. 2 feet. Greenish White.—Variety, Hellebore-leaved.
- Convallaria racemosa*. *Cluster-flowered Solomon's-seal*. N. Amer. May and June. 18—24 inches. White.
- Convallaria stellata*. *Star-flowered Solomon's-seal*. Virginia and Canada. May and June.
- Convallaria verticillata*. *Whorl-leaved Solomon's-seal*. N. Europe. May and June. 12—18 inches. Greenish White.
- Convolvulus lineatus*. *Dwarf Bindweed*. France and Spain. June. 4—5 inches. Red.
- Convolvulus Scammonia*. *Scammony*. Levant. July and Aug. 6—8 feet. Sulphur-coloured. It requires warmth and a sheltered situation.
- Convolvulus Soldanella*. *Sea Bind-weed*. England. June and July. 3—4 feet. Reddish Purple.
- Conyza Asteroides*. *Starwort Flea-bane*. N. Amer. Aug. and Sept.
- Conyza bifrons*. *Oval-leaved Flea-bane*. Canada. Aug. and Sept.
- Conyza linifolia*. *Flax-leaved Flea-bane*. N. Amer. Aug. and Sept. 9—12 inches. White.
- Coralwort*. See *Dentaria*.
- Coreopsis alternifolia*. *Alternate-leaved Coreopsis*. Virginia and Canada. Sept.—Nov. 8—10 feet. Pale Yellow.
- Coreopsis aurea*. *Hemp-leaved or Golden Coreopsis*. N. Amer. Aug. and Sept.
- Coreopsis auriculata*. *Ear-leaved Coreopsis*. Virginia. Aug.—Oct. 18—24 inches. Orange Yellow.
- Coreopsis crassifolia*. *Thick-leaved Coreopsis*. Carolina. Aug.—Oct.
- Coreopsis procera*. *Tall Coreopsis*. N. Amer. Sept. and Oct.
- Coreopsis tripteris*. *Three-leaved Coreopsis*. Virginia and Canada. Aug.—Oct. 5—6 feet. Pale Yellow.
- Coreopsis verticillata*. *Whorl-leaved Coreopsis*. Virginia. July—Oct. 2—3 feet. Bright Yellow.
- Cornus canadensis*. *Canadian Dogwood*. August. 4—5 inches. White.
- Cornus suecica*. *Herbaceous Dogwood*. N. Europe. Britain. June. 6 inches. White.
- Coronilla coronata*. *Crown-flowered Coronilla*. S. Europe. July. 18 inches. Yellow.
- Coronilla minima*. *Least Coronilla*. S. Europe. July. 2—3 inches. Yellow.
- Coronilla varia*. *Purple Coronilla*. France, Germany, Denmark. June—Nov. 4—6 feet. Varies to light purple, whitish, and white.
- Cortusa Matthioli*. *Bear's-ear Sanicle*. Austria and Siberia. April—June. 4—5 inches. Pale red.
- Costmary*. See *Tanacetum*.
- Cotyledon lutea*. *Yellow Navelwort*. England. June and July.
- Cotyledon Umbilicus*. *Common Navelwort, or Wall Pennywort*. Britain. June and July. 6—9 inches. Greenish White.
- Cowslip*. See *Primula*. Cowslip, Virginian. See *Dodecatheon*.
- Cow-Parfney*. See *Heracleum*.
- Crambe maritima*. *Sea Calt or Colewort*. Britain. May and June.
- Crane's-bill*. See *Erodium & Geranium*.
- Crepis albida*. *Pale-flowered Crepis*. France and Italy. July—Oct.
- Crepis sibirica*. *Siberian Crepis*. July and Aug.
- Crithmum maritimum*. *Sea or true Sampire*. Britain. July—Sept.
- Crowfoot*. See *Ranunculus*.
- Cucubalus bacciferus*. *Berry-bearing Campion*. Europe, England. July. 3—5 feet. White.
- Cucubalus Behen*. *Common Bladder Campion*. Europe, England common. May—Sept. 18—24 inches. White.—Variety, Sea Bladder Campion.
- Cucubalus catholicus*. *Panicked Campion*. Italy. Aug. and Sept. 2 feet. White.
- Cucubalus italicus*. *Italian Campion*. May and June.
- Cucubalus multiflorus*. *Many-flowered Campion*. Hungary. June—Aug.
- Cucubalus Otites*. *Spanish Catchfly*. Europe, England. July and Aug. 2—3 feet. Greenish White.
- Cucubalus parviflorus*. *Small-flowered Campion*. Hungary. July and Aug.
- Cucubalus sibiricus*. *Siberian Campion*. June—Aug.
- Cucubalus stellatus*. *Four-leaved Campion*. Virginia and Canada. June—Aug. 1 foot. White.
- Cucubalus tataricus*. *Tartarian Campion*. June—Aug.
- Cucubalus viscosus*. *Clammy Campion*. Levant. July.
- Cudweed*. See *Filago*.
- Cunila mariana*. *Mint-leaved Cunila*. N. Amer. July—Sept. 12—18 inches. White.
- Cyclamen coum*. *Round-leaved Cyclamen*. S. Europe. Feb. and March. Bright purple.
- Cyclamen europæum*. *Common European Cyclamen*. Austria. April. 5—6 inches. White or pale red.
- Cyclamen hederæfolium*. *Ivy-leaved Cyclamen*. Italy. April. White and purplish.
- Cynoglossum Omphalodes*. *Comfrey-leaved Hound's-tongue*. S. Europe. March—May. 6 inches. Blue.
- Cynoglossum pictum*. *Painted Hound's-tongue*. Madeira. July, Aug. Pale blue or purple with darker veins.
- Daisy*. See *Bellis*.
- Daisy, Blue*. See *Globularia*.
- Datiscia cannabina*. *Hemp-leaved Datiscia*. Crete. July—Sept. 4—5 feet. Greenish yellow.
- Dead-Nettle*. See *Galeopsis*.
- Deadly Carrot*. See *Thapsia*.
- Delphinium elatum*. *Bee Larkspur*. Siberia. June—Aug. 4—5 feet. Bright blue.
- Delphinium exaltatum*. *American Bee Larkspur*. N. Amer. June—Aug. 6—7 feet. Blue.
- Delphinium grandiflorum*. *Large-flowered Larkspur*. Siberia. June—Aug. 1—2 feet. Blue.

- Delphinium hybridum*. *Bastard Larkspur*. Siberia. June—Aug.
- Delphinium intermedium*. *Palmated Larkspur*. Silesia. June—Aug.
- Delphinium puniceum*. *Red-flowered Larkspur*. Siberia. July, Aug.
- Dentaria bulbifera*. *Bulbiferous Toothwort* or *Coral-wort*. Sweden, Switzerland, England. April and May. 9—12 inches.
- Dentaria pentaphyllos*. *Five-leaved Toothwort*. May and June. Switzerland and S. France. 12—18 inches.
- Dentaria pinnata*. *Seven-leaved Toothwort*. Switzerland and S. France. May and June. 1 foot.
- Dianthus alpinus*. *Mountain Pink*. Austria. June and July.
- Dianthus arenarius*. *Sand Pink*. Britain. May and June. 4—5 inches. Red.
- Dianthus barbatus*. *Sweet William*. Germany. June and July. 9—12 inches.—Varieties striped, double.
- Dianthus cæsius*. *Mountain Pink*. England. June and July. 6 or 7 inches. Flesh-coloured.
- Dianthus carthusianorum*. *Carthusian Pink*. Italy and Germany. July and Aug. 9—12 inches. Crimson.
- Dianthus Caryophyllus*. *Garden or Clove Pink*. Europe, England. June—Aug.—Variety, Carnation.
- Dianthus collinus*. *Hungarian Pink*. July—Sept.
- Dianthus deltoides*. *Maiden Pink*. Europe, Britain. June and July. 6 inches. Bright red.—*D. glaucus* Linn. spec. is a variety of this: but *D. glaucus* of Hudson is the same with *D. cæsius* above, and with *D. virginicus* β. Linn.
- Dianthus hyssopifolius*. *Hyssop-leaved Pink*. Siberia. June—Oct.
- Dianthus plumarius*. *Feathered Pink*. Europe and N. Amer. June—Aug.
- Dianthus pungens*. *Pungent Pink*. Spain. Aug.—Oct.
- Dianthus superbus*. *Fringed Pink*. Europe. July—Sept. 12—18 inches. White fringed with purple.
- Dianthus virginicus*. *Upright Pink*. S. France and Austria. June and July.
- Dictamnus albus*. *Fraxinella*. Germany, France, and Italy. May—July. Red and white.
- Digitalis ambigua*. *Great Yellow Fox-glove*. Alps. June—Aug. 2—3 feet.
- Digitalis ferruginea*. *Iron-coloured Fox-glove*. Italy. July and Aug. 3—4 feet.
- Digitalis lanata*. *Woolly Fox-glove*. Hungary. June—Aug.
- Digitalis lutea*. *Small Yellow Fox-glove*. S. Europe. July and Aug. 2—3 feet. Pale yellow.
- Digitalis minor*. *Small Fox-glove*. Spain. May—July.
- Digitalis obscura*. *Willow-leaved Fox-glove*. Spain. July and Aug.
- Digitalis parviflora*. *Small-flowered Fox-glove*. Switzerland. June—Aug.
- Digitalis Thapsi*. *Spanish Fox-glove*. June—Aug.
- Dioscorea villosa*. *Hairy Dioscorea*. Florida and Maryland. August.
- Dittander. See *Lepidium*.
- Dodartia orientalis*. *Oriental Dodartia*. Levant. July. 12—18 inches. Deep Purple.
- Dodecatheon Meadia*. *Virginian Cowslip*. N. Amer. April—June. 12—18 inches. Pale purple.
- Dogwood. See *Cornus*.
- Dog's-bane. See *Apocynum*.
- Doronicum altaicum*. *Altai Leopard's-bane*. Siberia. June—Aug.
- Doronicum Bellidiastrum*. *Daisy-leaved Leopard's-bane*. Germany, Switzerland, Italy. June—Aug. 9—12 inches. White.
- Doronicum Pardalianches*. *Great Leopard's-bane*. Europe. May and June. 2—3 feet. Yellow.
- Doronicum plantagineum*. *Plantain-leaved Leopard's-bane*. France, Spain and Portugal. 2 feet. Yellow.
- Draba aizoides*. *Hairy-leaved Alpine Whitlow-grass*. Alps. March and April. Yellow.
- Draba androsacea*. *Ciliated Whitlow-grass*. Alps. May and June.
- Draba incana*. *Hoary Whitlow-grass*. N. Europe. May and June.
- Draba pyrenaica*. *Pyrenean Whitlow-grass*. Alps. May and June. Purple.
- Draba stellata*. *Starry Whitlow-grass*. Britain. May and June.
- All very small plants.
- Dracæna borealis*. *Oval-leaved Dracæna*. Newfoundland, Hudson's-bay and Canada. June.
- Dracocephalum austriacum*. *Austrian Dragon's-head*. Austria and Hungary. June. 1 foot. Blue.
- Dracocephalum denticulatum*. *Tooth-leaved Dragon's-head*. N. Amer. August.
- Dracocephalum grandiflorum*. *Great-flowered Dragon's-head*. Siberia. June and July.
- Dracocephalum nutans*. *Nodding Dragon's-head*. Siberia. June—Aug.
- Dracocephalum peregrinum*. *Prickly leaved Dragon's head*. Siberia. July and Aug.
- Dracocephalum Ruyschiana*. *Hyssop-leaved Dragon's-head*. N. Europe and Siberia. June and July. 12—18 inches. Blue.
- Dracocephalum fibricum*. *Siberian Dragon's-head*. June—Aug. 1 foot. Purple.
- Dracocephalum virginianum*. *Virginian Dragon's-head*. N. Amer. July—Sept. 2—3 feet. Purple.
- Dragon. See *Arum*.
- Dropwort. See *Spiræa*.
- Dryas octopetala*. *Mountain Dryas*. Alps, Scotland. June and July. 5 or 6 inches. White.
- Duck's-foot. See *Podophyllum*.
- Echinops Ritro*. *Small Globe Thistle*. France, Italy, Siberia. July—Sept. 2 feet. Pale blue.
- Echinops sphærocephalus*. *Great Globe Thistle*. Austria and Italy. July and Aug. 3—6 feet. Pale blue.
- Elder. See *Sambucus*.
- Elecampane. See *Inula*.
- Enchanter's Nightshade. See *Circæa*.
- Endive. See *Cichorium*.
- English Mercury. See *Chenopodium*.
- Epilobium angustifolium*. *Narrow-leaved Epilobium* or *Raschay Willow-herb*. Europe. July and Aug. 3—4 feet. Red, varying to white.
- Epilobium angustissimum*. *Linear-leaved Epilobium* or *Willow herb*. Switzerland. July and Aug.
- Epilobium hirsutum*. *Hairy Willow-herb*. vulg. *Codlins and Cream*. Europe. July and Aug. 2—3 feet. Red.
- This and several other species are common in England, and considered as weeds.
- Epilobium latifolium*. *Broad-leaved Willow-herb*. N. Europe. June and July.
- Epimedium alpinum*. *Barren-wort*. Alps and Apennines, Britain. April and May. 9—12 inches.
- Erigeron acre*. *Blue Erigeron*. Britain. July and Aug.
- Erigeron alpinum*. *Alpine Erigeron*. Switzerland. July.
- Erigeron carolinianum*. *Carolina Erigeron*. N. Amer. July and Aug.
- Erigeron philadelphicus*. *Spreading Erigeron*. N. Amer. June—Aug.
- Erigeron purpureum*. *Purple Erigeron*. Hudson's Bay. July and Aug.
- Erigeron uniflorum*. *Dwarf Erigeron*. Lapland and Switzerland. Aug. and Sept.
- Erinus alpinus*. *Alpine Erinus*. Alps and Pyrenees. March and April. 2—3 inches. Purple.
- Erodium chamædryoides*. *Dwarf Crane's-bill*. Minorca. April—Aug.
- Erodium maritimum*. *Sea Crane's-bill*. England. May—July.
- Eryngium alpinum*. *Alpine Eryngo*. Switzerland and Italy. June—Aug. 12—18 inches. Blue.
- Eryngium amethystinum*. *Amethystine Eryngo*. Styria. July and Aug. 18—24 inches. Bright blue.
- Eryngium aquaticum*. *Marsh Eryngo*. N. Amer. July—Sept. N. Amer. *Rattle-snake weed*. 2—3 feet. White.
- Eryngium Bourgati*. *White-spiked Eryngo*.—*E. pallefcens* Mill. det. S. France. June—Aug. 18—24 inches. Light blue.
- Eryngium campestre*. *Common Eryngo*. England. July and Aug. 18—24 inches. Whitish.
- Eryngium maritimum*. *Sea Eryngo*, or *Sea-holly*. Britain. July—Oct. 18—24 inches. Pale blue.
- Eryngium planum*. *Flat-leaved Eryngo*. Europe. July—Sept. 2—3 feet. Blue varying to white.
- Eryngium pufillum*. *Dwarf Eryngo*. Spain and Levant. June—Aug.
- Erysimum Barbarea*. *Winter Hedge Mustard* or *Winter Cress*. Europe, Britain. May. 12—18 inches. Yellow.—Variety, with double flowers.
- Everlasting. See *Gnaphalium*.
- Everlasting Pea. See *Lathyrus*.
- Eupatorium Ageratoides*. *Nettle-leaved Eupatorium*. Virginia and Canada. Aug.—Oct. 4—5 feet. White.
- Eupatorium altissimum*. *Tall Eupatorium*. Pennsylvania. Sept. and Oct. 4—5 feet. Whitish.
- Eupatorium aromaticum*. *Aromatic Eupatorium*. Virginia. July and Aug. 3—4 feet. White.
- Eupatorium cælestium*. *Blue-flowered Eupatorium*. N. Amer. July—Oct. 18—24 inches. Sky blue.
- Eupatorium cannabinum*. *Common Eupatorium* or *Hemp Agrimony*. Europe, Britain. Aug.—Oct. 4—5 feet. Pale red.
- Eupatorium maculatum*. *Spotted Eupatorium*. N. Amer. Aug. and Sept. 2—3 feet. Purple.
- Eupatorium perfoliatum*. *Perfoliate Eupatorium*. N. Amer. Aug. and Sept. 18—24 inches. White.
- Eupatorium purpureum*. *Purple Eupatorium*. N. Amer. Sept. and Oct. 4—5 feet.
- Eupatorium rotundifolium*. *Round-leaved Eupatorium*. Virginia and Canada. July and Aug.
- Eupatorium scandens*. *Climbing Eupatorium*. Virginia. Aug. and Sept.
- Eupatorium sessilifolium*. *Sessile-leaved Eupatorium*. Virginia. Sept. and Oct.

Euphorbia amygdaloides. *Wood Spurge*. England. April—July.
Euphorbia Apios. *Pear-rooted Spurge*. Candia. June and July.
Euphorbia Characias. *Red Spurge*. England. June.
Euphorbia corallides. *Coral-stalked Spurge*. Sicily, Barbary, Levant. June—Aug.
Euphorbia Cyparissias. *Cypress Spurge*. Europe. May—Sept.
Euphorbia dulcis. *Sweet Spurge*. S. Europe. May, June.
Euphorbia emarginata. *Freckled Spurge*. Italy. July and Aug.
Euphorbia Esula. *Gromwell-leaved Spurge*. Holland and Germany. May—July.
Euphorbia falcata. *Sickle-leaved Spurge*. Europe. July and Aug.
Euphorbia gerardiana. *Flax-leaved Spurge*. Germany. July.
Euphorbia hibernica. *Irish Spurge*. Britain. May and June.
Euphorbia Myrsinites. *Glaucous Spurge*. S. Europe. April—June.
Euphorbia orientalis. *Willow-leaved Spurge*. Levant. June and July.
Euphorbia palustris. *Marsh Spurge*. Sweden. May—Aug.
Euphorbia paralias. *Sea Spurge*. Britain. Aug. and Sept.
Euphorbia pilosa. *Hairy Spurge*. Siberia. May—Aug.
Euphorbia Pithyusa. *Juniper-leaved Spurge*. S. Europe. June and July.
Euphorbia portlandica. *Portland Spurge*. Britain. May—Sept.
Euphorbia verrucosa. *Warted Spurge*. S. Europe. June.
Feathered Columbine. See *Thalictrum*.
Feather-grass. See *Stipa*.
Ferula Asafoetida. *Asafoetida*. Persia. June. 3 feet. Yellow.
Ferula communis. *Common Giant-Fennel*. S. Europe. June and July. 9—10 feet. Yellow.
Ferula glauca. *Glaucous Giant-Fennel*. Sicily and Italy. June and July. 3—4 feet. Yellow.
Ferula nodiflora. *Knotted Giant-Fennel*. S. Europe. June and July.
Ferula orientalis. *Narrow-leaved Giant-Fennel*.
Ferula tingitana. *Tangier Giant-Fennel*. Spain and Barbary. June and July. 8—10 feet. Yellow.
Feverfew. See *Matricaria*.
Fever-root. See *Triosteum*.
Figwort. See *Scrophularia*.
Filago Lontopodium. *Lion's foot Cudweed*. Austria and Switzerland. June and July.
Flag, Sweet. See *Acorus*.
Flax. See *Linum*.
Flea-bane. See *Conyza*.
Flea-wort. See *Cincaria*.
Flowering Rush. See *Butomus*.
Fool's Parsley. See *Æthusa*.
Foxglove. See *Digitalis*.
Frankenia hirsuta. *Hairy Frankenia* or *Sea Heath*. Siberia. July.
Frankenia laevis. *Smooth Frankenia*. England. August.
Frankenia pulverulenta. *Dusty Frankenia*. England. July.
Fraxinella. See *Dictamnus*.
Fumaria capnoides. *White-flowered Fumitory*. S. Europe. April—Oct. 9—12 inches. Yellowish white.
Fumaria cava. *Hollow-rooted Fumitory*. Siberia. March—April.
Fumaria cucullaria. *Naked-stalked Fumitory*. N. Amer. June and July.
Fumaria lutea. *Yellow Fumitory*. England. April—Oct. 9—12 inches.
Fumaria nobilis. *Large-flowered Fumitory*. Siberia. May. Pale purple.
Fumaria folida. *Solid-rooted Fumitory*. England. March—May. 6—9 inches. Purple and white.
Fumaria spectabilis. *Red-flowered Fumitory*. Canada. May and June.
Galega montana. *Broad-leaved Goat's-Rue*. Siberia. July.
Galega officinalis. *Official Goat's-Rue*. Spain and Italy. June—Sept. 3—4 feet. Blue varying to White.
Galeopsis Galeobdolon, or *Galeobdolon luteum*. *Yellow Dead Nettle*. Britain. May and June. 9—12 inches.
Galium Bocconi. *Bocconi's Ladies Bedstraw*. S. Europe. June.
Galium boreale. *Northern or Cross-leaved Ladies Bedstraw*. Britain. June—Aug. 18—24 inches. White.
Galium cruciatum or *Valantia Cruciata*. *Crosswort*. Britain. May—Nov. Yellow.
Galium glabrum. *Smooth Ladies Bedstraw*. S. Europe. June.
Galium glaucum. *Glaucous Ladies Bedstraw*. S. Europe. July, Aug.
Galium græcum. *Grecian Ladies Bedstraw*. Crete. May—Aug.
Galium linifolium. *Flax-leaved Ladies Bedstraw*. S. Europe. June.
Galium Mollugo. *Great Ladies Bedstraw*. Britain. June and July. 2—3 feet. Yellowish white.—There are several other British species of different sizes, with white flowers, as *montanum*, *palustre*, *scabrum*, *uliginosum*, &c.
Galium pilosum. *Hairy Ladies Bedstraw*. N. Amer. July and Aug.
Galium rubioides. *Madder-leaved Ladies Bedstraw*. S. Europe. July.

Galium splendens. *Shining Ladies Bedstraw*. Germany. July.
Galium sylvaticum. *Wood Ladies Bedstraw*. S. Europe. July. White.
Galium verum. *Yellow Ladies Bedstraw* or *Cheesereneing*. Britain. June—Aug. 2 or 3 feet. Yellow.
Gentiana acaulis. *Dwarf Gentian* or *Gentianella*. Alps. April and May. 4 or 5 inches. Deep Blue.
Gentiana adscendens. *Decumbent Gentian*. Siberia. June and July.
Gentiana asclepiadcea. *Swallow wort-leaved Gentian*. Austria and Switzerland. July and Aug. 12—18 inches. Deep blue.
Gentiana bavarica. *Bavarian Gentian*. Switzerland and Germany.
Gentiana Cruciata. *Crosswort Gentian*. Austria and Switzerland. June and July. 6—9 inches. Pale blue.
Gentiana lutea. *Yellow Gentian*. Alps. June and July. 2—3 feet. Yellow.
Gentiana macrophylla. *Long-leaved Gentian*. Siberia. July and Aug.
Gentiana Pneumonanthe. *Marsh Gentian* or *Calathian Violet*. England. Aug. and Sept. 12—18 inches. Deep blue.
Gentiana punctata. *Spotted-flowered Gentian*. Alps. June and July. 9—12 inches. Yellow spotted with purple.
Gentiana purpurea. *Purple Gentian*. Alps. June and July. 1 foot.
Gentiana Saponaria. *Soapwort-leaved Gentian*. N. Amer. Aug. and Sept. 9—12 inches. Pale blue.
Geranium aconitifolium. *Aconite-leaved Crane's-bill*. Switzerland. May.
Geranium angulatum. *Angular-stalked Crane's-bill*. Italy. June and July.
Geranium argenteum. *Silver-leaved Crane's-bill*. Monte Baldo. June. 5 or 6 inches. Pale red.
Geranium lividum. *Wrinkled Crane's-bill*. Switzerland. June.
Geranium macrorrhizum. *Long-rooted Crane's-bill*. Italy. May and June. 6—9 inches. Bright purple.
Geranium maculatum. *Spotted Crane's-bill*. N. Amer. May July. 6—9 inches. Pale purple.
Geranium nodosum. *Knotty Crane's-bill*. Britain. May—Aug. 9—12 inches. Red.
Geranium palustre. *Marsh Crane's-bill*. Germany. June and July. 9—12 inches. Purple.
Geranium phæum. *Dark-flowered Crane's-bill*. Britain. April—June. 9—12 inches. Dark purple.
Geranium pratense. *Meadow Crane's-bill*. Britain. June and July. 12—18 inches. Blue and Variegated.
Geranium pyrenaicum. *Mountain Crane's-bill*. Britain. May—July.
Geranium reflexum. *Reflex-flowered Crane's-bill*. Italy. April—June.
Geranium sanguineum. *Bloody Cranes's-bill*. Britain. June and July. 6—9 inches. Purple.—Variety, red and white striped. *Lancashire Crane's-bill*.
Geranium sibiricum. *Siberian Crane's-bill*. June and July.
Geranium striatum. *Streaked Crane's-bill*. Italy. May—Oct. 9—12 inches. White streaked with purple.
Geranium sylvaticum. *Wood-Crane's-bill*. England. May and June. 9—12 inches. Pale red.
Geranium tuberosum. *Tuberous-rooted Crane's-bill*. Italy. May. 6—9 inches. Purplish.
Germander. See *Teucrium*.
Geum canadense. *Canadian Avens*. N. Amer. June and July.
Geum hybridum. *Bastard Avens*. Europe. June and July.
Geum intermedium. *Wood Avens*. Europe. May—Aug.
Geum montanum. *Mountain Avens*. Switzerland. May—Sept. 5 or 6 inches. Yellow.
Geum potentilloides. *Siberian Avens*. June.
Geum reptans. *Creeping Avens*. Switzerland.
Geum rivale. *Water Avens*. Britain. July. 9—12 inches. Purplish.
Geum strictum. *Upright Avens*. N. Amer. May and June.
Geum virginianum. *Virginian Avens*. N. Amer. July and Aug. 12—18 inches. White.
Geum urbanum. *Common Avens* or *Herb-bennet*. Europe, Britain. May—Aug. 12—18 inches. Yellow.
Giant Fennel. See *Ferula*.
Ginseng. See *Panax*.
Glaux maritima. *Sea Milk-wort*. Britain. May and June.
Globe-flower. See *Trollius*.
Globe Thistle. See *Echinops*.
Globularia cordifolia. *Wedge-leaved Globularia*. Hungary, Austria, Switzerland. June and July.
Globularia nudicaulis. *Naked-stalked Globularia*. Austria. July.
Globularia vulgaris. *Common Globularia* or *blue Daisy*. Europe. May and June. 5 or 6 inches.
Glycine Apios. *Tuberous-rooted Glycine*. Virginia. Aug. and Sept. 8—10 feet. Dirty Red.
Glycine monoica. *Pale-flowered Glycine*. N. Amer. September.
Glycyrrhiza echinata. *Prickly-headed Liquorice*. Italy. June—Sept. 4—5 feet. Pale Blue.

- Glycyrrhiza glabra*. *Common Liquorice*. S. Europe. July. 4—5 feet. Pale blue.
- Glycyrrhiza hirsuta*. *Hairy Liquorice*. Levant.
- Gnaphalium alpinum*. *Alpine Everlasting*. Switzerland. June and July.
- Gnaphalium ignescens*. *Red-flowered Everlasting*.
- Gnaphalium margaritaceum*. *Early Everlasting*. N. Amer. July—Sept. 12—18 inches. White.
- Gnaphalium olympicum*. *Olympian Everlasting*. Greece. May—June.
- Gnaphalium plantagineum*. *Plantain-leaved Everlasting*. N. Amer. June and July.
- Gnaphalium Stoechas*. *Narrow-leaved Everlasting*. S. Europe. June—Oct.
- Goat's-beard. See *Tragopogon*.
- Goat's-rue. See *Galega*.
- Golden-rod. See *Solidago*.
- Golden Samfire. See *Inula*.
- Golden Saxifrage. See *Chrysosplenium*.
- Golden Thistle. See *Scolymus*.
- Gold of Pleasure. See *Myagrum*.
- Goldilocks. See *Chrysocoma*, and *Ranunculus*.
- Goosefoot. See *Chenopodium*.
- Gout-weed. See *Ægopodium*.
- Grass of Parnassus. See *Parnassia*.
- Gratiola officinalis*. *Hedge Hyssop*. S. Europe. June—Aug. 9—12 inches. Yellowish white.
- Greek Valerian. See *Polemonium*.
- Gromwell. See *Lithospermum*.
- Gum Succory. See *Chondrilla*.
- Gypsophila altissima*. *Tall or upright Gypsophila*. Siberia. July.
- Gypsophila arenaria*. *Sand Gypsophila*. Hungary. July.
- Gypsophila fastigiata*. *Triangular-leaved Gypsophila*. Sweden and Germany. June and July.
- Gypsophila paniculata*. *Panicle Gypsophila*. Siberia. June and July.
- Gypsophila perfoliata*. *Perfoliate Gypsophila*. Spain. June and July.
- Gypsophila prostrata*. *Trailing Gypsophila*. Siberia. July—Sept.
- Gypsophila saxifraga*. *Small Gypsophila*. S. Europe. July and Aug.
- Gypsophila Struthium*. *Shrubby Gypsophila*. Spain. July and Aug. White. Woody at bottom.
- Gypsophila repens*. *Creeping Gypsophila*. Siberia, Austria, Switzerland. July—Sept. White with pale red.
- Hare's-ear. See *Bupleurum*.
- Hawkweed. See *Hieracium*.
- Hedge Hyssop. See *Gratiola*.
- Hedge Mustard. See *Erysimum*.
- Hedysarum alpinum*. *Alpine Hedysarum*. Switzerland. June and July.
- Hedysarum argenteum*. *Silvery Hedysarum*. Siberia. July.
- Hedysarum canadense*. *Canadian Hedysarum*. N. Amer. July—Sept. 3—9 feet. Purple.
- Hedysarum junceum*. *Rush-leaved Hedysarum*. Siberia. July—Sept.
- Hedysarum marilandicum*. *Maryland Hedysarum*. N. Amer. July—Sept.
- Hedysarum obscurum*. *Creeping Hedysarum*. Alps. July.
- Hedysarum Onobrychis*. *Saintfoin*. Britain. June and July. 1 foot. Red.
- Hedysarum saxatile*. *Rock Hedysarum*. S. Europe. June—Aug.
- Hedysarum violaceum*. *Violet-flowered Hedysarum*. N. Amer.
- Hedysarum viridiflorum*. *Green-flowered Hedysarum*. N. Amer.
- Helenium autumnale*. *Smooth Helenium*. N. Amer. Aug.—Oct. 2 feet. Yellow.
- Helenium pubescens*. *Downy Helenium*. N. Amer. Aug. and Sept.
- Helianthus altissimus*. *Tall Sun-flower*. Pennsylvania. Aug. and Sept. 8—10 feet. Yellow.
- Helianthus atrorubens*. *Dark-red Sun-flower*. Carolina and Virginia. July—Sept. 2—3 feet.
- Helianthus decapetalus*. *Ten-petalled Sun-flower*. Canada. Aug.—Nov. 3—4 feet. Yellow.
- Helianthus divaricatus*. *Rough-leaved Sun-flower*. N. Amer. Aug.—Oct. 3—4 feet. Yellow.
- Helianthus giganteus*. *Gigantic Sun-flower*. Virginia and Canada. Sept. and Oct. 8—10 feet.
- Helianthus multiflorus*. *Many-flowered perennial Sun-flower*. Virginia. Aug.—Oct. 4—5 feet.—Variety with double flowers.
- Helianthus strumosus*. *Carrot-rooted Sun-flower*. Canada. July—Sept. 8—10 feet.
- Helianthus tuberosus*. *Tuberous-rooted Sun-flower* or *Jerusalem Artichoke*. Brazil. Sept. and Oct. 8—10 feet. Seldom cultivated except for the root. The flowers of all these yellow.
- Helleborus foetidus*. *Fetid Hellebore*, or *Bear's-foot*. England. Nov.—March. 12—18 inches. Greenish.
- Helleborus hyemalis*. *Winter Hellebore*, or *Winter Aconite*. Italy and Austria. Jan.—March. 8—4 inches. Yellow.
- Helleborus lividus*. *Great three-leaved* or *Spotted-leaved black Hellebore*. Jan.—May.
- Helleborus niger*. *Black Hellebore*, or *Christmas Rose*. Austria and Italy. Jan.—March. 5—6 inches. White.
- Helleborus trifolius*. *Small three-leaved Hellebore*. Canada. Hudson's-bay and Siberia. June and July. 9—12 inches. Purplish and green.
- Helleborus viridis*. *Green Hellebore*. Britain. March. 9—12 inches.
- Hemp-Agrimony. See *Eupatorium*.
- Henbane. See *Hyoscyamus*.
- Hepatica. See *Anemone*.
- Heracleum alpinum*. *Alpine Cow-Parson*. Switzerland. June and July. 18 inches to 3 feet. White.
- Heracleum angustifolium*. *Narrow-leaved Cow-Parson*. England. June and July. Greenish or yellowish.
- Heracleum austriacum*. *Austrian Cow-Parson*. Austria. June and July. 1—2 feet. From rose-colour white.
- Heracleum elegans*. *Rough-leaved Cow-Parson*. Austria. June and July.
- Heracleum flavescens*. *Yellow Cow-Parson*. Austria. June and July.
- Heracleum latifolium*. *Broad-leaved Cow-Parson*. Dauria. May.
- Heracleum Panaces*. *Palmated Cow-Parson*. Siberia. July and Aug. 5—6 feet. Greenish or yellowish white.
- Heracleum sibiricum*. *Siberian Cow-Parson*. June and July. Green.
- Heracleum Sphondylium*. *Common Cow-Parson*. Britain. May—July. 2—4 feet. White, varying to greenish or purple.
- Herb Bennet. See *Geum*.
- Herb Christopher. See *Actæa*.
- Herb Paris. See *Paris*.
- Hesperis inodora*. *Scentless Rocket*. England. June.
- Hesperis matronalis*. *Garden Rocket*. Italy. May—Aug. 18—24 inches.—Varieties, Double White and Purple.
- Heuchera americana*. *American Sanicle*. Virginia. May—July. 18—24 inches. Dirty Purple.
- Hibiscus palustris*. *Marsh-Hibiscus*. Virginia and Canada. July and Aug.
- Hieracium amplexicaule*. *Heart-leaved Hawkweed*. Pyrenees. July and Aug.
- Hieracium aurantiacum*. *Orange-flowered Hawkweed*. Austria and Switzerland. June and July. 12—18 inches.
- Hieracium cerinthoides*. *Honeywort Hawkweed*. Pyrenees. July—Sept.
- Hieracium chondrilloides*. *Gum Succory Hawkweed*. Austria. June and July.
- Hieracium cymosum*. *Small-flowered Hawkweed*. Europe. May and June.
- Hieracium lyratum*. *Siberian Hawkweed*. July and Aug.
- Hieracium pyrenaicum*. *Pyrenean Hawkweed*. S. Europe. July and Aug.
- Hieracium fabaudum*. *Shrubby Hawkweed*. Britain. July and Aug.
- Hieracium sprengerianum*. *Branched Hawkweed*. Portugal.
- Hieracium umbellatum*. *Umbelled Hawkweed*. Britain. July and Aug.
- Hieracium undulatum*. *Wave-leaved Hawkweed*. Spain. June and July.
- Colour of the flowers in all yellow.
- There are many other species wild in England and other countries, but not worth enumerating as ornamental flowers.
- Hippocrepis comosa*. *Tufted Horse-shoe Vetch*. England. April—June.
- Holcus halepensis*. *Panicled Holcus*. Syria. July.
- Holcus odoratus*. *Sweet-scented Holcus*. Canada and N. Europe. June and July.
- Honesty. See *Lunaria*.
- Hone-wort. See *Sison*.
- Horehound, Black. See *Ballota*.
- Horned Poppy. See *Chelidonium*.
- Horned Rampion. See *Phyteuma*.
- Horse-shoe Vetch. See *Hippocrepis*.
- Hottonia palustris*. *Water Violet*. England. July and Aug.
- Hound's-tongue. See *Cynoglossum*.
- Houseleek. See *Sedum*.
- Houstonia cærulea*. *Blue-flowered Houstonia*. N. Amer. May—Aug.
- Hydrastis canadensis*. *Canadian Hydrastis*, or *Yellow-root*. Canada. May and June. 6—9 inches. White.
- Hydrophyllum canadense*. *Canadian Water-leaf*. May.
- Hydrophyllum virginicum*. *Virginian Water-leaf*. Virginia and Carolina. May and June. 6—9 inches. Dirty white.
- Hyoscyamus phylloides*. *Purple-flowered Henbane*. Siberia. March and April. 9—12 inches.
- Hyoscyamus Scopolia*. *Nightshade-leaved Henbane*. Carniola. May.
- Hyoseris foetida*. *Stinking Hyoseris*. Alps. July.
- Hyoseris incida*. *Shining Hyoseris*. Levant. June—Aug.
- Hyoseris radiata*. *Starry Hyoseris*. S. France and Spain. June and July.
- Hypericum Ascyron*. *Red-leaved St. John's-wort*. Pyrenees. June—Sept. 9—12 inches.
- Hypericum barbatum*. *Bearded St. John's-wort*. Austria. July, Aug.
- Hypericum canadense*. *Canadian St. John's-wort*. N. Amer. July—Sept.

- Hypericum dubium*. *Imperforate St. John's-wort*. Britain. July, Aug.
- Hypericum hirsutum*. *Hairy St. John's-wort*. Britain. July.
- Hypericum laevigatum*. *Smooth St. John's-wort*. N. Amer. July.
- Hypericum marilandicum*. *Maryland St. John's-wort*. N. Amer. May—Sept.
- Hypericum montanum*. *Mountain St. John's-wort*. Britain. July, Aug.
- Hypericum perforatum*. *Perforated St. John's-wort*. Britain. July, Aug.
- Hypericum pulchrum*. *Upright St. John's-wort*. Britain. July. 12—18 inches.
- Hypericum pyramidatum*. *Pyramidal St. John's-wort*. June—Sept.
- Hypericum quadrangulum*. *Square-stalked St. John's-wort*. Britain. July.
- Hypericum fetosum*. *Bristly St. John's-wort*. Virginia and Carolina.
- Hypericum undulatum*. *Wave-leaved St. John's-wort*. Portugal. July, Aug.
- Colour of the flowers yellow.
- Hyssopus Lophanthus*. *Mint-leaved Hyssop*. Siberia. Aug. and Sept. 18—24 inches. Light blue.
- Hyssopus nepetoides*. *Square-stalked Hyssop*. Virginia and Canada. Aug.—Oct. 3—4 feet. Purplish.
- Hyssopus officinalis*. *Common Hyssop*. S. Europe. June—Sept. 18—24 inches. Blue, Red, and White.
- Hyssopus scrophularifolius*. *Water-Betony-leaved Hyssop*. N. Amer. Aug. and Sept.
- Iberis rotundifolia*. *Round-leaved Candy-tuft*. Switzerland. May—July.
- Jerusalem Artichoke*. See *Helianthus*.
- Imperatoria Ostruthium*. *Masterwort*. Scotland. May—July. 6—9 inches. White.
- Inula arvensis*. *Oval-leaved Inula*. N. Amer. June—Aug.
- Inula Britannica*. *Creeping-rooted Inula*. Germany. July—Sept. 18—24 inches.
- Inula Bubonicum*. *Austrian Inula*. July—Sept.
- Inula crithmoides*. *Trifid Inula* or *Golden Sampire*. S. Europe. Aug. and Sept. 18—24 inches.
- Inula ensifolia*. *Sword-leaved Inula*. Austria. July—Sept.
- Inula Helenium*. *Elceampane*. England. July and Aug. 3—4 feet.
- Inula hirta*. *Hairy Inula*. Siberia, Austria, and France. June—Sept. 9—12 inches.
- Inula mariana*. *American Inula*. Maryland and Carolina. July.
- Inula montana*. *Mountain Inula*. S. Europe. July and Aug. 12—18 inches.
- Inula odora*. *Sweet-rooted Inula*. S. Europe. July and Aug. 18—24 inches.
- Inula provincialis*. *Provence Inula*. S. France. July and Aug.
- Inula salicina*. *Willow-leaved Inula*. N. Europe. Aug. and Sept. 2 feet.
- Inula squarrosa*. *Net-leaved Inula*. Italy and S. France. July—Sept.
- Inula suaveolens*. *Woolly-leaved Inula*. S. Europe. June—Aug. Flowers yellow.
- Ironwort*. See *Sideritis*.
- Kidney Vetch*. See *Anthyllis*.
- Kidney-wort*. See *Saxifraga*.
- Lactuca perennis*. *Perennial Lettuce*. Germany and France. June—Aug. 18—24 inches. Pale blue.
- Ladies Bedstraw*. See *Galium*.
- Ladies Mantle*. See *Alchemilla*.
- Ladies Smock*. See *Cardamine*.
- Lamium garganicum*. *Woolly Archangel*. Spain. July. 1 foot. Pale purple.
- Lamium laevigatum*. *Smooth Archangel*. Italy. March—Sept.
- Lamium molle*. *Soft* or *Pellitory-leaved Archangel*. April and May.
- Lamium Orvala*. *Balm-leaved Archangel*. Italy and Hungary. May—July. 12—18 inches. Deep purple.
- Lamium rugosum*. *Wrinkled Archangel*. Italy. July.
- Larkspur*. See *Delphinium*.
- Lasercpitium aquilegifolium*. *Columbine-leaved Laserwort*. Austria. May—July. 2—3 feet. White.
- Lasercpitium angustifolium*. *Narrow-leaved Laserwort*. S. Europe. June and July. 18—24 inches. White.
- Lasercpitium ferulacum*. *Fennel-leaved Laserwort*. Levant. June.
- Lasercpitium gallicum*. *French Laserwort*. S. Europe. June and July. 2—3 feet. Yellowish.
- Lasercpitium latifolium*. *Broad-leaved Laserwort*. Europe. June and July. 2—3 feet. White.
- Lasercpitium Siler*. *Mountain Laserwort*. Austria, Switzerland and France. May—July. 1—6 feet. White.
- Lasercpitium trilobum*. *Three-lobed Laserwort*. Levant. May—July. 2—3 feet. White.
- Lathyrus heterophyllus*. *Various-leaved Everlasting Pea*. S. Europe. July—Sept.
- Lathyrus latifolius*. *Broad-leaved Everlasting Pea*. Europe, England. July—Sept. 6—8 feet. Purple.
- Lathyrus palustris*. *Marsh Everlasting Pea*. Europe, Britain. July and Aug. Bluish purple and white.
- Lathyrus pisiformis*. *Siberian Everlasting Pea*. June. 2—3 feet. Whitish.
- Lathyrus pratensis*. *Meadow Lathyrus* or *Chickling Vetch*. 18—24 inches. Yellow.
- Lathyrus sylvestris*. *Narrow-leaved Everlasting Pea*. Europe, Britain. Purple.
- Lathyrus tuberosus*. *Tuberous-rooted Lathyrus*. Holland and France. July and Aug. 18—24 inches. Bright purple.
- Leadwort*. See *Plumbago*.
- Leontice Thalictrifolius*. *Columbine-leaved Leontice*. N. Amer. May.
- Leontodon aureum*. *Golden Dandelion*. Italy, Switzerland, Austria. May—July.
- Leonurus Cardiaca*. *Common Motherwort*. Europe, Britain. July. 3—4 feet. Purple.
- Leonurus crispus*. *Curled-leaved Motherwort*. Siberia. July.
- Leopard's-bane*. See *Doronicum*.
- Lepidium alpinum*. *Alpine Pepperwort*. Alps. April—June.
- Lepidium graminifolium*. *Grass-leaved Pepperwort*. S. Europe. July, Aug.
- Lepidium Iberis*. *Busby Pepperwort*. Europe. Aug. and Sept.
- Lepidium latifolium*. *Broad-leaved Pepperwort* or *Dittander*. Europe, Britain. June and July.
- Lettuce*. See *Lactuca*.
- Ligusticum austriacum*. *Austrian Lovage*. June—Aug. 18—24 inches. Whitish.
- Ligusticum candicans*. *Pale Lovage*. July and Aug.
- Ligusticum cornubiense*. *Cornish Lovage*. June—Aug.
- Ligusticum Levisticum*. *Common Lovage*. Alps. June and July. 6—7 feet. Yellow.
- Ligusticum peloponnesense*. *Hemlock-leaved Lovage*. Alps. May—July. 2—3 feet. Yellow.
- Ligusticum scoticum*. *Scottish Lovage*. June—Aug. 1 foot. Yellow.
- Linum alpinum*. *Alpine Flax*. Alps of Austria. July and Aug.
- Linum angustifolium*. *Narrow-leaved Flax*. Britain. June and July.
- Linum austriacum*. *Austrian Flax*. June and July.
- Linum flavum*. *Yellow Flax*. Austria. July and Aug. 18—24 inches.
- Linum hirsutum*. *Hairy Flax*. Austria. June—Aug.
- Linum maritimum*. *Sea Flax*. S. Europe and Levant. July and Aug.
- Linum perenne*. *Perennial Flax*. England. June—Aug.
- Linum reflexum*. *Reflex-leaved Flax*. S. Europe. July.
- Linum tauricum*. *Glaucous-leaved Flax*. Siberia. July and Aug.
- Lion's-foot Cudweed*. See *Filago*.
- Liquorice*. See *Glycyrrhiza*.
- Liquorice*, Wild. See *Astragalus*.
- Lithospermum fruticosum*. *Shrubby Gromwell*. S. Europe. May and June.
- Lithospermum officinale*. *Officinal Gromwell*. Europe, Britain. May—Aug. 2—3 feet. White.
- Lithospermum orientale*. *Yellow Gromwell*. Levant. May and June.
- Lithospermum purpureo-coerulcum*. *Creeping Gromwell*. England. June.
- Lizard's-tail*. See *Saururus*.
- Lobelia Cardinalis*. *Scarlet Lobelia*, or *Cardinal's-flower*. Virginia. July—Oct. 18 inches to 3 feet.
- Lobelia siphilitica*. *Blue Lobelia*. Virginia. Aug—Oct. 12—18 inches.
- London Pride*. See *Saxifraga*.
- Loofstrife*. See *Lythymachia*.
- Lotus corniculatus*. *Common Bird's-foot Trefoil*. Europe, Britain. June—Aug. Yellow.
- Lotus cytoides*. *Downy Bird's-foot Trefoil*. S. Europe. June—Aug.
- Lotus maritimus*. *Sea Bird's-foot Trefoil*. Europe. May—Oct.
- Lotus peregrinus*. *Flat-podded Bird's-foot Trefoil*. S. Europe. July.
- Lotus rectus*. *Upright Bird's-foot Trefoil*. S. Europe. June—Aug. 3—4 feet. Pale flesh-colour.
- Lovage*. See *Ligusticum*.
- Lousewort*. See *Pedicularis*.
- Lucern*. See *Medicago*.
- Lunaria rediviva*. *Perennial Honefly*. Austria and Hungary. May and June. 12—18 inches. Pale Purple.
- Lungwort*. See *Pulmonaria*.
- Lupinus pcrenis*. *Perennial Lupine*. Virginia. May—July. 18—24 inches. Purplish-Blue.
- Lychnidea*. See *Phlox*.
- Lychnis alpina*. *Alpine Lychnis*. Alps. April and May.
- Lychnis chalconica*. *Scarlet Lychnis*. Russia. June and July. 3—4 feet.—Varieties, Single and Double, Scarlet and Blush.
- Lychnis dioica*. *Common Lychnis*. Europe, Britain. May—Aug. 18 inches to 3 feet.—Varieties, *diurna* or *Red Lychnis*; and *vespertina* or *White Lychnis*. Both with Double flowers. *Bachelor's Buttons*.

- Lychnis Flos cuculi*. *Meadow Lychnis*. Europe, Britain. June—Sept. 12—18 inches.—Varieties, Red single and double, and White.
- Lychnis Viscaria*. *Clammy Lychnis* or *Catch-fly*. Europe, Britain. May—July. 12—18 inches. Red.—Variety, Double.
- Lycopus europæus*. *European Water Horehound*. Britain. July—Sept.
- Lycopus virginicus*. *Virginian Water Horehound*. Aug. and Sept.
- Lyfimachia ciliata*. *Ciliated Loosestrife*. Virginia and Canada. July and Aug. 18—24 inches. Yellow spotted.
- Lyfimachia Ephemerum*. *Willow-leaved Loosestrife*. Spain. July—Sept. 2—3 feet. White.
- Lyfimachia quadrifolia*. *Four-leaved Loosestrife*. N. Amer. July, Aug. 2—3 feet. Yellow.
- Lyfimachia stricta*. *Upright Loosestrife*. N. Amer. July and Aug.
- Lyfimachia thyrsiflora*. *Tufted Loosestrife*. Europe, Britain. 18—24 inches. Yellow.
- Lyfimachia vulgaris*. *Common Loosestrife*. Europe, Britain. 2—3 feet. Yellow.
- Lythrum Salicaria*. *Common or Purple Willow-herb*. Europe, Britain. July. 4—5 feet.
- Lythrum tomentosum*. *Woolly Willow-herb*. N. Amer. August.
- Lythrum virgatum*. *Slender-twiggèd Willow-herb*. Austria and Siberia. June—Sept.
- Madder. See *Rubia*.
- Madwort. See *Alyssum*.
- Malva Aleca*. *Vervain Mallow*. Europe, Britain. July—Sept. 2—3 feet. Red.
- Malva moschata*. *Musk Mallow*. Europe, Britain. July—Sept.
- Mandrake. See *Atropa*.
- Marjoram. See *Origanum*.
- Marrubium Alysson*. *Plaited-leaved White Horehound*. Spain and Italy. July and Aug.
- Marrubium candidissimum*. *Woolly White Horehound*. Levant. July—Sept. 3 feet.
- Marrubium creticum*. *Cretan White Horehound*. Levant. July—Sept.
- Marrubium hispanicum*. *Spanish White Horehound*. July and Aug.
- Marrubium peregrinum*. *Serrate-leaved White Horehound*. Austria. July—Sept. 3 feet.
- Marrubium supinum*. *Procumbent White Horehound*. Spain and S. France. Aug.—Oct.
- Marrubium vulgare*. *Common White Horehound*. Europe, Britain. June—Sept. 18—24 inches.
- Marsh Cinquefoil. See *Comarum*.
- Marsh Mallow. See *Althæa*.
- Marsh Marygold. See *Caltha*.
- Marsh Trefoil. See *Menyanthes*.
- Marvel of Peru. See *Mirabilis*.
- Marygold. See *Calendula*.
- Masterwort. See *Imperatoria*.
- Matricaria Parthenium*. *Feverfew*. Europe, Britain. 18 inches to 3 feet. White.—Variety, with Double flowers.
- Maudlin. See *Achillea*.
- May-apple. See *Podophyllum*.
- Meadow-Rue. See *Thalictrum*.
- Meadow Saxifrage. See *Peucedanum* and *Seseli*.
- Meadow-sweet. See *Spiræa*.
- Medeola virginiana*. *Virginian Medeola*. Virginia. June.
- Medicago falcata*. *Yellow Medick*. Europe; England. July.
- Medicago marina*. *Sea Medick*. Coasts of the Mediterranean. June and July.
- Medicago prostrata*. *Dwarf Medick*. Hungary. June and July.
- Medicago sativa*. *Lucern*. Europe. June and July. Purple.
- Melanthium lætum*. *Spear-leaved Melanthium*. N. Amer. June.
- Melanthium virginicum*. *Virginian Melanthium*. N. Amer. June and July. 12—18 inches. Greenish White.
- Melissa Calamintha*. *Mountain Balm*, or *Calamint*. Europe, England. August.
- Melissa grandiflora*. *Great-flowered Balm*. Italy. June—Sept. 12—18 inches. Purple.
- Melissa Nepeta*. *Field Balm*, or *Calamint*. Europe, England. July—Oct.
- Melissa officinalis*. *Common Balm*. S. Europe. June—Oct.—Variety, *M. Romana*. *Roman Balm*.
- Melittis grandiflora*. *Purple and White Bastard Balm*. England. May.
- Melittis Melissophyllum*. *Reddish Bastard Balm*. England. May and June.
- Mentha cervina*. *Hyssop-leaved Mint*. France. June—Aug.
- Mentha crispa*. *Curled Mint*. July, Aug.
- Mentha gratissima*. *Oblong-leaved Mint*. Germany. July, Aug.
- Mentha odorata*. *Bergamot Mint*. July, Aug.
- Mentha piperita*. *Peppermint*. England. August.
- Mentha Pulegium*. *Pennyroyal*. Britain. Aug. and Sept.
- Mentha viridis*. *Spear-mint*. Britain. July and Aug.
- There are about 30 species of Mint, of which more than 20 are natives of England, but seldom seen in Gardens, except the above.
- Menyanthes Nymphoides*. *Fringed Buckbean*. Europe, Britain. June and July.
- Menyanthes trifoliata*. *Common Buckbean* or *Marsh Trefoil*. Europe, Britain. July.
- Mercury. See *Chenopodium*.
- Meu. See *Æthosa Meum*.
- Milfoil. See *Achillea*.
- Milk Parsley. See *Selinum*.
- Milk Vetch. See *Astragalus*.
- Milkwort. See *Polygala*.
- Mimulus alatus*. *Oval-leaved Monkey-flower*. N. Amer. July and Aug.
- Mimulus ringens*. *Oblong-leaved Monkey-flower*. Virginia and Canada. July and Aug. 18—24 inches. Whitish blue.
- Mint. See *Mentha*.
- Mirabilis Jalapa*. *Common Marvel of Peru*. Both Indies. June—Sept.
- Mirabilis longiflora*. *Sweet-scented Marvel of Peru*. Mexico. June—Sept.
- Mitella diphylla*. *Two-leaved Mitella*. N. Amer. April and May. 6—9 inches. White.
- Moehringia muscosa*. *Mossy Moehringia*. S. Europe. June and July. 4—6 inches. White.
- Momordica Elaterium*. *Squirting Cucumber*. S. Europe. June and July.
- Monarda ciliata*. *Ciliated Monarda*. 12—18 inches. Blue.
- Monarda Clinopodia*. *Pale flowered Monarda*.
- Monarda didyma*. *Scarlet Monarda* or *Oswego-tea*. 18—24 inches.
- Monarda fistulosa*. *Hollow-stalked Monarda*. 2—3 feet. Pale purple.
- Monarda oblongata*. *Long-leaved Monarda*.
- Monarda purpurea*. *Purple flowered Monarda*.
- Monarda rugosa*. *White-flowered Monarda*. 1 foot.
- All these are natives of North America, and flower in July and August.
- Monk's-hood. See *Aconitum*.
- Monk's Rhubarb. See *Rumex*.
- Moschatel. See *Adoxa*.
- Motherwort. See *Leonurus*.
- Mouse-ear Chickweed. See *Cerastium*.
- Mugwort. See *Artemisia*.
- Mullein. See *Verbascum*.
- Myagrum perenne*. *Perennial Gold of Pleasure*. Germany. July.
- Myagrum saxatile*. *Rock Gold of Pleasure*. Alps. June and July.
- Napæa lævis*. *Smooth Napæa*. Virginia. Aug. and Sept. 3—4 feet. White.
- Napæa scabra*. *Rough Napæa*. Virginia. Aug. and Sept. 6—7 feet. White.
- Navelwort. See *Cotyledon*.
- Nepeta cærulea*. *Blue-flowered Catmint*. May and June.
- Nepeta Cataria*. *Common Catmint*. Europe, Britain. July—Sept. 2 feet. White.
- Nepeta crispa*. *Curled-leaved Catmint*. August.
- Nepeta incana*. *Hoary Catmint*. Japan. August.
- Nepeta italica*. *Italian Catmint*. June—Aug. 1 foot. White.
- Nepeta lanata*. *Woolly Catmint*. May and June.
- Nepeta multifida*. *Jagged-leaved Catmint*. Siberia. July, Aug.
- Nepeta Nepetella*. *Small Catmint*. S. Europe. July—Sept.
- Nepeta unda*. *Spanish Catmint*. S. Europe. June—Aug.
- Nepeta pannonica*. *Hungarian Catmint*. Hungary and Austria. Aug.—Oct.
- Nepeta tuberosa*. *Tuberous-rooted Catmint*. Spain and Portugal. June—Aug. 2 feet. Blue.
- Nepeta ucranica*. *Ukrain Catmint*. June and July.
- Nepeta violacea*. *Violet-coloured Catmint*. Spain. July—Sept. 2 feet. Blue.
- Nettle. See *Urtica*.
- Nightshade. See *Solanum*.
- Nightshade. Deadly. See *Atropa*.
- Nymphaea advena*. *Three-coloured Water-Lily*. N. Amer. July.
- Nymphaea alba*. *White Water-Lily*. Europe, Britain. June and July.
- Nymphaea lutea*. *Yellow Water-Lily*. Europe, Britain. June—Aug.
- Nymphaea odorata*. *Sweet-smelling Water-Lily*. N. Amer. and Siberia. July.
- Oenanthe crocata*. *Hemlock Water Dropwort*. Europe, Britain. June.
- Oenanthe fistulosa*. *Common Water Dropwort*. Europe, Britain. June and July.
- Oenanthe peucedanifolia*. *Sulphurwort-leaved Water-Dropwort*. Europe, Britain. June and July.
- Oenanthe pimpinelloides*. *Parsley Water Dropwort*. England. June.
- Oenanthe prolifera*. *Proliferous Water-Dropwort*. Italy and Sicily. June and July.
- Oenothera fruticosa*. *Perennial Oenothera*. N. Amer. June—Aug. 2—3 feet. Yellow.
- Oenothera pumila*. *Dwarf Oenothera*. N. Amer. May—Sept. 6—9 inches. Yellow.

- Oenothera rosea*. *Rose-flowered Oenothera*. Peru. May—Aug.
One-berry. See Paris.
Ononis antiquorum. *Tall Rest-harrow*. S. Europe. June and July.
Ononis cenisia. *Narrow-leaved trailing Rest-harrow*. Italy. June—Aug.
Ononis Cherleri. *Dwarf Rest-harrow*. S. Europe. June and July.
Ononis hircina. *Stinking Rest-harrow*. Italy. May—July.
Ononis repens. *Creeping Rest-harrow*. Europe, Britain. June and July.
Ononis spinosa. *Prickly Rest-harrow*. Europe, Britain. June and July.
Onosma echioides. *Hairy Onosma*. S. Europe. March—June. 9—12 inches. Yellow.
Onosma simpliciflora. *Simple Onosma*. Siberia. March—June. 9—12 inches. Pale Yellow.
Origanum creticum. *Cretan Marjoram*. S. Europe. July.
Origanum heracleoticum. *Winter Sweet Marjoram*. Greece. June—Nov. 12—18 inches. White.
Origanum hybridum. *Bastard Marjoram*. June—Sept.
Origanum vulgare. *Common Marjoram*. Europe, Britain. June—Sept. 18—24 inches. Flesh-colour.
Orobis albus. *White-flowered Bitter-Vetch*. Austria. May—June.
Orobis angustifolius. *Narrow-leaved Bitter-Vetch*. Siberia. May and June.
Orobis lathyroides. *Upright Bitter-Vetch*. Siberia. June. 18—24 inches. Purple with blue.
Orobis luteus. *Yellow Bitter-Vetch*. Siberia and Italy. June and July. 18—24 inches. Pale yellow.
Orobis niger. *Black-rooted Bitter-Vetch*. N. Europe. June and July. 2 feet. Purple.
Orobis pyrenaicus. *Pyrenean Bitter-Vetch*. Spain. May.
Orobis sylvaticus. *Wood Bitter-Vetch*. Europe, Britain. June and July. 12—18 inches. Purple.
Orobis tuberosus. *Tuberous Bitter-Vetch*. Europe, Britain. May and June. 9 inches. Reddish Purple.
Orobis vernus. *Spring Bitter-Vetch*. N. Europe. March and April. 1 foot. Purple.
Orontium aquaticum. *Water Orontium*. N. Amer. June.
Orontium japonicum. *Japan Orontium*. Japan. Jan.
Orpine. See *Sedum* and *Telephium*.
Ortegia dichotoma. *Forked Ortegia*. Italy. Aug. and Sept.
Ortegia hispanica. *Spanish Ortegia*. Spain. June and July.
Oswego-tea. See *Monarda*.
Oxalis Acetosella. *Common Wood Sorrel*. Europe, Britain. April.
Oxalis corniculata. *Procumbent Wood Sorrel*. Europe, Britain. May—Oct.
Oxalis stricta. *Upright Wood Sorrel*. N. Amer. June—Aug.
Oxalis violacea. *Violet Wood Sorrel*. N. Amer. May and June.
Ox-eye. See *Anthemis* and *Bupththalmum*.
Ox-eye Daisy. See *Chrysanthemum*.
Oxslip. See *Primula*.
Pæonia albiflora. *White-flowered Peony*. Siberia.
Pæonia corallina. *Entire or Coral Peony*. Siberia.
Pæonia daurica. *Daurian Peony*. Dauria.
Pæonia humilis. *Dwarf Peony*. Spain.
Pæonia laciniata. *Jagged-leaved Peony*. Siberia.
Pæonia officinalis. *Common Peony*. Switzerland.
Pæonia tenuifolia. *Fine-leaved Peony*. Ukraine.
 These flower in May and June.
Paige. See *Primula*.
Panax quinquefolium. *Ginseng*. China and N. Amer. June. 9—12 inches. Whitish.
Papaver alpinum. *Alpine Poppy*. Switzerland. June and July.
Papaver cambricum. *Welsh Poppy*. May—Aug. 1 foot. Yellow.
Papaver nudicaule. *Naked-stalked Poppy*. Siberia. June and July.
Papaver orientale. *Eastern Poppy*. Levant. May and June. 2 feet. Scarlet.
Paris quadrifolia. *Herb Paris or One-berry*. Europe, Britain. May and June. Pale green.
Parnassia palustris. *Marsh Parnassia*. Europe, Britain. 9 inches. White. July and Aug.
Parfnep. See *Pastinaca*.
Parthenium integrifolium. *Entire-leaved Parthenium*. Virginia. June—Oct. 2 feet. White.
Parque-flower. See *Anemone*.
Pastinaca Opopanax. *Rough Parsnep*. S. Europe. June and July. 6—7 feet. Yellow.
Pea. See *Pisum*.
Pedicularis comosa. *Spiked Lousewort*. Alps.
Pedicularis flammea. *Upright Lousewort*. Switzerland. July.
Pedicularis foliosa. *Leafy Lousewort*. Switzerland and Austria.
Pedicularis recutita. *Jagged-leaved Lousewort*. Switzerland and Austria.
Peganum Harmala. *Syrian Rue*. Spain and Levant. July and Aug. 1 foot. White.
Pellitory of Spain. See *Anthemis Pyrethrum*.
Peltaria alliacea. *Garlick-scented Peltaria*. Austria. May.

- Penthorum Sedoides*. *American Penthorum*. Virginia. July and Aug. 1 foot. Greenish Yellow.
Pentstemon campanulata. *Bell-flowered Pentstemon*. Mexico. June—Oct.
Pentstemon lævigata. *Smooth Pentstemon*. N. Amer. Aug. and Sept.
Pentstemon pubescens. *Hairy Pentstemon*. N. Amer. Aug. and Sept.—Varieties, Broad-leaved and Narrow-leaved.
Pepperwort. See *Lepidium*.
Perficaria. See *Polygonum*.
Peucedanum alsaticum. *Small-headed Sulphurwort*. Germany. June and July.
Peucedanum officinale. *Common Sulphurwort*. Europe, England. May and June. 2 feet. Yellow.—Variety, Italian, larger.
Peucedanum Silaus. *Meadow Sulphurwort, or Meadow Saxifrage*. Europe, England. June—Aug.
Phaca alpina. *Smooth Bastard-Vetch*. Siberia, Lapland, Austria. July.
Phaca australis. *Trailing Bastard-Vetch*. S. Europe. May and June.
Phaca baetica. *Hairy Bastard-Vetch*. Spain and Portugal. July.
Phaca frigida. *Dwarf Bastard-Vetch*. Austria. July.
Phellandrium Mutellina. *Alpine Phellandria*. July and Aug.
Phlomis alpina. *Alpine Phlomis*. Siberia.
Phlomis gigantea. *Giant Phlomis*. Greece. June and July.
Phlomis Herba venti. *Rough-leaved Phlomis*. S. France. July—Sept. 2 feet. Bright Purple.
Phlomis laciniata. *Jagged-leaved Phlomis*. Levant.
Phlomis tuberosa. *Tuberous-rooted Phlomis*. Siberia. June—Oct. 4—5 feet. Pale Purple.
Phlox carolina. *Carolina Lychnidea*. N. Amer. July—Sept. 12—18 inches. Purple.
Phlox divaricata. *Early blue Lychnidea*. April—June. 12 inches. Pale blue.
Phlox glaberrima. *Smooth or red-flowered Lychnidea*. May and June. 12—18 inches.
Phlox maculata. *Spotted-stalked Lychnidea*. July and Aug. 2—3 feet. Bluish Purple.
Phlox ovata. *Ovate-leaved Lychnidea*. May and June.
Phlox paniculata. *Panicked Lychnidea*. Aug. and Sept. 2 feet. Pale purple.
Phlox pilosa. *Hairy Lychnidea*. May and June.
Phlox pyramidalis. *Pyramidal Lychnidea*. July and Aug.
Phlox setacea. *Bristly Lychnidea*. April and May.
Phlox stolonifera. *Creeping Lychnidea*. May and June.
Phlox suavis. *White-flowered Lychnidea*. June and July. White.
Phlox subulata. *Awl-shaped Lychnidea*. April and May.
Phlox suffruticosa. *Shrubby Lychnidea*. July and Aug.
Phlox undulata. *Waved Lychnidea*. July and Aug. Blue.
Physalis Alkekengi. *Common Winter Cherry*. S. Europe. July—Sept. 18—24 inches. White.
Physalis pensylvanica. *Pennsylvanian Winter-Cherry*. N. Amer. July—Sept.
Phyteuma comosa. *Tufted Rampion*. Switzerland. June—Aug.
Phyteuma hemisphærica. *Linear-leaved Horned Rampion*. Switzerland. July and Aug. 1 foot. Blue.
Phyteuma orbicularis. *Round-headed Horned Rampion*. Alps and England. June—Aug. 1 foot. Blue.
Phyteuma spicata. *Spiked Horned Rampion*. Europe. June. 12—18 inches. Blue and Straw-colour.
Phytolacca decandra. *Branching Phytolacca or Virginian Poke*. Virginia. July—Sept. 6—7 feet. Purplish.
Phytolacca icosandra. *Red-flowered Phytolacca*. E. Indies. July—Sept.
Pimpinella dichotoma. *Forked Burnet Saxifrage*. Spain. June and July.
Pimpinella dioica. *Dioecious or least Burnet Saxifrage*. England. May and June.
Pimpinella glauca. *Glaucous Burnet-Saxifrage*. S. Europe. August.
Pimpinella magna. *Great Burnet Saxifrage*. England. August.
Pimpinella peregrina. *Nodding Burnet Saxifrage*. Italy. June and July.
Pimpinella saxifraga. *Small Burnet Saxifrage*. Britain. June—Aug.
Pink. See *Dianthus*.
Pisum maritimum. *Sea Pea*. Europe, England. 12—18 inches. Pale red and purple.
Plantago alpina. *Alpine Plantain*. Austria and Switzerland. June and July.
Plantago altissima. *Tall Plantain*. Italy. June—Aug.
Plantago asiatica. *Asiatic Plantain*. Siberia. July. 18—24 inches. White.
Plantago crassa. *Thick-leaved Plantain*. S. Europe. June and July.
Plantago Cynops. *Shrubby Plantain*. S. Europe. May—Aug.
Plantago maxima. *Broad-leaved Plantain*. Siberia. July and Aug.
Plantago subulata. *Awl-leaved Plantain*. S. Europe. July.

- Plumbago europæa*. *European Leadwort*. S. Europe. Sept. and Oct. 3—4 feet. White.
- Podophyllum peltatum*. *Duck's-foot* or *May-apple*. N. Amer. May. 9—12 inches. White.
- Polemonium caruleum*. *Common Greek Valerian*. 12—18 inches. Europe, England. May—July. Blue, varying to white.
- Polemonium reptans*. *Creeping Greek Valerian*. N. Amer. April and May. 1 foot. Pale blue.
- Polygala amara*. *Bitter Milkwort*. Europe. June.
- Polygala Senega*. *Official Milkwort* or *Rattlesnake Root*. N. Amer. July. 1 foot. White.
- Polygala vulgaris*. *Common Milkwort*. Europe, Britain. May and June. Blue, red and white.
- Polygonum bistorta*. *Great Bistort* or *Snakeweed*. Europe, Britain. May—Sept. 1 foot. Pale red.
- Polygonum divaricatum*. *Divaricated Polygonum*. Siberia. June—Sept. 18—24 inches. White.
- Polygonum erectum*. *Upright Polygonum*. N. Amer. July and Aug.
- Polygonum ocreatum*. *Spear-leaved Persicaria*. Siberia. June—Sept.
- Polygonum scandens*. *Climbing Polygonum*. N. Amer. Aug. and Sept.
- Polygonum virginianum*. *Virginian Persicaria*. N. Amer. Aug. and Sept. 2—3 feet. White.
- Polygonum viviparum*. *Viviparous Polygonum* or *Small Bistort*. Europe, Britain. May—Sept. 6—9 inches. Whitish.
- Polygonum undulatum*. *Wave-leaved Polygonum*. Siberia. July and Aug.
- Polymnia tetragonotheca*. *Narrow-leaved Polymnia*. Virginia. Aug.—Oct.
- Polymnia uvedalia*. *Broad-leaved Polymnia*. Virginia. Aug.—Oct. 8—10 feet. Yellow.
- Pontederia cordata*. *Heart-leaved Pontederia*. Virginia. July and Aug. 1 foot. Blue.
- Poppy. See Papaver.
- Potentilla alba*. *White Cinquefoil*. Austria, Wales. May—July. 6 inches. White.
- Potentilla argentea*. *Satin Cinquefoil*. Europe, Britain. June—Oct. 9—12 inches. Yellow.
- Potentilla astracantha*. *Astracan Cinquefoil*. May—July.
- Potentilla aurea*. *Golden Cinquefoil*. Alps, Britain. May—July. Yellow.
- Potentilla bifurca*. *Bifid Cinquefoil*. Siberia. July.
- Potentilla caulescens*. *Alpine Cinquefoil*. May and June. 1 foot. White.
- Potentilla fragarioides*. *Strawberry-leaved Cinquefoil*. Siberia. May and June.
- Potentilla grandiflora*. *Great-flowered Cinquefoil*. Siberia and Switzerland. June and July.
- Potentilla hirta*. *Hairy Cinquefoil*. S. Europe. May—Sept.
- Potentilla intermedia*. *Various-leaved Cinquefoil*. Germany. May—Sept.
- Potentilla lupinoides*. *Shining-leaved Cinquefoil*. Alps. June and July.
- Potentilla monspeliensis*. *Montpelier Cinquefoil*. S. Europe. July and Aug.
- Potentilla multifida*. *Multifid Cinquefoil*. Siberia. May and June.
- Potentilla norvegica*. *Norway Cinquefoil*. Denmark. July—Sept.
- Potentilla obscura*. *Notch-leaved Cinquefoil*. Siberia. June and July.
- Potentilla opaca*. *Smooth Spring Cinquefoil*. Britain. March—May.
- Potentilla pennsylvanica*. *Agrimony-leaved Cinquefoil*. N. Amer. June—Aug.
- Potentilla pimpinelloides*. *Burnet-leaved Cinquefoil*. Levant. June—Aug.
- Potentilla recta*. *Upright Cinquefoil*. S. Europe. June and July. 9—12 inches. Yellow.
- Potentilla rupestris*. *Rock Cinquefoil*. Germany, England. May—Sept. 9—12 inches. White.
- Potentilla ruthenica*. *Russian Cinquefoil*. Siberia. May and June.
- Potentilla sericea*. *Silky Cinquefoil*. Siberia. May and June.
- Potentilla supina*. *Trailing Cinquefoil*. Siberia. July.
- Potentilla tridentata*. *Three-toothed Cinquefoil*. Newfoundland. June.
- Potentilla verna*. *Hairy Spring Cinquefoil*. Britain. March—May. 6 inches. Yellow.
- Potentilla viscosa*. *Clammy Cinquefoil*. Siberia. July, Aug.
- Poterium hybridum*. *Sweet Burnet*. France and Italy. June and July. 18—24 inches. Whitish.
- Poterium sanguiforba*. *Common Burnet*. Europe, England. July. 12—18 inches. Purplish Red.
- Pothos foetida*. *Stinking Pothos*, or *Scunkweed*. N. Amer. March and April.
- Prenanthes alba*. *White Prenanthes*. N. Amer. July and Aug.
- Prenanthes altissima*. *Tall Prenanthes*. Virginia and Canada. July and Aug.
- Prenanthes purpurea*. *Purple Prenanthes*. S. Europe. July—Sept. 18—24 inches.
- Primula acaulis*. f. *vulgaris*. *Common Primrose*. Europe, Britain. March, April and May. Pale yellow.—Varieties, White, Red, Purple; Double Yellow, Red and Purple.
- Primula auricula*. *Auricula*. Alps. April and May.—Varieties, Yellow, Purple, Variegated, innumerable.
- Primula cortusoides*. *Cortusa-leaved Primrose*. Siberia. May—July.
- Primula elatior*. *Oxlip*. Europe, Britain. April and May. Yellow.—Variety, Polyanthus.
- Primula farinosa*. *Bird's-eye*. Europe, Britain. May and June. 6—8 inches. Red.
- Primula finmarchica*. *Finmark Primrose*. Norway.
- Primula glutinosa*. *Clammy Primrose*. Carinthia and Tyrol. April and May.
- Primula helvetica*. *Swiss Primrose*. April and May.
- Primula integrifolia*. *Entire-leaved Primrose*. Pyrenees. April and May. Red or violet.
- Primula longifolia*. *Long-leaved Primrose* or *Bird's-eye*. April and May.
- Primula marginata*. *Margined Primrose*. Switzerland. April and May. Purple.
- Primula nivalis*. *Snowy Primrose*. Dauria. April and May.
- Primula officinalis*. *Cowslip* or *Paigle*. Europe, Britain. April and May. 6—9 inches. Yellow, varying to Red.
- Primula villosa*. *Villous Primrose*. Switzerland. April and May.
- Prunella grandiflora*. *Great-flowered Self-heal*. Austria. July—Sept.
- Prunella hyssopifolia*. *Hyssop-leaved Self-heal*. S. France. July—Sept.
- Prunella intermedia*. *Various-leaved Self-heal*. July—Sept.
- Prunella laciniata*. *Jagged-leaved Self-heal*. Germany. July—Sept.
- Prunella pennsylvanica*. *Pennsylvanian Self-heal*. N. Amer. Aug.—Oct.
- Prunella vulgaris*. *Common Self-heal*. Europe, Britain. July and Aug.
- Puccoon. See Sanguinaria.
- Pulmonaria angustifolia*. *Narrow-leaved Lungwort*. Europe. April and May. 6—9 inches. Purple. It varies with plain and spotted leaves.
- Pulmonaria maritima*. *Sea Lungwort*. Britain. June and July. 6—8 inches. Light blue.
- Pulmonaria officinalis*. *Official or common Lungwort*. Europe, Britain. March—May. 6—9 inches. Purple varying to white.
- Pulmonaria paniculata*. *Panicked Lungwort*. Hudson's Bay. May and June. 9—12 inches. Pale blue.
- Pulmonaria virginica*. *Virginian Lungwort*. Virginia and Maryland. March—May. 9—12 inches. Pale Blue.
- Pyrola maculata*. *Spotted-leaved Winter-green*. N. Amer. June.
- Pyrola minor*. *Small Winter-green*. Europe, Britain. June and July. 5 or 6 inches. White.
- Pyrola rotundifolia*. *Round-leaved Winter-green*. Europe, Britain. June and July. 6 or 8 inches. White.
- Pyrola secunda*. *Notch-leaved Winter-green*. Europe, Britain. June and July. 5 or 6 inches. White.
- Pyrola umbellata*. *Umbelled Winter-green*. N. Amer. June.
- Pyrola uniflora*. *One-flowered Winter-green*. N. Europe, Britain. June and July.
- Ranunculus abortivus*. *Kidney-leaved Crowfoot*. N. Amer. June and July.
- Ranunculus aconitifolius*. *Aconite-leaved Crowfoot*. Alps. May and June. 1 foot. White; called *Fair maids of France* when single.—Variety with double flowers.
- Ranunculus acris*. *Upright Crowfoot*. Europe, Britain. June—Aug. 18—24 inches. Yellow.—Variety, with double flowers. Bulbosus and repens with double flowers are also to be found in gardens.—And R. Ficaria.
- Ranunculus alpestris*. *Alpine Crowfoot*. Austria. June and July. 6—12 inches. White.
- Ranunculus amplexicaulis*. *Plantain-leaved Crowfoot*. Pyrenees. April and May. 9—12 inches. White.
- Ranunculus asiaticus*. *Garden Ranunculus*. Levant. May and June. 6—12 inches.—Variety of beautiful colours.
- Ranunculus auricomus*. *Wood Crowfoot*, or *Goldilocks*. Europe, Britain. April. 12—18 inches. Yellow.—Variety with Double flowers.
- Ranunculus cassubicus*. *Various-leaved Crowfoot*. Siberia. June and July.
- Ranunculus glacialis*. *Two-flowered Crowfoot*. Lapland. June.
- Ranunculus gramineus*. *Grass-leaved Crowfoot*. France and Spain. April and May. 9—12 inches. Yellow.
- Ranunculus illyricus*. *Illyrian Crowfoot*. S. Europe. May and June. 1 foot. Yellow.
- Ranunculus lanuginosus*. *Woolly-leaved Crowfoot*. S. Europe. June and July. 1 foot. Yellow.
- Ranunculus montanus*. *Mountain Crowfoot*. Alps.
- Ranunculus nivalis*. *Snowy or yellow Alpine Crowfoot*. Lapland, Austria, and Switzerland. June.
- Ranunculus parnassifolius*. *Parnassia-leaved Crowfoot*. S. Europe. June.
- Ranunculus platanifolius*. *Plane-leaved Crowfoot*. Germany. June and July.

Ranunculus polyanthemos. *Spotted-leaved Crowfoot*. Europe. May and June.
Ranunculus rutæfolius. *Rue-leaved Crowfoot*. Austria. May.
Ranunculus Thora. *Kidney-leaved Crowfoot*. Austria. May and June. 6—8 inches. Yellow.
 Rattle-snake-root. See *Polygala*.
 Reed. See *Arundo*.
 Rest-harrow. See *Ononis*.
Rheum compactum. *Thick-leaved Rhubarb*. Tartary. May and June. 3—4 feet.
Rheum hybridum. *Bastard Rhubarb*. Asia.
Rheum nutans. *Nodding Rhubarb*. Siberia.
Rheum palmatum. *Official Rhubarb*. China. 3—4 feet.
Rheum Rhaponticum. *Rhapontic Rhubarb*. Asia. 2—3 feet.
Rheum Ribes. *Warted-leaved Rhubarb*. Levant.
Rheum sibiricum. *Siberian Rhubarb*.
Rheum tataricum. *Tartarian Rhubarb*.
Rheum undulatum. *Wave-leaved Rhubarb*. Siberia.
 The flowers of all are white, and appear in May and June.
Rhexia virginica. *Hairy-leaved Rhexia*. N. Amer. July and Aug.
Rhodiola rosea. *Rose-root*. Europe, England. May—July. 9—12 inches. Greenish Yellow.
 Rhubarb. See *Rheum*.
 Rocket. See *Hesperis*.
 Rosebay Willow-herb. See *Epilobium*.
 Rose-Campion. See *Agrostemma*.
 Rose-root. See *Rhodiola*.
Rubia cordifolia. *Heart-leaved Madder*. Siberia. July.
Rubia lucida. *Shining Madder*. Majorca. July.
Rubia peregrina. *Wild Madder*. England. July.
Rubia tinctorum. *Dyer's Madder*. S. Europe. June. 6—8 feet. Greenish.
Rubus arcticus. *Dwarf Bramble*. N. Europe, Asia, and America. June and July. 5 or 6 inches. Red.
Rubus Chamæmorus. *Mountain Bramble*, or *Cloudberry*. Europe, Britain. May and June. 5 or 6 inches. White.
Rubus Dalibarda. *Simple-leaved Bramble*. Canada.
Rudbeckia angustifolia. *Narrow-leaved Rudbeckia*. Virginia. Aug. and Sept. 12—18 inches. Yellow.
Rudbeckia digitata. *Digitate-leaved Rudbeckia*. N. Amer. Aug. and Sept.
Rudbeckia fulgida. *Bright or small hairy Rudbeckia*. N. Amer. July and Aug.
Rudbeckia hirta. *Great hairy Rudbeckia*. Virginia and Canada. June—Nov. 12—18 inches. Yellow.
Rudbeckia laciniata. *Jagged-leaved Rudbeckia*. Virginia and Canada. July. 6—7 feet. Yellow.
Rudbeckia purpurea. *Purple Rudbeckia*. Carolina and Virginia. July—Oct. 3—6 feet. Purple.
Rumex alpinus. *Alpine Dock*, or *Monk's Rhubarb*. France and Switzerland. June and July.
Rumex Patientia. *Patience Dock* or *Rhubarb*. Italy. June and July. 5—6 feet. Whitish.
Rumex fecutatus. *French Sorrel*. France and Switzerland. June and July. 12—18 inches. Reddish.
Rumex tingitanus. *Tangier Dock*. Barbary and Spain.
Rumex tuberosus. *Tuberous-rooted Dock*. Italy.
 There are many other species, but they are mostly considered as weeds.
 Rush, Sweet. See *Acorus*.
 Sage. See *Salvia*.
 Saintfoin. See *Hedysarum*.
 Saint John's-wort and Saint Peter's-wort. See *Hypericum*.
Salvia argentea. *Silvery Sage*. Crete. May—July.
Salvia austriaca. *Austrian Sage*. June and July.
Salvia bicolor. *Two-coloured Sage*. Barbary. June and July.
Salvia diformis. *Long-spiked Sage*. Syria. July.
Salvia Forskalei. *Forskale's Sage*. Levant. July and Aug.
Salvia glutinosa. *Yellow Sage* or *Clary*. Germany and Italy. June—Nov. 2—3 feet.
Salvia grandiflora. *Great-flowered Sage*. S. Europe. June and July.
Salvia hamatodes. *Bloody Sage*. Italy. July and Aug.
Salvia indica. *Indian Sage*. E. Indies. May and June. 2—3 feet. Blue and White.
Salvia lyrata. *Lyre-leaved Sage*. Virginia and Carolina. June—Aug.
Salvia mollis. *Soft Sage*. Siberia. July.
Salvia napifolia. *Rape-leaved Sage*. Italy. October.
Salvia nemorosa. *Grove or spear-leaved Sage*. Austria and Tartary. June—Oct.
Salvia nutans. *Nodding Sage*. Russia. June—Sept. 3—4 feet. Pale blue.
Salvia phlomisoides. *Mullein-leaved Sage*. Spain. June and July.
Salvia pomifera. *Apple-bearing Sage*. Crete. July and Aug.
Salvia pratensis. *Meadow Sage* or *Clary*. Europe, England. May—Nov. 2—3 feet. Blue.
Salvia sylvestris. *Wood Sage*. Austria and Bohemia. June—Oct.
Salvia verbenaca. *Vervain Sage* or *Clary*. Europe, Britain. June—Oct. 18—24 inches. Blue.
Salvia verticillata. *Whorl-flowered Sage*. Germany. October.
Salvia virgata. *Long-branched Sage*. Armenia. July and Aug.

Salvia viscosa. *Clammy Sage*. Italy. July and Aug.
Sambucus Ebulus. *Dwarf Elder*. Europe, Britain. June and July. 2—3 feet. White.
Samolus Valerandi. *Water Pimpernel*. Europe, Britain. June—Aug. White.
 Sampire. See *Crithmum*.
 Sandwort. See *Arenaria*.
Sanguinaria canadensis. *Canadian Sanguinaria*, or *Puccoon*. N. Amer. March and April. 6—8 inches. White.
Sanguiforba canadensis. *Canadian Great Burnet*. N. Amer. and Siberia. June—Sept. 3 feet. White.
Sanguiforba media. *Short-spiked Great Burnet*. Canada. July—Sept. 2—3 feet. Red.
Sanguiforba officinalis. *Common Great Burnet*. Europe, Britain. June—Aug. 2—3 feet. Red.—Varieties, Italian, Spanish.
Sanicula europæa. *Common Sanicle*. Europe, Britain. June and July. 1 foot. White.
Sanicula marilandica. *Maryland Sanicle*. Virginia and Maryland. 2 feet. White.
Santolina alpina. *Alpine Lavender-Cotton*. Italy. July—Sept.
Santolina Anthemoides. *Chamomile-leaved Lavender-Cotton*. S. Europe. July.
Santolina maritima. *Sea Lavender-Cotton*. Europe, Britain. Aug. and Sept.
Saponaria Ocymoides. *Basil-leaved Soapwort*. Italy, France and Switzerland. May—July. 5—6 inches. Bright red.
Saponaria officinalis. *Common Soapwort*. Europe, England. 18—24 inches. Purple.—Varieties, Double and Hollow-leaved.
Sarracenia flava. *Yellow Sidesaddle-flower*. N. Amer. June and July.
Sarracenia minor. *Small Sidesaddle-flower*. N. Amer. June and July.
Sarracenia purpurea. *Purple Sidesaddle-flower*. N. Amer. June and July.
Saururus cernuus. *Lizard's-tail*. Virginia. Sept. 18—24 inches. White.
 Sawwort. See *Serratula*.
Saxifraga adscendens. *Ascending Saxifrage*. Pyrenees. May and June.
Saxifraga ajugifolia. *Groundpine-leaved Saxifrage*. S. Europe. June and July.
Saxifraga aizoides. *Yellow Mountain Saxifrage*. Europe, England. 6 inches.
Saxifraga aizoon. *Margined Pyramidal Saxifrage*. Switzerland. May and June.
Saxifraga ambigua. *Ambiguous Saxifrage*. Britain. August.
Saxifraga androsacea. *Blunt-leaved Saxifrage*. Austria. May and June.
Saxifraga aspera. *Rough Saxifrage*. Switzerland. August.
Saxifraga autumnalis. *Autumnal Saxifrage*. Switzerland. July and Aug. 6 inches. Yellow spotted with red.
Saxifraga cælia. *Gray Saxifrage*. Austria. May and June.
Saxifraga cæspitosa. *Matted or tufted Saxifrage*. Europe, England. August. 5 or 6 inches. Yellowish white.
Saxifraga cernua. *Drooping Saxifrage*. Europe, Britain. June and July.
Saxifraga cordifolia. *Heart-leaved Saxifrage*. Siberia. March and April.
Saxifraga Cotyledon. *Pyramidal Saxifrage*. Switzerland and Pyrenees. May and June. 18—24 inches. White.
Saxifraga crassifolia. *Thick-leaved Saxifrage*. Siberia. March and April. 9—12 inches. Purple.
Saxifraga cuneifolia. *Wedge-leaved Saxifrage*. Switzerland. May.
Saxifraga densa. *Close Saxifrage*. Europe, Britain. August.
Saxifraga geranoides. *Cranesbill-leaved Saxifrage*. Pyrenees. April and May.
Saxifraga Geum. *Kidney-leaved Saxifrage*. Alps. June and July. 12—18 inches. White spotted with red.
Saxifraga granulata. *Grain-rooted Saxifrage*. Europe, Britain. May. 6—9 inches. White.—Variety with double flowers.
Saxifraga hieracifolia. *Hawkweed-leaved Saxifrage*. N. Amer. May and June.
Saxifraga Hirculus. *Marsh Saxifrage*. Europe, Britain. August.
Saxifraga hypnoides. *Moss Saxifrage*. Europe, Britain. April and May. 5 or 6 inches. White.
Saxifraga lingulata. *Tongue-leaved Pyramidal Saxifrage*. Switzerland. May and June.
Saxifraga majuscula. *Large Saxifrage*. Britain. June and July.
Saxifraga moschata. *Musky Saxifrage*. Britain. June and July.
Saxifraga mutata. *Houseleek-leaved Pyramidal Saxifrage*. Switzerland. June. 6—8 inches. White.
Saxifraga nivalis. *Snowy Saxifrage* or *Songreen*. Britain. June. 5—6 inches. White.
Saxifraga oppositifolia. *Purple-flowered Saxifrage*. Britain. March and April. 2—3 inches. Purplish blue.
Saxifraga palmata. *Palmated Saxifrage*. Britain. May and June.

- Saxifraga pensylvanica*. *Pennsylvanian Saxifrage*. N. Amer. May and June. 2 feet. Greenish.
- Saxifraga petraea*. *Rock Saxifrage*. Norway and Pyrenees. April and May.
- Saxifraga pilosa*. *Hairy Saxifrage*. N. Amer. May.
- Saxifraga quinquefida*. *Five-cleft Saxifrage*. Britain. June and July.
- Saxifraga rivularis*. *Brook Saxifrage*. Britain. June and July.
- Saxifraga rosularis*. *Rose Pyramidal Saxifrage*.
- Saxifraga rotundifolia*. *Round-leaved Saxifrage*. Switzerland. May and June. 1 foot. White dotted with red.
- Saxifraga farmentosa*. *Creeping Saxifrage*. China. June and July.
- Saxifraga stellaris*. *Starry Saxifrage* or *Kidneywort*. Britain. June and July.
- Saxifraga viscosa*. *Clammy Saxifrage*. Siberia. August.
- Saxifraga umbrosa*. *London Pride*. Europe, Britain. April and May. 1 foot. White spotted with red.
- Scabiosa agrestis*. *Field Scabious*. Hungary. July—Oct.
- Scabiosa alpina*. *Alpine Scabious*. Alps. June and July.
- Scabiosa argentea*. *Silvery Scabious*. Levant. June—Oct.
- Scabiosa arvensis*. *Corn Scabious*. Europe. Britain. July—Oct.
- Scabiosa banatica*. *Hungarian Scabious*. July.
- Scabiosa columbaria*. *Fine-leaved Scabious*. Europe, Britain. July and Aug.
- Scabiosa corniculata*. *Horned Scabious*. Hungary. July and Aug.
- Scabiosa graminifolia*. *Grass-leaved Scabious*. Alps. July.
- Scabiosa gramuntia*. *Cut-leaved Scabious*. S. France. July and Aug.
- Scabiosa incana*. *Downy Scabious*. Hungary. July—Oct.
- Scabiosa ifetensis*. *Hairy Scabious*. Siberia. July and Aug.
- Scabiosa leucantha*. *Snowy Scabious*. S. France. Sept. and Oct.
- Scabiosa lucida*. *Shining Scabious*. Hungary. July.
- Scabiosa ochroleuca*. *Pale Scabious*. Germany. July and Aug.
- Scabiosa succisa*. *Devil's-bit Scabious*. Europe, Britain. August.
- Scabiosa sylvatica*. *Wood Scabious*. Switzerland. July and Aug.
- Scabiosa ucranica*. *Ukraine Scabious*. July and Aug.
- Scammony*. See *Convolvulus*.
- Scandix odorata*. *Sweet-scented Cicely* or *Myrrh*. Europe, Britain. May and June.
- Scolymus hispanicus*. *Perennial Golden-thistle*. S. Europe. July—Sept.
- Scorzonera graminifolia*. *Grass-leaved Viper's-grass*. Portugal. June—Aug.
- Scorzonera hispanica*. *Garden Viper's-grass*. Spain and Siberia. June—Sept.
- Scrophularia altaica*. *White-flowered Figwort*. Siberia. May and June.
- Scrophularia aquatica*. *Water Figwort*. Europe, Britain. May—July. 3—4 feet. Purple.
- Scrophularia auriculata*. *Ear-leaved Figwort*. Spain. July.
- Scrophularia betonicifolia*. *Betony-leaved Figwort*. Spain. June—Aug.
- Scrophularia canina*. *Cut-leaved Figwort*. S. Europe. June—Aug.
- Scrophularia lucida*. *Shining-leaved Figwort*. Levant. June—Aug.
- Scrophularia marilandica*. *Maryland Figwort*. N. Amer. May—July.
- Scrophularia mellifera*. *Barbary Figwort*. July and Aug.
- Scrophularia nodosa*. *Knobby-rooted Figwort*. Europe, Britain. May—July. 2—3 feet. Greenish Purple.
- Scrophularia orientalis*. *Hemp-leaved Figwort*. Levant. July and Aug.
- Scrophularia sambucifolia*. *Elder-leaved Figwort*. Spain and Portugal. July—Sept. 3—4 feet. Bright red with green.
- Scrophularia scorodonia*. *Balm-leaved Figwort*. Europe, England. May—July. 3—4 feet. Dark Purple.
- Scunk-weed*. See *Pothos*.
- Scutellaria albida*. *White-flowered Skull-cap*. Levant. June and July.
- Scutellaria alpina*. *Alpine Skull-cap*. Switzerland. June—Sept. 6—9 inches. Blue and white.
- Scutellaria altissima*. *Tall Skull-cap*. Levant. July and Aug. 12—18 inches. Dark Purple.
- Scutellaria galericulata*. *Common Skull-cap*, or *Hooded Willow-herb*. 9 inches. Blue. Europe, Britain.
- Scutellaria integrifolia*. *Entire-leaved Skull-cap*. N. Amer. June—Sept.
- Scutellaria lateriflora*. *Lateral-flowered Skull-cap*. N. Amer. June—Sept.
- Scutellaria lupulina*. *Great-flowered Skull-cap*. Siberia. June—Sept. 9—12 inches. Yellow.
- Scutellaria minor*. *Least Skull-cap* or *Hooded Willow-herb*. Europe, Britain. June—Sept. 6 inches. Purple.
- Scutellaria orientalis*. *Yellow-flowered Skull-cap*. Barbary and Levant. July and Aug. 9—12 inches.
- Scutellaria peregrina*. *Florentine Skull-cap*. Italy. June—Oct.
- Sea Heath*. See *Frankenia*.
- Sea Holly*. See *Eryngium*.
- Sea Lavender*. See *Statice*.
- Sea Milkwort*. See *Glaux*.
- Sedum acre*. *Wall Stone-crop*, or *Wall Pepper*. Europe, Britain. June. 4—5 inches. Yellow.
- Sedum aizoon*. *Yellow Stone-crop*. Siberia. July—Sept. 9—12 inches.
- Sedum album*. *White Stone-crop*. Europe, England. June and July. 4—5 inches.
- Sedum Anacampseros*. *Evergreen Orpine*. S. France. July and Aug. 6—8 inches. Purple.
- Sedum anglicum*. *English Stone-crop*. July and Aug.
- Sedum dasyphyllum*. *Round-leaved Stone-crop*. Europe, England. June and July. 4—5 inches. White.
- Sedum difficiens*. *Purslane-leaved Stone-crop*. N. Amer. June.
- Sedum glaucum*. *Glaucous Stone-crop*. Britain. July.
- Sedum hybridum*. *Bastard Stone-crop*. Siberia. May and June. 6—8 inches. Purple.
- Sedum majus*. *Great Orpine*. Spain. July—Sept.
- Sedum populifolium*. *Poplar-leaved Stone-crop*. Siberia. July and Aug.
- Sedum quadrifidum*. *Four-petalled Stone-crop*. N. Asia. July.
- Sedum reflexum*. *Reflex-leaved Stone-crop*. Britain. July. 9—12 inches. Yellow.
- Sedum rupestre*. *Rock Stone-crop*. Britain, July. 3—4 inches. Yellow.
- Sedum Telephium*. *Common Orpine*. July and Aug. Common White and Great Purple, in Britain.—Great White and small Purple, in Portugal. 9—12 inches.
- Sedum verticillatum*. *Whorl-leaved Orpine*. Europe. July—Sept.
- Sedum villosum*. *Villous Stone-crop*. Europe, Britain. June and July. 3 inches. Purple.
- Sedum virens*. *Green Stone-crop*. Portugal. June and July.
- Self-heal*. See *Prunella*.
- Selinum austriacum*. *Austrian Selinum*. July and Aug.
- Selinum Caruifolia*. *Caraway-leaved Selinum*. Austria and Siberia. July and Aug.
- Selinum Chabraci*. *Fine-leaved Selinum*. Austria. July and Aug.
- Selinum palustre*. *Marsh Selinum*, or *Milk-parsley*. Europe, England. July and Aug.
- Sempervivum arachnoideum*. *Cobweb Houseleek*. Alps. June and July. Bright red.
- Sempervivum globiferum*. *Globular Houseleek*. Germany. June and July. Yellow.
- Sempervivum hirtum*. *Hairy Houseleek*. Italy. June and July.
- Sempervivum montanum*. *Mountain Houseleek*. Switzerland. June and July. Red.
- Sempervivum sediforme*. *Stoncrop-leaved Houseleek*. S. Europe. July.
- Sempervivum tetstorum*. *Common Houseleek*. Europe, Britain. July—Sept. Pale red.
- Senecio abrotanifolius*. *Southernwood-leaved Groundsel*. Austria. July and Aug.
- Senecio alpinus*. *Alpine Groundsel*. Germany. July and Aug.
- Senecio aquaticus*. *Marsh Ragwort*. Britain. July and Aug.
- Senecio aureus*. *Golden Groundsel*. Virginia and Canada. May and June. 12—18 inches.
- Senecio coriaceus*. *Thick-leaved Groundsel*. Levant. July and Aug.
- Senecio Doria*. *Broad-leaved Groundsel*. Austria. July—Sept.
- Senecio Doronicum*. *Mountain Groundsel*. S. Europe. July—Sept. 1 foot.
- Senecio Jacobaea*. *Common Ragwort*. Europe, Britain. July and Aug.
- Senecio japonicus*. *Jagged-leaved Groundsel*. Japan. August.
- Senecio incanus*. *Hairy Groundsel*. Austria. July and Aug. 9 inches.
- Senecio luridus*. *Dingy Groundsel*. 3—4 feet.
- Senecio nemorensis*. *Branching Groundsel*. Austria. July and Aug.
- Senecio paludosus*. *Marsh Groundsel* or *Bird's-tongue*. Europe, Britain. July and Aug.
- Senecio faracenicus*. *Creeping Groundsel*. Europe, Britain. July—Oct. 4 feet.
- Senecio tenuifolius*. *Slender-leaved Groundsel*. Europe, Britain. July and Aug.
- The flowers of all are yellow.
- Sengreen*. See *Saxifraga*.
- Septfoil*. See *Tormentilla*.
- Serratula alpina*. *Mountain Saw-wort*. Europe, Britain. July and Aug.
- Serratula coronata*. *Lyre-leaved Saw-wort*. Italy. July and Aug.
- Serratula noveboracensis*. *Long-leaved Saw-wort*. N. Amer. Sept.—Nov. 6—7 feet.
- Serratula pilosa*. *Hairy-leaved Saw-wort*. N. Amer. Sept. and Oct.
- Serratula præalta*. *Tall Saw-wort*. N. Amer. Sept.—Nov. 3—4 feet.
- Serratula scariosa*. *Ragged-cupped Saw-wort*. Virginia. Sept. and Oct. 3—4 feet.

Serratula spicata. *Spiked Saw-wort*. N. Amer. Aug.—Oct. 3—4 feet.
Serratula squarrosa. *Rough-headed Saw-wort*. Virginia. July and Aug.
Serratula tinctoria. *Common Saw-wort*. Europe, Britain. Aug.—Oct. 2—3 feet.
 Colour of the flowers purple.
Sefeli aristatum. *Bearded-leaved Meadow-Saxifrage*. Pyrenees. June and July.
Sefeli glaucum. *Glaucous Meadow-Saxifrage*. France. July and Aug.
Sefeli Hippomarathrum. *Various-leaved Meadow-Saxifrage*. Austria. June and July.
Sefeli montanum. *Mountain or long-leaved Meadow-Saxifrage*. S. Europe. July.
Sefeli pimpinelloides. *Pimpernel Meadow Saxifrage*. S. Europe. July.
Sibbaldia procumbens. *Trailing Sibbaldia*. Europe, Britain. July and Aug. 3—4 inches. Yellow.
Sibthorpia europæa. *Cornish Sibthorpia or Moneywort*. England. August. Pale red.
Sideritis hirsuta. *Hairy Ironwort*. S. Europe. June and July. 18—24 inches. Purple.
Sideritis hyssopifolia. *Hyssop-leaved Ironwort*. Italy and Pyrenees. June—Nov.
Sideritis perfoliata. *Perfoliate Ironwort*. Levant. Aug.—Oct.
Sideritis scordioides. *Crenated Ironwort*. S. France. August. 1 foot. Yellow.
Sidefaddle-Flower. See *Sarracenia*.
Sigesbeckia occidentalis. *American Sigesbeckia*.
Silene acaulis. *Dwarf Catchfly or Mossy Campion*. Europe, Britain. June and July.
Silene alpestris. *Mountain or Austrian Catchfly*. May—July.
Silene chlerantha. *Yellow-flowered Catchfly*. Germany. July and Aug.
Silene longiflora. *Long-flowered Catchfly*. Hungary. July—Sept.
Silene maritima. *Sea Catchfly*. Europe, Britain. May—Aug.
Silene nutans. *Nottingham Catchfly*. England. June and July.
Silene paradoxa. *Dover Catchfly*. England. July.
Silene rupestris. *Rock Catchfly*. Switzerland. June—Aug.
Silene saxatilis. *Grass-leaved Catchfly*. Siberia. June and July.
Silene Saxifraga. *Saxifrage Catchfly*. S. Europe. June—Aug.
Silene vallesia. *Downy Catchfly*. Switzerland. June—Aug.
Silphium Asteriscus. *Hairy-stalked Silphium*. N. Amer. July—Sept. 4—5 feet.
Silphium conatum. *Round-stalked Silphium*. N. Amer. July—Oct. 5—6 feet.
Silphium laciniatum. *Jagged-leaved Silphium*. N. Amer. July—Sept. 5—6 feet.
Silphium perfoliatum. *Perfoliate or Square-stalked Silphium*. N. Amer. July—Oct. 6—7 feet.
Silphium terebinthinum. *Broad-leaved Silphium*. N. Amer. Aug. and Sept.
Silphium trifoliatum. *Three-leaved Silphium*. N. Amer. July—Oct. 5—6 feet.
 Flowers yellow.
Sison canadense. *Canadian or three-leaved Hone-wort*. N. Amer. July and Aug.
Sison verticillatum. *Whorl-leaved Hone-wort*. Britain. August.
Sisymbrium amphibium. *Water Radish*. Europe, Britain. June and July.
Sisymbrium Barbarea. *Scallop-leaved Sisymbrium*. Levant. July—Sept.
Sisymbrium monense. *Dwarf Sisymbrium*. Britain. June and July.
Sisymbrium Nasturtium. *Water Cress*. Europe, Britain. May and June.
Sisymbrium pyrenaicum. *Pyrenean Sisymbrium*. May and June.
Sisymbrium sagittatum. *Arrow-leaved Sisymbrium*. Siberia. May and June.
Sisymbrium strictissimum. *Upright Sisymbrium*. Switzerland. June—Aug.
Sisymbrium sylvestre. *Water Rocket*. Europe, Britain. June.
Sisymbrium tanacetifolium. *Tansy-leaved Sisymbrium*. Italy.
Sisymbrium tenuifolium. *Wall Rocket*. Europe, Britain. June—Oct.
Sium Falcaria. *Decurrent Water Parsnep*. Europe. July and Aug.
Sium rigidius. *Virginian Water Parsnep*. July and Aug.
Sium Sifarum. *Skirret*. China. July and Aug.
 There are other species wild in British waters.
Skull-cap. See *Sentellaria*.
Smilax herbacea. *Herbaceous Smilax*. N. Amer. July. 4—5 feet. Greenish.
Smyrnium aureum. *Golden Alexanders*. N. Amer. May and June.
Snakeroot, Black. See *Achæa*.
Snakeweed. See *Polygonum*.
Snappedragon. See *Antirrhinum*.
Sneezewort. See *Achillea*.
Soapwort. See *Saponaria*.
Soldanella alpina. *Alpine Soldanella*. Alps. April. 4—5 inches. Purplish blue.

Solidago. *Golden-rod*.

About 30 species are cultivated in our gardens, of which the greater part are natives of North America. They are from 2 to 4 or 5 feet in height, and have yellow flowers. Two species are natives of Britain, *S. Virgaurea*, 2 feet high, and *S. cambrica*, 6—9 inches. *S. minuta*, or least Golden-rod, is a native of the Pyrenees. They all flower from July till late in autumn.

Solomon's Seal. See *Convallaria*.

Sonchus canadensis. *Canadian Sow-thistle*. N. Amer. July and Aug.

Sonchus ocreuleus. *Blue Sow-thistle*. July and Aug. Europe, England.

Sonchus floridanus. N. Amer. July and Aug.

Sonchus maritimus. *Sea Sow-thistle*. S. Europe. July—Sept.

Sonchus palustris. *Marsh Sow-thistle*. Europe, England. August.

Sonchus Plumierii. *Panicled Sow-thistle*. Pyrenees. July and Aug.

Sonchus fibricus. *Siberian Sow-thistle*. July and Aug. 12—18 inches. Pale blue.

Sonchus tataricus. *Tartarian Sow-thistle*.

Sophora alba. *White Sophora*. Virginia and Carolina. June.

Sophora alopecuroides. *Fox-tail Sophora*. Levant. July and Aug. 18—24 inches. Whitish.

Sophora australis. *Blue Sophora*. Carolina. June and July.

Sophora flavescens. *Yellow Sophora*. Siberia. June and July.

Sophora lupinoides. *Lupine-leaved Sophora*. Kamtschatka.

Sophora tinctoria. *Dyer's Sophora*. Virginia. July and Aug. 1 foot. Yellow varying to White.

Sorrel. See *Rumex*.

Southernwood. See *Artemisia*.

Sow-thistle. See *Sonchus*.

Speedwell. See *Veronica*.

Spigelia marilandica. *Perennial Worm-grass*. N. Amer. July and Aug. 6—8 inches. Bright red with orange.

Spignel. See *Æthusa*.

Spiræa Aruncus. *Goat's-beard Spiræa*. Austria and Siberia. June and July. 3—4 feet. White.

Spiræa Filipendula. *Drooping Spiræa*. Europe, Britain. June—Aug. 12—18 inches. White.—Variety with double flowers.

Spiræa lobata. *Lobe-leaved Spiræa*. Siberia. July and Aug. 2—3 feet. Red.

Spiræa trifoliata. *Three-leaved Spiræa*. N. Amer. June and July. 12—18 inches. White.

Spiræa Ulmaria. *Meadow-sweet*. Europe, Britain. June—Aug. 2—3 feet. White.—Variety with double flowers.

Spurge. See *Euphorbia*.

Spurge-Laurel and Spurge-Olive. See *Daphne*.

Squinancy-wort. See *Asperula*.

Squirting Cucumber. See *Momordica*.

Stachys Alpina. *Alpine Stachys*. Germany. June—Aug.

Stachys circinata. *Blunt-leaved or heart-leaved Stachys*. Barbary. May—July.

Stachys cretica. *Cretan Stachys*. Candia. June—Aug. 2—3 feet. Whitish.

Stachys germanica. *German Stachys or Base Horehound*. Germany, England. July—Sept. 2—3 feet. White with purple.

Stachys hirta. *Procumbent Stachys*. Spain, Italy, and Levant. June—Aug.

Stachys intermedia. *Oblong-leaved Stachys*. Carolina. June and July.

Stachys lanata. *Woolly Stachys*. Siberia. June—Sept.

Stachys maritima. *Sea Stachys*. S. Europe. July.

Stachys recta. *Upright Stachys*. S. Europe. June—Aug.

Starwort. See *Aster*.

Statice alliaeca. *Garlic Thrift*. Spain. May and June.

Statice Armeria. *Common Thrift*. Europe, Britain. May—July. 9—12 inches. Red.—Variety with broad leaves.

Statice auriculæfolia. *Auricle-leaved Thrift*. Barbary. July and Aug.

Statice Cephalotes. *Plantain-leaved Thrift*. Algarbia. May—July.

Statice cordata. *Blunt-leaved, or heart-leaved Thrift*. S. Europe. May—July.

Statice echioides. *Bugloss-leaved Thrift*. S. Europe. July and Aug.

Statice ferulacea. *Fennel-leaved Thrift*. S. Europe. July and Aug.

Statice flexuosa. *Zigzag Thrift*. Siberia. July and Aug.

Statice Gmelini. *Gmelin's Thrift*. Siberia. July and Aug.

Statice latifolia. *Broad-leaved Thrift*. Siberia. July and Aug.

Statice Limonium. *Sea-Lavender*. Europe, England. May and June. 9—12 inches. Blue.

Statice oleæfolia. *Branching Thrift*. Spain. July and Aug.

Statice reticulata. *Matted Thrift or Sea Lavender*. Europe, England. July and Aug.

Statice Scoparia. *Broom Thrift*. Siberia. July and Aug.

Statice speciosa. *Spreading Thrift*. Tartary. July and Aug. 9—12 inches. White.

Statice tatarica. *Tartarian Thrift*. July and Aug. 6—8 inches. Pale blue.

Stock. See *Cheiranthus*.

Stone-crop. See *Sedum*.

- Stratiotes Aloides. *Water Aloe* or *Fresh-water Soldier*. Europe. England. June.
- Suceory. See Cichorium.
- Sulphur-wort. See Peucedanum.
- Sun-flower. See Helianthus.
- Swallow-wort. See Asclepias.
- Sweet Flag. See Acorus.
- Sweet William. See Dianthus.
- Swertia perennis. *Marsh Swertia*. Switzerland, England. July. 9—12 inches. Dark blue.
- Symphytum asperum. *Rough Comfrey*. Siberia. June.
- Symphytum officinale. *Common Comfrey*. Europe, Britain. 2 feet. Yellowish White or Purple.
- Symphytum orientale. *Oriental Comfrey*. Constantinople. July.
- Symphytum tuberosum. *Tuberous-rooted Comfrey*. Germany, France, Spain, Scotland. May—Sept. 12—18 inches. Pale yellow.
- Syrian Rue. See Peganum.
- Tabernamontana Amfonia. *Alternate-leaved Tabernamontana*. N. Amer. May and June. 12—18 inches. Bluish white.
- Tabernamontana angustifolia. *Narrow-leaved Tabernamontana*. N. Amer. May and June. 12—18 inches. Pale blue.
- Tanacetum Balsamita. *Cosmary*. S. France and Italy. Aug. and Sept. 3 feet. Yellow.
- Tanacetum vulgare. *Common Tansey*. Europe, Britain. August. 3 feet. Yellow.—Variety, with curled leaves.
- Tarragon. See Artemisia.
- Telephium Imperati. *True Orpine*. S. France and Italy. June—Aug. 6—9 inches. White.
- Teucrium canadense. *Nettle-leaved Germander*. N. Amer. Aug. and Sept. 12—18 inches. Yellow.
- Teucrium Chamædrys. *Creeping or common Germander*. Europe, England. June and July. 9 inches. Purplish.
- Teucrium hircanicum. *Hairy or Betony-leaved Germander*. Persia. June—Sept. 12—18 inches. Purple.
- Teucrium lucidum. *Shining Germander*. S. Europe. June—Sept. 1 foot. Purple.
- Teucrium montanum. *Mountain or Dwarf Germander*. France, Switzerland, Germany. June—Sept. 6—8 inches. White.
- Teucrium multiflorum. *Many-flowered Germander*. Spain. June—Sept.
- Teucrium pyrenaicum. *Pyrenean Germander*. June—Aug. 4 or five inches. Purple with white.
- Teucrium Scordium. *Water Germander*. Europe, England. July and Aug. 9 inches. Red.
- Teucrium Scorodonia. *Wood Sage*. Europe, Britain. 12—18 inches. Whitish.
- Thalictrum alpinum. *Alpine Meadow Rue*. N. Europe, Britain. May—July. 5 or 6 inches. Deep Red.
- Thalictrum angustifolium. *Narrow-leaved Meadow Rue*. Germany. June and July. 2—3 feet. Whitish.
- Thalictrum aquilegifolium. *Columbine-leaved Meadow Rue*, or *Feathered Columbine*. Switzerland and Austria. May—July. 3 feet. White.
- Thalictrum atropurpureum. *Dark-flowered Meadow Rue*. Germany. June and July.
- Thalictrum contortum. *Twisted-leaved Meadow Rue*. Germany. June and July.
- Thalictrum Cornuti. *Canadian or trifid-leaved Meadow Rue*. N. Amer. May—July. 2—3 feet. White.
- Thalictrum dioicum. *Diocious Meadow Rue*. N. Amer. June and July. 9—12 inches. Yellowish white.
- Thalictrum elatum. *Tall Meadow Rue*. Hungary. May—July.
- Thalictrum flavum. *Yellow-rooted Meadow Rue*. Europe, Britain. 3—4 feet. Whitish.
- Thalictrum foetidum. *Stinking Meadow Rue*. France and Switzerland. May—July. 6—8 inches. White.
- Thalictrum lucidum. *Shining Meadow Rue*. S. Europe. May—July. 3—4 feet. Yellowish White.
- Thalictrum majus. *Great Meadow Rue*. Europe, Britain. May—July.
- Thalictrum medium. *Middle Meadow Rue*. Germany. May—July.
- Thalictrum minus. *Small Meadow Rue*. Europe, Britain. May—July. 9—12 inches. Yellowish White.
- Thalictrum nigricans. *Black Meadow Rue*. Austria. June and July.
- Thalictrum purpurascens. *Purple-stalked Meadow Rue*. Canada. June and July. 2—3 feet.
- Thalictrum rugosum. *Wrinkle-leaved Meadow Rue*. N. Amer. June and July.
- Thalictrum sibiricum. *Siberian Meadow Rue*. June and July.
- Thalictrum simplex. *Simple-stalked Meadow Rue*. Sweden. May—July.
- Thalictrum speciosum. *Glaucous-leaved Meadow Rue*. Spain. June and July.
- Thalictrum tuberosum. *Tuberous-rooted Meadow Rue*. Spain. June. 13—24 inches. White.
- Thapsia garganica. *Garganian Deadly Carrot*. Spain. June and July.
- Thapsia villosa. *Villous Deadly Carrot*. S. Europe. June and July. 2—3 feet. Yellow.
- Thrift. See Statice.
- Thymus alpinus. *Alpine Thyme*. Austria and Switzerland. June—Sept.
- Thymus melissoides. *Balm-leaved Thyme*. Hungary. June—Aug.
- Thymus montanus. *Mountain Thyme*. Hungary. June—Aug.
- Thymus virginicus. *Virginian or Savory Thyme*. N. Amer. July.
- Tiarella cordifolia. *Heart-leaved Tiarella*. N. Amer. April and May. 5—6 inches. White.
- Tickseed Sunflower. See Coreopsis.
- Toadflax. See Antirrhinum.
- Toothwort. See Dentaria.
- Tormentilla erecta. *Upright Tormentil or Septfoil*. Europe, Britain. May—Oct. 1 foot. Yellow.
- Tormentilla reptans. *Creeping Tormentil*. Europe, Britain. May—Oct. 5 or 6 inches. Yellow.
- Toothwort. See Dentaria.
- Tragopogon Dalechampii. *Perennial or Great-flowered Goat's-beard*. S. Europe. June—Oct.
- Trefoil. See Trifolium.
- Trientalis europæa. *Common Trientalis*, or *Chickweed Winter-green*. Europe, Britain. 5 or 6 inches. White.
- Trifolium alpestre. *Oval-spiked Trefoil*. Europe. June and July.
- Trifolium alpinum. *Alpine Trefoil*. Italy, Switzerland. Pyrenees. June—Aug.
- Trifolium Lupinaster. *Bastard Lupine*. Siberia. June—Aug.
- Trifolium macrorrhizum. *Long-rooted Trefoil*. Hungary. July.
- Trifolium montanum. *Mountain Trefoil*. Europe. July.
- Trifolium olympicum. *Olympian Trefoil*. Greece. June.
- Trifolium pannonicum. *Hungarian Trefoil*. June and July.
- Trifolium reflexum. *Reflexed Trefoil*. Virginia. May—Sept.
- Trifolium rubens. *Long-spiked Trefoil*. S. Europe. June—Sept.
- Many species are annual, and others so common in a wild state as not to be cultivated in gardens.
- Trifolium perfoliatum. *Fever-root*. N. Amer. June and July. 1 foot. Dark red.
- Tripacum dactyloides. *Rough-seeded Tripsacum*. Virginia. August.
- Trollius asiaticus. *Asiatic Globe-flower*. Siberia. June. 12—18 inches. Orange and gold.
- Trollius europæus. *European Globe-flower*. Europe, Britain. May and June. 12—18 inches. Yellow.
- True-love. See Paris.
- Tussilago alba. *White Colt's-foot or Butter-bur*. Europe. Jan.—April. 6—9 inches.
- Tussilago alpina. *Alpine Colt's-foot*. Switzerland, Austria, Siberia. May. 4—5 inches. Purplish.
- Tussilago Farfara. *Common Colt's-foot*. Europe, Britain. March and April.
- Tussilago hybrida. *Long-stalked Colt's-foot or Butter-bur*. Europe, Britain. March and April. 12—18 inches. Reddish.
- Tussilago lobata. *Lobed-leaved Colt's-foot or Butter-bur*. Switzerland. March and April.
- Tussilago palmata. *Palmated Colt's-foot*. Newfoundland and Labrador. April.
- Tussilago paradoxa. *Downy-leaved Colt's-foot*. Switzerland. April.
- Tussilago Petasites. *Great Colt's-foot or Butter-bur*. Europe, Britain. March and April.
- Typha angustifolia. *Narrow-leaved Cat's-tail*.
- Typha latifolia. *Great Cat's-tail*. Both natives of Europe and Britain. July.
- Valantia. See Galium.
- Valeriana celtica. *Celtic Valerian*. Switzerland. June and July.
- Valeriana dioica. *Marsh Valerian*. Europe, Britain. May—July. 9—12 inches. Flesh-coloured.
- Valeriana montana. *Mountain Valerian*. Austria and Switzerland. April—June.
- Valeriana officinalis. *Officinal or great wild Valerian*. Europe, Britain. June—Sept. 2—3 feet. Flesh-coloured.
- Valeriana Phu. *Garden Valerian*. Germany. May—July. 2—3 feet. White.
- Valeriana pyrenaica. *Pyrenean Valerian*. May and June. 2—3 feet. Flesh-coloured.
- Valeriana rubra. *Red Valerian*. France, Italy, Britain. May—July. 1—3 feet. Red varying to White.
- Valeriana ruthenica. *Russian Valerian*. Siberia. July and Aug.
- Valeriana tripteris. *Three-leaved Valerian*. Switzerland. March—May. 6 inches. Flesh-coloured.
- Valeriana tuberosa. *Tuberous Valerian*. S. Europe. April and May.
- Veratrum album. *White Hellebore*. Europe. June—Aug. 5—6 feet. Greenish.
- Veratrum luteum. *Yellow-flowered Veratrum*. N. Amer. July and Aug. 1 foot. Yellow.
- Veratrum nigrum. *Dark-flowered Veratrum*. Austria and Siberia. June and July. 3—4 feet. Dark Purple.
- Veratrum viride. *Green-flowered Veratrum*. N. Amer. July and Aug.

- Verbascum ferrugineum*. *Rusty Mullein*. S. Europe. May—July.
- Verbascum Myconi*. *Borage-leaved Mullein*. Pyrenees. May and June.
- Verbascum nigrum*. *Black Mullein*. Europe, Britain. June—Aug. 2—5 feet. Yellow.
- Verbascum phoeniceum*. *Purple Mullein*. S. Europe. June—Aug. 2—3 feet.
- Verbena carolina*. *Carolina Vervain*. N. Amer. June—Sept.
- Verbena hastata*. *Halbert-leaved Vervain*. Canada. June—Aug. 5—6 feet. Blue.
- Verbena paniculata*. *Panicled Vervain*. Buenos Ayres. July and Aug.
- Verbena urticifolia*. *Nettle-leaved Vervain*. N. Amer. July—Sept.
- Veronica alpina*. *Alpine Speedwell*. Europe, Scotland. May—July.
- Veronica aphylla*. *Naked-stalked Speedwell*. Switzerland and Italy. May—July.
- Veronica austriaca*. *Austrian Speedwell*. July. 12—18 inches. Pale blue.
- Veronica bellidioides*. *Daisy-leaved Speedwell*. Switzerland. May—July.
- Veronica candida*. *White Speedwell*. Siberia. July.
- Veronica Chamædrys*. *Germander Speedwell*. Europe, Britain. May and June. Blue.
- Veronica hybrida*. *Welsh Speedwell*. June—Aug. 9—12 inches. Blue.
- Veronica incana*. *Hairy Speedwell*. Russia. July—Sept. 12—18 inches. Deep blue.
- Veronica incisa*. *Cut-leaved Speedwell*. Siberia. July and Aug.
- Veronica laciniata*. *Jagged-leaved Speedwell*. Siberia. June and July.
- Veronica latifolia*. *Broad-leaved Speedwell*. Austria and Switzerland. May and June. 12—18 inches. Bright blue.
- Veronica longifolia*. *Long-leaved Speedwell*. Russia and Austria. July—Sept. 18—24 inches. Blue.
- Veronica maritima*. *Sea Speedwell*. Coasts of Europe. June—Aug. Blue, White, and Flesh-coloured. 18—24 inches.
- Veronica montana*. *Mountain Speedwell*. Europe, Britain. May and June.
- Veronica multifida*. *Multifid Speedwell*. Austria. June—Aug.
- Veronica orientalis*. *Oriental Speedwell*. Levant. July and Aug.
- Veronica officinalis*. *Official Speedwell*. Europe; Britain. May—July. 9—12 inches. Pale blue.
- Veronica pinnata*. *Winged-leaved Speedwell*. Siberia. July.
- Veronica prostrata*. *Trailing Speedwell*. Germany and Italy. May and June.
- Veronica saxatilis*. *Rock Speedwell*. Austria and Switzerland. June.
- Veronica sibirica*. *Siberian Speedwell*. July and Aug. 3—4 feet. Blue.
- Veronica spicata*. *Upright Spiked Speedwell*. Europe, England. June—Aug. 12—18 inches. Blue.
- Veronica spuria*. *Bastard Speedwell*. Siberia and Germany. May and June. 12—18 inches. Pale blue.
- Veronica Teucrium*. *Hungarian Speedwell*. Germany and Hungary. July and Aug. 12—18 inches. Bright Blue.
- Veronica virginica*. *Virginian Speedwell*. July—Sept. with White and Blush-coloured flowers, 5 or 6 feet.
- Veronica urticæfolia*. *Nettle-leaved Speedwell*. Austria and Switzerland. June and July.
- Vervain*. See *Verbena*.
- Vetch*. See *Vicia*.
- Vicia cassubica*. *Cassubian Vetch*. Germany. June and July.
- Vicia Cracca*. *Tufted Vetch*. Europe, Britain. June and July.
- Vicia dumetorum*. *Great Wood Vetch*. France and Germany. May.
- Vicia galegifolia*. *Goat's-rue-leaved Vetch*. New Holland. August.
- Vicia pififormis*. *Pale-flowered Vetch*. Austria. July and Aug.
- Vicia sepium*. *Busb Vetch*. Europe, Britain. May.
- Vicia sylvatica*. *Common Wood Vetch*. Europe, Britain. July.
- Viola biflora*. *Two-flowered Violet*. Alps. April and May. 3 or 4 inches. Yellow.
- Viola calcarata*. *Long-spurred Violet*. Switzerland. March—June. 6—9 inches. Pale blue.
- Viola canadensis*. *Canadian Violet*. N. Amer. May and June. 6—9 inches. Pale blue.
- Viola canina*. *Dog's Violet*. Europe, Britain. April. 5 or 6 inches. Pale blue.
- Viola cornuta*. *Pyrenean Violet*. May.
- Viola cucullata*. *Hollow-leaved Violet*. N. Amer. July. 4 or 5 inches. Blue.
- Viola grandiflora*. *Great Yellow Violet*. Europe, Britain. May—Aug.
- Viola hirta*. *Hairy Violet*. Europe. April and May. 5 or 6 inches. Pale blue.
- Viola lactea*. *Pale-flowered Violet*. Britain. April.
- Viola lanceolata*. *Spear-leaved Violet*. N. Amer. June.
- Viola mirabilis*. *Broad-leaved Violet*. Germany and Sweden. July and Aug. 4 or 5 inches. Pale blue.
- Viola montana*. *Mountain Violet*. Alps. May and June. 9—12 inches. Pale blue.
- Viola obliqua*. *Oblique-flowered Violet*. Pennsylvania and Virginia. May and June. 3—5 inches. Straw-coloured and blue.
- Viola odorata*. *Sweet Violet*. Europe, Britain. March and April. Dark blue varying to white.—Variety with double flowers.
- Viola pallens*. *Pale Violet*. Siberia. May and June.
- Viola palmata*. *Palmated Violet*. Virginia. May and June. 5 or 6 inches. Pale blue.
- Viola palustris*. *Marsh Violet*. Europe, Britain. June. 5 or 6 inches. Pale blue.
- Viola pedata*. *Multifid Violet*. N. Amer. May.
- Viola primulifolia*. *Primrose-leaved Violet*. N. America. June.
- Viola pubescens*. *Downy Violet*. N. Amer. June.
- Viola sagittata*. *Arrow-leaved Violet*. Pennsylvania. July. Blue.
- Viola striata*. *Striated Violet*. N. Amer. June and July.
- Viola uniflora*. *Siberian Violet*. June and July. 3 or 4 inches. Yellow.
- Viper's-grass. See *Scorzonera*.
- Virginian Cowslip. See *Dodecatheon*.
- Virgin's Bower. See *Clematis*.
- Urtica canadensis*. *Canada Nettle*. Siberia and Canada. Aug.—Oct.
- Urtica cannabina*. *Hemp-leaved Nettle*. Siberia. July—Sept.
- Urtica cylindrica*. *Cylindrical Nettle*. Virginia and West Indies. June—Aug.
- Urtica gracilis*. *Slender-stalked Nettle*. Hudson's-bay. June—Aug.
- Utricularia minor*. *Lesser Hooded Milfoil*.
- Utricularia vulgaris*. *Common Hooded Milfoil*. Both natives of Europe and Britain. June and July.
- Uvedalia. See *Polymnia*.
- Wake Robin. See *Arum*.
- Wall-crefs. See *Arabis*.
- Wall-flower. See *Cheiranthus*.
- Wall-Pennywort. See *Cotyledon*.
- Wall-Pepper or Stone-crop. See *Sedum*.
- Water Aloe. See *Stratiotes*.
- Water Dropwort. See *Oenanthe*.
- Water Horehound. See *Lycopus*.
- Water-leaf. See *Hydrophyllum*.
- Water-Lily. See *Menyanthes* and *Nymphaea*.
- Water Parsnep. See *Sium*.
- Water Pimpernel. See *Samolus*.
- Water Plantain. See *Alisma*.
- Water Radish and Water Rocket. See *Sisymbrium*.
- Water Violet. See *Hottonia*.
- White Hellebore. See *Veratrum*.
- White Horehound. See *Marrubium*.
- Whitlow-grass. See *Draba*, and *Saxifraga*.
- Wild Basil. See *Clinopodium*.
- Wild Germander. See *Veronica*.
- Wild Rocket. See *Brassica*.
- Willow-herb. See *Epilobium* and *Lythrum*.
- Winter Aconite. See *Helleborus*.
- Winter-Cherry. See *Physalis*.
- Winter-Crefts. See *Erysimum*.
- Winter-green. See *Pyrola*.
- Wolf's-bane. See *Aconitum*.
- Woodroof. See *Asperula*.
- Wood Sage. See *Teucrium*.
- Wood Sorrel. See *Oxalis*.
- Worm-grass. See *Spigelia*.
- Wormwood. See *Artemisia*.
- Yarrow. See *Achillea*.
- Yellow Root. See *Hydrastis*.
- Ziziphora acinoides*. *Thyme-leaved Ziziphora*. Siberia. July and Aug.
- Zygophyllum Fabago*. *Common Bean-Caper*. Syria. July—Sept. 2—3 feet. White with deep orange anthers.

HARDY BULBOUS PLANTS.

These are Perennial, but being of a peculiar structure, are kept separate. In this List are comprehended all the Liliaceous Plants, and the Natural Orders of Eufatae, Orchideae, Spathaceae, Coronariae, and some of the Sarmenatae.

- AGAVE virginica. *Virginian Agave*. September.
 Aletris farinosa. *American Aletris*. N. Amer. June.
 Allium angulosum. *Angular-stalked Garlick*. Germany and Siberia. May.
 Allium defcendens. *Purple-headed Garlick*. Switzerland. July.
 Allium flavum. *Sulphur-coloured Garlick*. Austria. June and July.
 Allium inodorum. *Carolina Garlick*. March and April.
 Allium lineare. *Linear-leaved Garlick*. Siberia. June.
 Allium magicum. *Homer's Garlick or Moly*. June and July.
 Allium Moly. *Yellow Garlick or Moly*. S. Europe. June.
 Allium nigrum. *Broad-leaved Garlick*. Austria. June and July.
 Allium nutans. *Flat-stalked Garlick*. Siberia. July.
 Allium obliquum. *Oblique-leaved Garlick*. Siberia. June.
 Allium pallens. *Pale-flowered Garlick*. S. Europe. June and July.
 Allium paniculatum. *Panicled Garlick*. S. Europe and Levant.
 Allium parviflorum. *Small-flowered Garlick*. S. Europe.
 Allium roseum. *Rose Garlick*. S. France. June.
 Allium senescens. *Narcissus-leaved Garlick*. Germany and Siberia. June and July.
 Allium sibiricum. *Siberian Garlick*. Siberia and N. Amer. July and Aug.
 Allium sphaerocephalon. *Small round-headed Garlick*. Italy, Switzerland, Siberia. July.
 Allium subulifutum. *Hairy Garlick, or Dioscorides's Moly*. S. Europe and Levant. May.
 Allium triquetrum. *Triangular Garlick*. Spain. May and June.
 Allium tricoccum. *Three-seeded Garlick*. N. Amer. July.
 Allium Victorialis. *Long-rooted Garlick*. Alps. May.
 Allium urinum. *Ramsons*. Europe, Britain. April and May.
 Amaryllis Atamasco. *Atamasco Lily*. N. Amer. May. 6—8 inches. White.
 Amaryllis lutea. *Yellow Amaryllis or Autumnal Narcissus*. S. Europe. September. 4—6 inches.
 Anthericum Liliago. *Grass-leaved Anthericum*. S. Europe. May and June. 18—24 inches. White.
 Anthericum Liliastrum. *Savoy Anthericum or Spiderwort*. Alps. May and June. 12—18 inches. White.
 Anthericum ramosum. *Branching Anthericum*. S. Europe. May and June. 18—24 inches. White.
 Anthericum ferotinum. *Mountain Anthericum*. Britain. June and July. White within, red without.
 Arethusa bulbosa. *Bulbous-rooted Arethusa*. N. Amer. May.
 Asphodelus altaicus. *Channel-leaved Asphodel*. Siberia. May and June.
 Asphodelus fistulosus. *Onion-leaved Asphodel*. S. Europe. May and June.
 Asphodelus luteus. *Yellow Asphodel*. Sicily. May—July. 2—3 feet.
 Asphodelus ramosus. *Branching Asphodel*. S. Europe. May and June. 3—5 feet. White.
 Atamasco Lily. See Amaryllis.
 Bulbocodium Vernal. *Spring-flowering Bulbocodium*. Spain. March. 4—5 inches. Dark blue.
 Colchicum autumnale. *Meadow Saffron*. Europe, Britain. Sept. and Oct. 4—6 inches. Pale Purple, White, and Striped; with double flowers, and variegated leaves.
 Commelina erecta. *Upright Commelina*. Virginia. Aug. and Sept. 18 inches. Pale blue.
 Convallaria bifolia. *Leaf or two-leaved Solomon's Seal*. N. Europe. May and June. 4—5 inches.
 Convallaria latifolia. *Broad-leaved Solomon's Seal*. N. Amer. May and June.
 Convallaria majalis. *Lily of the Valley*. Europe, Britain. May and June. 6—9 inches. White, varying with double, and with red flowers.
 Convallaria multiflora. *Broad-leaved or many-flowered Solomon's Seal*. Europe, England. May and June. 2—3 feet. Greenish White.
 Convallaria Polygonatum. *Common Solomon's Seal*. Europe, England. May and June. 2 feet. Greenish White.
 Convallaria racemosa. *Cluster-flowered Solomon's Seal*. N. Amer. May and June. 18—24 inches. White.
 Convallaria stellata. *Star-flowered Solomon's Seal*. Virginia and Canada. May and June.
 Convallaria verticillata. *Whorl-leaved Solomon's Seal*. N. Europe, England. May and June. 12—18 inches. Greenish White.
 Corn-flag. See Gladiolus.
 Crocus officinalis. *Saffron*. Levant. Sept. and Oct. 3—4 inches. Blue.
 Crocus vernus. *Spring Crocus*. S. Europe. March. 3—6 inches. Variety of colours.
 Crown Imperial. See Fritillaria.
 Cypripedium acaule. *Two-leaved Lady's Slipper*. N. Amer. May.
 Cypripedium album. *White Lady's Slipper*. N. Amer. June and July.
 Cypripedium Calceolus. *Common Lady's Slipper*. Europe, England. May—July. 1 foot. Purple and Yellow.
 Daffodil. See Narcissus.
 Day Lily. See Hemerocallis.
 Dog-tooth Violet. See Erythronium.
 Erythronium Dens Canis. *Dog's-tooth Violet*. Italy, Siberia, Virginia. March. 5—6 inches. Purple varying to White.
 Fly Orchis. See Ophrys.
 Fritillaria imperialis. *Crown Imperial*. Persia? March and April. 2—3 feet. Red, yellow, &c.
 Fritillaria Meleagris. *Common Fritillary*. Europe, England. April and May. 9—12 inches. Yellow, white, purple.
 Fritillaria perfoliata. *Persian Fritillary or Lily*. Persia? April and May. 2—3 feet. Dark purple.
 Fritillaria pyrenaica. *Pyrenean Fritillary*. May. 18—24 inches. Dark purple.
 Galanthus nivalis. *Snowdrop*. Europe, Britain. Feb. and March.
 Garlick. See Allium.
 Gladiolus communis. *Common Corn-flag*. S. Europe. June and July. 18—24 inches. Red varying to flesh-colour and white.
 Harebells. See Scilla.
 Helleborine. See Serapias.
 Helonias asphodeloides. *Grass-leaved Helonias*. N. Amer. May and June. 18—24 inches. White.
 Helonias bullata. *Spear-leaved Helonias*. N. Amer. April and May. 12—18 inches. Purple.
 Hemerocallis flava. *Yellow Day Lily*. Siberia and Hungary. June. 2—3 feet.
 Hemerocallis fulva. *Copper-coloured Day Lily*. Levant. July and Aug. 3—4 feet.
 Hyacinthus amethystinus. *Amethyst-coloured Hyacinth*. Spain and Italy. April and May.
 Hyacinthus botryoides. *Blue Grape Hyacinth*. Italy. April 6—9 inches. Dark blue.
 Hyacinthus cernuus. *Nodding Hyacinth*. Spain. April and May. 9—12 inches. Purplish.
 Hyacinthus comosus. *Purple Grape Hyacinth*. S. Europe. May. 6—9 inches. Bluish purple.
 Hyacinthus Muscari. *Musk Hyacinth*. Levant. April and May. 5—6 inches. Bluish green.
 Hyacinthus monstrosus. *Feathered Hyacinth*. S. Europe. May and June. 5—6 inches. Bluish purple.
 Hyacinthus orientalis. *Garden Hyacinth*. Levant. March and April. 12—18 inches. White, red, blue, &c. Double.
 Hyacinthus racemosus. *Clustered Grape Hyacinth*. S. Europe. April. 6—9 inches. Pale blue.
 Hyacinthus romanus. *Roman Grape Hyacinth*. Italy. May.
 Hyacinthus ferotinus. *Late-flowering Hyacinth*. Spain and Barbary. June.
 Hypoxis erecta. *Upright Hypoxis*. N. Amer. June.
 Jonquill. See Narcissus.
 Iris aphylla. *Naked-stalked Iris or Flower-de-luce*. May and June. 2 feet. Purple and white stripes.
 Iris arenaria. *Sand Iris*. Hungary.
 Iris biflora. *Two-flowered Iris*. Portugal and Spain. April and May. 1 foot. Deep purple.
 Iris chinensis. *Chinese Iris*. June.
 Iris cristata. *Crested Iris*. N. Amer. May. Blue and yellow.
 Iris dichotoma. *Forked Iris*. Siberia. August.
 Iris flexuosa. *Zigzag Iris*. Siberia. June and July.
 Iris florentina. *Florentine Iris*. S. Europe. May. 18 inches. White.
 Iris foetidissima. *Stinking Iris or Gladwyn*. Europe, Britain. June. 12—18 inches. Dirty purple variegated.—Variety with striped leaves.
 Iris germanica. *German Iris*. May. 3 feet. Faint purple and light blue.

- Iris graminea*. *Grass-leaved Iris*. Austria. June. 9 inches. Purple and blue with yellow stripes.
- Iris halophila*. *Long-leaved Iris*. Siberia. July.
- Iris lurida*. *Dingy Iris*. S. Europe. June. Purple and yellow.
- Iris lutescens*. *Yellowish Iris*. Germany. April.
- Iris ochroleuca*. *Pale yellow Iris*. Levant. July.
- Iris pallida*. *Pale Iris*. Levant. May.
- Iris perfoliata*. *Persian Iris*. March. 4—5 inches. Pale blue variegated with dark purple and yellow.
- Iris pseudacorus*. *Yellow Iris or Flag*. Europe, Britain. June.
- Iris pumila*. *Dwarf Iris*. Austria. April. 5—6 inches. Pale purple, red, and variegated.
- Iris sambucina*. *Elder-scented Iris*. S. Europe. June. 3—4 feet. Pale blue.
- Iris sanguinea*. *Bloody Iris*. Siberia. May and June.
- Iris sibirica*. *Siberian Iris*. Siberia, Austria, Switzerland. May and June.
- Iris Sisyrychium*. *Crocus-rooted Iris*. Spain and Portugal. May. 9—12 inches. Purple with yellow.
- Iris spathacea*. *Sheathed Iris*. Cape. July.
- Iris spuria*. *Spurious Iris*. Germany. July. 18 inches. Pale blue and purple variegated.
- Iris squalens*. *Brown-flowered Iris*. Germany. June. 2 feet. Violet with soiled yellow.
- Iris fusiana*. *Chalcedonian Iris*. Levant. March and April. 18—24 inches. Black and white.
- Iris tenuifolia*. *Slender-leaved Iris*. Dauria. May and June.
- Iris tuberosa*. *Snake's-head Iris*. Arabia. March and April. 9—12 inches. Dark purple.
- Iris variegata*. *Variegated Iris*. Hungary. May and June. 9—12 inches. Yellow and brownish purple striped with white.
- Iris versicolor*. *Various-coloured Iris*. N. Amer. June. 1 foot. Pale blue and purple variegated with white.
- Iris virginica*. *Virginian Iris*. N. Amer. June. 1 foot. Deep blue with purple.
- Iris Xiphium*. *Bulbous-rooted Iris*. S. Europe. June. 12—18 inches.—Variety of beautiful colours.—Variety with a broader leaf.
- Ixia Bulbocodium*. *Crocus-leaved Ixia*. Alps. March and April.
- Lady's Slipper. See *Cypripedium*.
- Lady's Traces. See *Ophrys*.
- Leontice Thaliætrides*. *Columbine-leaved Leontice*. N. Amer. May.
- Leucoium æstivum*. *Summer Leucoium*. Europe, England. May and June. 12—18 inches. White.
- Leucoium autumnale*. *Autumnal Leucoium*. Portugal. September.
- Leucoium vernal*. *Spring Leucoium*. Germany, Switzerland, Italy. March. 8—12 inches. White edged with greenish yellow.
- Lilium bulbiferum*. *Orange-Lily*. Italy, Austria, Siberia. June and July. 18 inches to 3 feet and a half.
- Lilium camtschatcense*. *Kamtschatka Lily*. May. 12—18 inches. Dark yellow.
- Lilium canadense*. *Canadian Martagon Lily*. N. Amer. July and Aug. 3—4 feet. Yellow spotted with black.
- Lilium candidum*. *White Lily*. Levant. June and July. 3—4 feet. White.—Varieties, with variegated leaves, double flowers, and striped with purple.
- Lilium Catæbæi*. *Carolina Lily*. July and Aug.
- Lilium chalcidonicum*. *Scarlet Martagon Lily*. Levant. June and July. 2—3 feet.
- Lilium cordifolium*. *Heart-leaved Lily*. Japan. May—July.
- Lilium Martagon*. *Purple Martagon Lily*. Europe. June and July. Varieties, with double, white, and spotted flowers.
- Lilium philadelphicum*. *Philadelphian Martagon Lily*. N. Amer. July.
- Lilium pomponium*. *Pomponian Lily*. Siberia and the Pyrenees. May and June. 18—24 inches. Bright Red, Scarlet, and Yellow.
- Lilium superbum*. *Great Yellow Martagon Lily*. N. Amer. June and July. 4—5 feet. Orange with dark spots.
- Lily. See *Amaryllis*.
- Lily of the Valley. See *Convallaria*.
- Limodorum tuberosum*. *Tuberous-rooted Limodorum*. N. Amer. July.
- Melanthium lætum*. *Spear-leaved Melanthium*. N. Amer. June.
- Melanthium virginicum*. *Virginian Melanthium*. N. Amer. June and July. 12—18 inches. Greenish White.
- Moly. See *Allium*.
- Narcissus albus*. *White Narcissus*. Spain.
- Narcissus angustifolius*. *Narrow-leaved Narcissus*. Europe, Britain.
- Narcissus bicolor*. *Two-coloured Narcissus*. Spain. White and deep yellow.
- Narcissus biflorus*. *Two-flowered Narcissus*. Europe, Britain.
- Narcissus Bulbocodium*. *Hoop-petticoat Narcissus*. Portugal.
- Narcissus compressus*. *Flat-stalked Narcissus*. Spain.
- Narcissus crenulatus*. *Crenulated Narcissus*. Spain.
- Narcissus elatior*. *Tall Narcissus*. Portugal.
- Narcissus incomparabilis*. *Peerless Narcissus*. Portugal.
- Narcissus inflatus*. *Inflated Narcissus*. Spain.
- Narcissus Jonquilla*. *Jonquill*. Spain.—Variety, Double.
- Narcissus major*. *Great Narcissus*. Spain.
- Narcissus minor*. *Small Narcissus*. Spain. Yellow.
- Narcissus odoratus*. *Sweet-smelling Narcissus*. Portugal.
- Narcissus orientalis*. *Eastern Narcissus*. Levant.
- Narcissus poeticus*. *Poet's Narcissus*. Europe, Britain.
- Narcissus Pseudo-narcissus*. *Daffodil*. Europe, Britain.
- Narcissus Sibthorpii*. *Sibthorp's Narcissus*. Europe, Britain.
- Narcissus Tazetta*. *Polyanthus Narcissus*. Spain and Portugal. White or Yellow, many varieties.
- Narcissus tenuifolius*. *Slender-leaved Narcissus*. Spain.
- Narcissus tenuior*. *Slender Narcissus*. Spain.
- Narcissus tereticaulis*. *Round-stalked Narcissus*. Spain.
- Narcissus tortuosus*. *Twisting-flowered Narcissus*. Spain.
- Narcissus triandrus*. *Rush-leaved Narcissus*. Portugal. White.
- These bulbs flower from March to May.
- Ophrys anthropophora*. *Green Man Ophrys*. Britain. May.
- Ophrys apifera*. *Bee Ophrys*. Britain. June and July.
- Ophrys aranifera*. *Spider Ophrys*. Britain. April.
- Ophrys cordata*. *Heart-leaved Ophrys*. Britain. July.
- Ophrys lilifolia*. *Lily-leaved Ophrys*. N. Amer. June.
- Ophrys Loeselii*. *Loesel's Ophrys*. Britain. July.
- Ophrys Monorchis*. *Yellow or Musk Ophrys*. Britain. July.
- Ophrys muscifera*. *Fly Ophrys*. Britain. May and June.
- Ophrys Nidus avis*. *Bird's-nest Ophrys*. Britain. May.
- Ophrys ovata*. *Two-way-blade*. Britain. May and June.
- Ophrys spiralis*. *Triple Lady's-Traces*. Britain. August.
- Orchis bifolia*. *Butterfly Orchis*. Britain. May and June.
- Orchis ciliaris*. *Ciliated Orchis*. N. Amer. July.
- Orchis conopsea*. *Aromatic Orchis*. Britain. June.
- Orchis coriophora*. *Lizard Orchis*. England. June.
- Orchis fimbriata*. *Fringed Orchis*. Canada and Newfoundland. July.
- Orchis fusca*. *Brown Orchis*. Britain. June.
- Orchis militaris*. *Man Orchis*. England. May and June.
- Orchis pyramidalis*. *Pyramidal Orchis*. Britain. June and July.
- Orchis ustulata*. *Dwarf Orchis*. England. May and June.
- Ornithogalum luteum*. *Yellow Star of Bethlehem*. Europe, Britain. March and April.
- Ornithogalum minimum*. *Small Star of Bethlehem*. Sweden.
- Ornithogalum nutans*. *Neapolitan Star of Bethlehem*. Italy. April and May.
- Ornithogalum pyramidalis*. *Pyramidal Star of Bethlehem*. Spain and Portugal. June and July.
- Ornithogalum pyrenaicum*. *Pyrenean Star of Bethlehem*. Pyrenees, England. June and July.
- Ornithogalum stachyoides*. *Close-spiked Star of Bethlehem*. S. Europe. June and July.
- Ornithogalum striatum*. *Striped-flowered Star of Bethlehem*. Siberia. May.
- Ornithogalum umbellatum*. *Umbelled Star of Bethlehem*. Europe, England. May and June.
- Ornithogalum uniflorum*. *One-flowered Star of Bethlehem*. Siberia.
- Pancratium illyricum*. *Illyrian Pancratium*. S. Europe. May and June.
- Pancratium maritimum*. *Sea Pancratium*. S. Europe. May. White.
- Pontederia cordata*. *Heart-leaved Pontederia*. Virginia. July and August. Blue.
- Satyrion albidum*. *White Satyrion*. England. June and July.
- Satyrion hircinum*. *Lizard Satyrion*. England. June and July.
- Satyrion nigrum*. *Black-flowered Satyrion*. Switzerland, Austria, Lapland. June.
- Satyrion repens*. *Creeping Satyrion*. Scotland. August.
- Satyrion viride*. *Green or Frog Satyrion*. Europe, Britain. June and July.
- Scilla amoena*. *Nodding Squill*. Levant. March and April.
- Scilla autumnalis*. *Autumnal Squill*. England. August.
- Scilla bifolia*. *Two-leaved Squill*. France and Germany, England. March.
- Scilla campanulata*. *Bell-shaped Squill*. Spain. May and June.
- Scilla italica*. *Italian Squill*. April—June.
- Scilla lusitanica*. *Portugal Squill*. May.
- Scilla nutans*. *Hare-bell*. Europe, Britain. April—June.
- Scilla peruviana*. *Peruvian Squill*. Spain and Portugal. May and June.
- Scilla præcox*. *Early-flowering Squill*. April and May.
- Scilla verna*. *Small Squill*. England. June and July.
- Serapias ensifolia*. *Sword-leaved Helleborine*. July.
- Serapias grandiflora*. *Great-flowered Helleborine*. June.
- Serapias latifolia*. *Broad-leaved Helleborine*. July.
- Serapias latifolia*. *Broad-leaved Helleborine*. July.
- Serapias longifolia*. *Long-leaved Helleborine*. July.
- Serapias palustris*. *Marsh Helleborine*. July.
- Serapias rubra*. *Red-flowered Helleborine*. August.
- All natives of Britain.
- Sisyrychium anceps*. *Grass-leaved Sisyrychium*. Virginia. June and July.

- Sisyrinchium Bermudiana*. *Bermudian Sisyrinchium*. Bermuda. May and June.
- Sisyrinchium striatum*. *Yellow-flowered Sisyrinchium*. Mexico. June—Sept.
- Snow-drop. See *Galanthus*.
- Solomon's-seal. See *Convallaria*.
- Spider-wort. See *Tradescantia*.
- Squill. See *Scilla*.
- Star of Bethlehem. See *Ornithogalum*.
- Tradescantia virginica*. *Virginian Spiderwort*. Virginia and Maryland. May—Aug.
- Trillium cernuum*. *Drooping-flowered Trillium*.
- Trillium erectum*. *Upright-flowered Trillium*.
- Trillium sessile*. *Sessile-flowered Trillium*.
- All natives of North America; flowering in April and May.
- Tulipa gesneriana*. *Garden Tulip*. Levant. April and May. Innumerable varieties.
- Tulipa sylvestris*. *Yellow Tulip*. S. Europe. England. April and May.
- Twayblade. See *Ophrys*.
- Uvularia amplexifolia*. *Heart-leaved Uvularia*. Germany. May.
- Uvularia lanceolata*. *Spear-leaved Uvularia*. N. Amer. July.
- Uvularia perfoliata*. *Perfoliate Uvularia*. N. Amer. May.
- Uvularia sessilifolia*. *Sessile-leaved Uvularia*. N. Amer. June.
- HARDY HERBACEOUS PLANTS.
BIENNIAL.
- Æthusa Bunius*. *Coriander-leaved Fool's Parsley*. Pyrenees. July and Aug.
- Agrostemma coronaria*. *Rose Campion*. Italy. June—Sept. Red, White, Double.
- Alcea ficifolia*. *Fig-leaved Holly-hock*. Levant. June—Sept.
- Alcea rosea*. *Common Holly-hock*. China. July—Sept.
- Alsine mucronata*. *Bristly Chickweed*. S. Europe. June.
- Althæa hirsuta*. *Hairy Marsh Mallow*. S. Europe. June and July.
- Alyssum clypeatum*. *Shield-seeded Madwort*. S. Europe. June.
- Alyssum incanum*. *Hoary Madwort*. Europe. July—Sept.
- Alyssum maritimum*. *Sea or Sweet Madwort*. S. Europe. June—Nov.
- Alyssum sinuatum*. *Sinuate-leaved Madwort*. Spain. April—June.
- Andryala integrifolia*. *Hoary Andryala*. S. Europe. July and Aug.
- Anethum graveolens*. *Dill*. Spain and Portugal. June and July.
- Angelica Archangelica*. *Garden Angelica*. N. Europe. June—Aug.
- Angelica lucida*. *Shining-leaved Angelica*. Canada. July and Aug.
- Antirrhinum alpinum*. *Alpine Toad-flax*. Austria and Switzerland. July—Nov.
- Antirrhinum bellidifolium*. *Daisy-leaved Toad-flax*. France. June—Aug.
- Antirrhinum majus*. *Great or common Snap-dragon*. Europe, England. June—Aug. White, red, variegated, double, long-leaved.
- Antirrhinum spartcum*. *Branching Toad-flax*. Spain. June—Oct.
- Apium graveolens*. *Smallage*. Variety *Celeri*.
- Apium Petroselinum*. *Parsley*. Varieties, Curled and Large-rooted.
- Aquilegia alpina*. *Alpine Columbine*. Switzerland. May and June.
- Arabis turrata*. *Tower Wall-cress*. England. April and May.
- Arctium Lappa*. *Common Burdock*. Europe, Britain.
- Arctium Perfoliata*. *Cut leaved Burdock*. Austria and Switzerland. July and Aug.
- Arenaria ciliata*. *Ciliated Sandwort*. Iceland. March—Aug.
- Arenaria laricifolia*. *Larch-leaved Sandwort*. Europe, England. May—July.
- Arenaria tenuifolia*. *Slender-leaved Sandwort*. Europe, England. June and July.
- Astragalus depressus*. *Dwarf white-flowered Milk Vetch*. Europe. May and June.
- Beta Cicla*. *White Beet*. Portugal. August.
- Beta maritima*. *Sea Beet*. Europe, Britain. August.
- Beta vulgaris*. *Common or Garden Beet*. S. Europe. August. Red and Green Roots.
- Campanula cervicaria*. *Waved-leaved Bell-flower*. Sweden. July.
- Campanula Medium*. *Canterbury Bells*. Germany. June—Aug.
- Campanula patula*. *Spreading Bell-flower*. Europe, England. July and Aug.
- Campanula peregrina*. *Rough-leaved Bell-flower*. July.
- Campanula Rapunculus*. *Rampions*. Europe, England. July—Sept.
- Campanula fibrica*. *Siberian Bell-flower*. July.
- Campanula thyrsoidea*. *Long-spiked Bell-flower*. Germany. July.
- Carduus carlinoides*. *Pyrenean Thistle*. July and Aug.
- Carduus casabonæ*. *Fish Thistle*. S. Europe. June—Aug.
- Carduus eriophorus*. *Woolly-headed Thistle*. Europe, Britain. July.
- Some other species both of foreign and domestic Thistles are biennial.
- Carlina vulgaris*. *Common Carlina Thistle*. Europe, Britain. July—Sept.
- Carum Carui*. *Caraway*. Europe, Britain. May and June. This is generally marked as a biennial, but I have many plants which have continued with me 4 or 5 years, and promise to abide longer. Many plants commonly called biennial continue 3 or 4 years; and others are more properly annual, the limits are not always very distinct.
- Caucalis Anthriscus*. *Hedge Caulis*. Europe, Britain. August.
- Centaurea paniculata*. *Panicled Centaury*. Europe. July and Aug.
- Centaurea salmantica*. *Lyre-leaved Centaury*. S. Europe. July and Aug.
- Centaurea fenchifolia*. *Soft-thistle-leaved Centaury*. Coasts of the Mediterranean. Aug.—Oct.
- Centaurea splendens*. *Shining Centaury*. Spain and Siberia. July and Aug.
- Chærophyllum bulbosum*. *Bulbous-rooted Chærophyllum*. Europe. June and July.
- Chærophyllum temulum*. *Rough Cow-parsley*. Europe, Britain. July and Aug.
- Cheiranthus cuspidatus*. *Sharp-pointed Stock*. Taurica. August.
- Cheiranthus fenestralis*. *Clustered Stock*. June—Nov.
- Cheiranthus helveticus*. *Swiss Stock*. May and June.
- Cheiranthus incanus*. *Brompton Stock*. S. Europe. June—Nov.
- Cheiranthus littoreus*. *Small Sea Stock*. S. Europe. June—Nov.
- Cheiranthus quadrangularis*. *Square-podded Stock*. Siberia. June and July.
- Cheiranthus rostratus*. *Long-beaked Stock*. Siberia. August.
- Cheiranthus sinuatus*. *Great Sea Stock*. Britain. August.
- Cheiranthus taraxifolius*. *Dandelion-leaved Stock*. Siberia. June.
- Cichorium spinosum*. *Prickly Endive*. Candia and Sicily. July and Aug.
- Cnicus ferox*. *Prickly Cnicus*. S. Europe. July and Aug.
- Cochlearia anglica*. *English Scurvy-grass*.
- Cochlearia danica*. *Danish Scurvy-grass*. Britain. May and June.
- Cochlearia glastifolia*. *Wood-leaved Scurvy-grass*. Germany. June and July.
- Cochlearia groenlandica*. *Greenland Scurvy-grass*.
- Cochlearia officinalis*. *Officinal Scurvy-grass*. Britain. May and June.
- Conium maculatum*. *Common Henlock*. Europe, Britain. June and July.
- Conyza squarrosa*. *Plowman's Spikenard*. Europe, Britain. July and Aug.
- Crepis biennis*. *Biennial Crepis*. Europe, England. July and Aug.
- Cynoglossum apenninum*. *Apennine Hound's-tongue*. Italy. April—June.
- Cynoglossum cheirifolium*. *Stock-leaved Hound's-tongue*. Spain. July and Aug.
- Cynoglossum officinale*. *Officinal or common Hound's-tongue*. Europe, Britain. May—Sept.
- Cynoglossum pictum*. *Painted Hound's-tongue*. Madeira. July and Aug.
- Cynoglossum sylvaticum*. *Wood Hound's-tongue*. Europe, Britain. May and June.
- Cynoglossum virginicum*. *Virginian Hound's-tongue*. N. Amer. July.
- Daucus Carota*. *Common Carrot*. Europe, Britain. June and July.
- Delphinium Staplisagria*. *Stavesacre*. S. Europe. April—Aug.
- Dianthus Armeria*. *Deptford Pink*. Britain. July—Aug.
- Dianthus Chinenfis*. *China Pink*. July—Sept.
- Dianthus ferrugineus*. *Rusty Pink*. Italy. July and Aug.
- Dianthus superbus*. *Fringed Pink*. Europe. July—Sept.
- Digitalis purpurea*. *Common or purple Fox-glove*. Europe, Britain. June and July.—Variety, White.
- Dipsacus fullonum*. *Fuller's Teasel*. Europe. June and July.
- Dipsacus laciniatus*. *Jagged-leaved Teasel*. Germany. June and July.
- Dipsacus pilosus*. *Hairy or small Teasel*. Europe, Britain. August.
- Dipsacus sylvestris*. *Wild Teasel*. Britain. June and July.
- Draba incana*. *Hoary Whitlow-grass*. N. Europe. May and June.
- Drypis spinosa*. *Prickly Drypis*. Barbary and Italy. June and July.
- Echium italicum*. *Wall Viper's Bugloss*. Europe, England. July and Aug.
- Echium vulgare*. *Common Viper's Bugloss*. Europe, Britain. July and Aug.
- Gaura biennis*. *Biennial Gaura*. N. Amer. Aug.—Oct.
- Glycine debilis*. *Hairy Glycine*. E. Indies. June and July.

- Gnaphalium foetidum*. Strong-scented Everlasting. Cape. June—Sept.
- Gnaphalium luteo-album*. Jersey Everlasting or Cudweed. July and Aug.
- Gnaphalium obtusifolium*. Blunt-leaved Everlasting. N. Amer. July—Sept.
- Gypsophila muralis*. Wall Gypsophila. Sweden, Germany, and Switzerland. June—Oct.
- Hedysarum coronarium*. French Honeysuckle. Italy. June and July.
- Hesperis trititis*. Night-smelling Rocket. Austria and Hungary. April—June.
- Hyoscyamus niger*. Common or Black Henbane. Europe, Britain. June.
- Hypochaeris pontana*. Endive-leaved Hypochaeris. S. Europe. June and July.
- Ifatis tinctoria*. Dyer's Wood. Europe, Britain. May and June.
- Lactuca canadensis*. Canadian Lettuce. Aug. and Sept.
- Lactuca virosa*. Strong-scented Lettuce. Europe, Britain. Aug. and Sept.
- Lasierpitium lucidum*. Shining Lasierwort. Switzerland. July.
- Lavatera arborea*. Tree Mallow. Europe, Britain. Aug.
- Leonurus fibricus*. Siberian Motherwort. May and June.
- Leonurus tataricus*. Tartarian Motherwort. August.
- Ligusticum peregrinum*. Parsley-leaved Lovage. Portugal. June and July.
- Linum narbonense*. Narbonne Flax. S. Europe. May—July.
- Linum strictum*. Upright Flax. S. Europe. May.
- Lycophis pulla*. Dark-flowered wild Bugloss. Germany. June and July.
- Lysimachia dubia*. Purple-flowered Loosestrife. Levant. July and Aug.
- Monarda punctata*. Spotted Monarda. N. Amer. June—Oct.
- Oenanthe globulosa*. Globular-headed Water Dropwort. Portugal. June and July.
- Oenothera biennis*. Tree Primrose. N. Amer. June—Sept.
- Oenothera grandiflora*. Great-flowered Oenothera. N. Amer. July, Aug.
- Oenothera longiflora*. Long-flowered Oenothera. Buenos Ayres. July, Aug.
- Oenothera muricata*. Prickly-stalked Oenothera. N. Amer. July, Aug.
- Oenothera odorata*. Sweet-scented Oenothera. Patagonia. June—Oct.
- Oenothera parviflora*. Small-flowered Oenothera. N. Amer. July, Aug.
- Onopordum Acanthium*. Common Cotton-Thistle. Europe, Britain. July, Aug.
- Onopordum acaulon*. Dwarf Cotton-Thistle. July, Aug.
- Onopordum arabicum*. Arabian Cotton-Thistle. S. Europe. July, Aug.
- Onopordum illyricum*. Illyrian Cotton-Thistle. S. Europe. July, Aug.
- Onopordum macroanthium*. Long-spined Cotton-Thistle. Barbary. July, Aug.
- Onopordum tauricum*. Siberian Cotton Thistle. July, Aug.
- Pastinaca lucida*. Shining-leaved Parsnep. S. Europe. June and July.
- Pastinaca sativa*. Garden Parsnep. Europe. England. July.
- Ranunculus pensylvanicus*. Pennsylvanian Crowfoot. N. Amer. June.
- Salvia ceratophylla*. Stag's-horn-leaved Sage. Persia. July and Aug.
- Salvia ceratophylloides*. Branching Sage. Egypt. June—Aug.
- Salvia pinnata*. Wing-leaved Sage. Levant. July.
- Salvia sclarea*. Clary. Syria. July and Aug.
- Scabiosa atropurpurea*. Sweet Scabious. July and Aug.
- Scabiosa ciliata*. Ciliated Scabious. July.
- Scabiosa tatarica*. Tartarian Scabious. July.
- Scorzonera laciniata*. Jagged-leaved Viper's-grass. S. Europe. June—Aug.
- Scorzonera muricata*. Prickly Viper's-grass. June—Aug.
- Scorzonera refedifolia*. Spreading Viper's-grass. Spain. June and July.
- Scrophularia vernalis*. Yellow Figwort. England. March—May.
- Seseli Pallasii*. Fine-leaved Meadow Saxifrage. Siberia. July.
- Seseli tortuosum*. Hard Meadow Saxifrage. S. Europe. October.
- Silene bupleuroides*. Spear-leaved Catchfly. Persia. June and July.
- Silene viridiflora*. Green-flowered Catchfly. Spain and Portugal. June and July.
- Sinapis incana*. Hoary Mustard. S. Europe. July.
- Sinapis pubescens*. Pubescent Mustard. Sicily. July.
- Sison Amomum*. Common Honewort. Europe, England. July and Aug.
- Sison fegetum*. Hedge Honewort. Europe, England. July and Aug.
- Sisymbrium arenosum*. White-flowered Sisymbrium. Germany. June and July.
- Smyrniolum Olusatrum*. Common Alexanders. Europe, Britain. May and June.
- Smyrniolum perfoliatum*. Perfoliate Alexanders. Candia and Italy. May.
- Tencrium campanulatum*. Small-flowered Germander. Levant. July and Aug.
- Teucrium supinum*. Procumbent Germander. Austria. June—Oct.
- Thlaspi hirtum*. Hairy Bastard-Creeps. Europe, Britain. June and July.
- Thlaspi incanum*. Downy Bastard-Creeps. Europe, Britain. July.
- Thlaspi saxatile*. Rock Bastard-Creeps. S. Europe. July.
- Thymus patavinus*. Great-flowered Thyme. Hungary. June—Aug.
- Trachelium caeruleum*. Blue Throatwort. Italy. July—Sept.
- Tragopogon crocifolius*. Crocus-leaved Goat's-beard. S. Europe. June and July.
- Tragopogon major*. Great Goat's-beard. Austria. May and June.
- Tragopogon orientalis*. Eastern Goat's-beard. Levant. June and July.
- Tragopogon porrifolius*. Purple Goat's-beard. Europe, England. May and June.
- Tragopogon pratensis*. Yellow Goat's-beard. Europe, Britain. June.
- Tragopogon villosus*. Villous Goat's-beard. Spain. May and June.
- Tragopogon virginicus*. Virginian Goat's-beard. July and Aug.
- Tragopogon undulatus*. Wave-leaved Goat's-beard. May and June.
- Trifolium dentatum*. Toothed Trefoil. Hungary. June—Aug.
- Trifolium maritimum*. Sea Trefoil. Britain. June and July.
- Trifolium officinale*. Melilot. Europe, Britain. August.
- Trifolium spadiceum*. Pale-flowered Trefoil. Europe. June—Aug.
- Trigonella platycarpus*. Flat-podded Fenugreek. Siberia. June—Sept.
- Turritis glabra*. Smooth Tower Mustard.
- Turritis hirsuta*. Hairy Tower Mustard.
- Both Europe, Britain. May and June.
- Verbascum Blattaria*. Moth Mullein. Europe, Britain. June—Aug.
- Verbascum Lychnitis*. White Mullein. Europe, Britain. June—Aug.
- Verbascum Olbeckii*. Great-flowered Mullein. Spain. July and Aug.
- Verbascum phlomoides*. Woolly Mullein. Italy. June and July.
- Verbascum phoeniceum*. Purple Mullein. S. Europe. May—July.
- Verbascum pulverulentum*. Powdered Mullein. Europe, Britain. July and Aug.
- Verbascum sinuatum*. Scolloped Mullein. S. Europe. June—Aug.
- Verbascum Thapsoides*. Bastard Mullein. Europe, England. July and Aug.
- Verbascum Thapsus*. Common or broad-leaved Mullein. Europe, Britain. July and Aug.
- Verbascum virgatum*. Slender Mullein. Europe, Britain. June—Aug.
- Verbena Aubletia*. Cut-leaved Rose Vervain. N. Amer. May—Aug.
- Verbena bonariensis*. Buenos-Ayres Vervain. July, Aug.
- Verbena officinalis*. Official Vervain. Europe, Britain. June—Sept.
- Vicia biennis*. Biennial Vetch. Siberia. July and Aug.

HARDY HERBACEOUS PLANTS.

ANNUAL.

- Adonis autumnalis*. Common Flos Adonis. Europe, England. June and July.
- Adonis miniata*. Spotted-flowered Adonis. Germany. June and July.
- Ageratum Conyzoides*. Hairy Ageratum. America. July and Aug.
- Agrostemma Cælirofa*. Smooth-leaved Rose Campion. Sicily. July.
- Agrostemma nicæensis*. Italian Rose Campion. Italy. June.
- Amaranthus albus*. White Amaranth. N. Amer. July and Aug.
- Amaranthus Blitum*. Least Amaranth, or Blite. Europe, England. August.
- Amaranthus caudatus*. Pendulous Amaranth, or Love lies a bleeding. E. Indies. Aug. and Sept.
- Amaranthus græcizans*. Pellitory-leaved Amaranth. N. Amer. July—Sept.
- Amaranthus hybridus*. Clustered Amaranth. Virginia. June—Sept.
- Amaranthus hypochondriacus*. Prince's Feather. Virginia. July—Sept.
- Amaranthus lividus*. Livid Amaranth. N. Amer. July—Sept.
- Amaranthus oleraceus*. Eatable Amaranth. E. Indies. July.
- Amaranthus retroflexus*. Hairy Amaranth. Pennsylvania. July—Sept.

Amaranthus

- Amaranthus tristis*. Round-headed Amaranth. China. June—Aug.
- Amaranthus viridis*. Green Amaranth. Europe and Brasil. Aug. and Sept.
- Ambrosia artemisiifolia*. Mugwort-leaved Ambrosia. N. Amer.
- Ambrosia elatior*. Tall Ambrosia. N. Amer.
- Ambrosia maritima*. Sea Ambrosia. Italy and the Levant.
- Ambrosia trifida*. Trifid-leaved Ambrosia. N. Amer.
- These all flower in July and August.
- Amethystea cærulea*. Blue Amethyst. Siberia. June and July.
- Ammannia ramosior*. Branching Ammannia. Virginia. July.
- Ammi copticum*. Prickly-seeded Bishop's-weed. Egypt. July.
- Ammi majus*. Common Bishop's-weed. S. Europe. June and July.
- Anacyclus aureus*. Golden-flowered Anacyclus. S. Europe and Levant.
- Anacyclus creticus*. Trailing Anacyclus. Candia. July.
- Anacyclus valentinus*. Fennel-leaved Anacyclus. Spain. June and July.
- Anagallis arvensis*. Corn Pimpernel. Europe, Britain. June—Sept. Red, Blue and White.
- Anagallis latifolia*. Broad-leaved Pimpernel. Spain. July.
- Anastatica hierochuntica*. Common Anastatica, or Rose of Jericho. Levant. June.
- Anastatica syriaca*. Syrian Anastatica. Austria and Levant. July and Aug.
- Andrachne Telephoides*. Bastard Orpine. Italy and Levant. July and Aug.
- Androsace Bocconii*. Small Androsace. July.
- Androsace elongata*. Cluster-flowered Androsace. Austria. March—June.
- Androsace maxima*. Oval-leaved Androsace. Austria. March—June.
- Androsace septentrionalis*. Tooth-leaved Androsace. N. Europe. April and May.
- Anthemis altissima*. Tall Chamomile. S. Europe. August.
- Anthemis chia*. Cut-leaved Chamomile.
- Anthemis mixta*. Simple-leaved Chamomile. France and Italy. July.
- Anthemis valentina*. Purple-stalked Chamomile. S. Europe. July and Aug.
- Anthyllis tetraphylla*. Four-leaved Anthyllis or Kidney-Vetch. S. Europe. July.
- Antirrhinum ægyptiacum*. Egyptian Toad-flax. July.
- Antirrhinum arvense*. Corn Toad-flax. Europe, England. July and Aug. Blue and Yellow.
- Antirrhinum bipunctatum*. Dotted-flowered Toad-flax. Spain and Italy. June—Aug.
- Antirrhinum chalcopense*. White-flowered Toad-flax. Levant. June and July.
- Antirrhinum cirrhosum*. Tendrilled Toad-flax. Egypt. July.
- Antirrhinum hirtum*. Hairy Toad-flax. Spain. June—Sept.
- Antirrhinum junceum*. Rush-stalked Toad-flax. Spain. July.
- Antirrhinum multicaule*. Many-stalked Toad-flax. Sicily and Levant. May—July.
- Antirrhinum Orontium*. Small Toad-flax or Calf's-snout. Europe, England. July—Sept.
- Antirrhinum pelisserianum*. Violet-coloured Toad-Flax. France and Italy. June and July.
- Antirrhinum supinum*. Procumbent Toad-flax. Spain. July.
- Antirrhinum triphyllum*. Three-leaved Toad-flax. Sicily. June—Sept.
- Antirrhinum versicolor*. Spiked-flowered Toad-flax. S. Europe. June—Sept.
- Antirrhinum viscosum*. Clammy Snap-dragon. Spain. July.
- Argemone mexicana*. Prickly Poppy. Mexico. July and Aug.
- Artemisia annua*. Annual Wormwood. Siberia. July and Aug.
- Asperula arvensis*. Field Woodroof. France and Germany. July.
- Aster annuus*. American annual Starwort. N. Amer. July—Sept.
- Aster chinensis*. Chinese Aster. July and Aug.
- Astragalus boeoticus*. Triangular-podded Milk-Vetch. Sicily, Spain and Portugal. June and July.
- Astragalus contortuplicatus*. Wave-podded Milk-Vetch. Siberia. July and Aug.
- Astragalus epiglottis*. Heart-podded Milk-Vetch. S. France, Spain, and Levant. June and July.
- Astragalus Glaux*. Small Milk-Vetch. Spain. June and July.
- Astragalus hamosus*. Dwarf yellow-flowered Milk-Vetch. France and Sicily. June and July.
- Astragalus sesameus*. Starry Milk-Vetch. France and Italy. June and July.
- Astragalus trimestris*. Egyptian Milk-Vetch. Egypt. June and July.
- Athamanta annua*. Annual Spignel. Candia. July.
- Atractylis cancellata*. Netted Atractylis. S. Europe. June and July.
- Atriplex hortensis*. Garden Orache. Tartary. July and Aug.—White and Red.—There are many wild species.
- Axyris Amaranthoides*. Simple-spiked Axyris. Siberia. June and July.
- Baltimora recta*. Upright Baltimora. Maryland. June and July.
- Bellis annua*. Annual Daisy. Spain and S. France.
- Bellium minutum*. Dwarf Bellium or Bastard Daisy. Levant. June—Oct.
- Bidens bipinnata*. Hemlock-leaved Bidens. N. Amer. July and Aug.
- Bidens bullata*. Various-leaved Bidens. America. July—Sept.
- Bidens frondosa*. Smooth-stalked Bidens. N. Amer. July and Aug.
- Bidens pilosa*. Hairy Bidens. America. July.
- Three annual species are wild in England.
- Biscutella apula*. Spear-leaved Biscutella. Italy. June and July.
- Biscutella auriculata*. Ear-podded Biscutella. France and Italy. June and July.
- Biscutella lævigata*. Smooth Biscutella. Austria and Italy. June and July.
- Biserrula Pelecinus*. Bastard Hatchet-Vetch. S. Europe. July and Aug.
- Blitum capitatum*. Berry-headed Strawberry-Blite. Austria. May—Aug.
- Blitum virgatum*. Slender-branched Strawberry-Blite. France, Spain, and Tartary. May—Sept.
- Borago officinalis*. Common Borage. June—Sept.
- Brassica campestris*. Field Cabbage. England. June.
- Brassica chinensis*. Chinese Cabbage. July.
- Brassica orientalis*. Perfoliate Cabbage. England. June.
- Briza Eragrostis*. Branched Quaking-grass. S. Europe. July and Aug.
- Briza maxima*. Great Quaking-grass. S. Europe. June and July.
- Briza virens*. Spanish Quaking-grass. Spain. July.
- Bunias ægyptiaca*. Egyptian Bunias. August.
- Bunias balearica*. Minorca Bunias. June and July.
- Bunias Cakile*. Sea Bunias. Europe, Britain. June and July.
- Bunias Erucago*. Prickly-podded Bunias. Austria and S. France. June and July.
- Bupthalmum aquaticum*. Sweet-scented Ox-eye. S. Europe. July and Aug.
- Bupthalmum spinosum*. Prickly Ox-eye. Spain and Italy. July—Sept.
- Bupleurum junceum*. Linear-leaved Hare's-ear. France and Italy. July and Aug.
- Bupleurum odontites*. Narrow-leaved Hare's-ear. Switzerland and Italy. June—Aug.
- Bupleurum rotundifolium*. Round-leaved Hare's-ear, or Thorne-wax. Europe, England. June and July.
- Bupleurum semicompositum*. Dwarf Hare's-ear. Spain. July and Aug.
- Bupleurum tenuissimum*. Least Hare's-ear. Europe, England. July and Aug.
- Calendula arvensis*. Field Marygold. Europe. May—Sept.
- Calendula hybrida*. Great Cape Marygold. June—Aug.
- Calendula officinalis*. Common Marygold. S. Europe. June—Sept.
- Calendula pluvialis*. Small Cape Marygold. June—Aug.
- Calendula sancta*. Pale-flowered Marygold. Levant. May—Sept.
- Calendula stellata*. Star-seeded Marygold. June—Sept.
- Campanula americana*. American Bell-flower. Pennsylvania. July.
- Campanula Erinus*. Forked Bell-flower. Spain, Italy, S. France. July and Aug.
- Campanula hybrida*. Corn Bell-flower. Europe, England. May—July.
- Campanula Lobelioides*. Small-flowered Bell-flower. Madeira. July and Aug.
- Campanula perfoliata*. Perfoliate Bell-flower. N. Amer. June.
- Campanula Speculum*. Venus's Looking-glass. S. Europe. May—July.
- Cannabis sativa*. Common Hemp. India. June and July.
- Cardamine hirsuta*. Hairy Lady's Smock. Europe, Britain. April—Aug.
- Cardamine impatiens*. Impatient Lady's Smock. Europe, Britain. April.
- Cardamine parviflora*. Small-flowered Lady's Smock. Europe, England. March—May.
- Carduus arvensis*. Arabian Thistle. July.
- Carduus argentatus*. White Thistle. Egypt. July and Aug.
- Carduus austriacus*. Thorny Thistle. Sicily. June and July.
- Carduus leucographus*. Long-stalked Thistle. Italy. July.
- Carduus marianus*. Milk Thistle. Europe, Britain. July.
- Carduus stellatus*. Starry Thistle. S. Europe. June—Aug.
- Carduus syriacus*. Syrian Thistle. Spain and Levant. July and Aug.
- Carlina lanata*. Woolly Carlina Thistle. S. Europe. June and July.
- Carthamus creticus*. Cretan Carthamus. Candia. June and July.
- Carthamus lanatus*. Woolly Carthamus. S. Europe. July and Aug.
- Carthamus tinctorius*. Bastard Saffron. Egypt. June and July.
- Catananche lutea*. Yellow Catananche. Candia. June and July.

- Caucalis daucoides*. *Carrot-leaved Caucalis*. Europe, Britain. July and Aug.
- Caucalis grandiflora*. *Great-flowered Caucalis*. S. Europe. July and Aug.
- Caucalis latifolia*. *Broad-leaved Caucalis*. Europe, England. July and Aug.
- Caucalis leptophylla*. *Fine-leaved Caucalis*. Europe. July and Aug.
- Caucalis nodosa*. *Knotted Caucalis*. Europe, Britain. May—Aug.
- Caucalis platycarpus*. *Large-seeded Caucalis*. S. Europe. July and Aug.
- Celsia orientalis*. *Cut-leaved Celsia*. Levant. July and Aug.
- Centaurea alexandrina*. *Dwarf Centaury*. Egypt. June—Oct.
- Centaurea Behen*. *Serrate-leaved Centaury*. Levant. July and Aug.
- Centaurea benedicta*. *Blessed Thistle*. Spain. June—Sept.
- Centaurea Calcitrapa*. *Star Thistle*. Europe, Britain. July and Aug.
- Centaurea Crocodilium*. *Blush Centaury*. Levant. July and Aug.
- Centaurea crupina*. *Black-seeded Centaury*. S. Europe. June and July.
- Centaurea Cyanus*. *Blue-bottle*. Europe, Britain. June—Aug.
- Centaurea elongata*. *Long-stalked Centaury*.
- Centaurea eriophora*. *Woolly-headed Centaury*. Portugal. June—Sept.
- Centaurea galactites*. *White-veined Centaury*. S. Europe. July and Aug.
- Centaurea Lippii*. *Lippi's Centaury*. Egypt. July—Oct.
- Centaurea melitenensis*. *Cluster-headed Centaury*. Malta. July and Aug.
- Centaurea moschata*. *Sweet Sultan*. Persia. July—Oct.
- Centaurea muricata*. *Purple-flowered Centaury*. Spain. July and Aug.
- Centaurea napifolia*. *Turnep-leaved Centaury*. Candia. July and Aug.
- Centaurea ficula*. *Brown-spined Centaury*. Sicily. July and Aug.
- Centaurea foliitalis*. *St. Barnaby's Thistle*. Europe, Britain. July and Aug.
- Centaurea Verutum*. *Long-spined Centaury*. Levant. July and Aug.
- Cerastium dichotomum*. *Forked Cerastium*. Spain. June.
- Cerastium perfoliatum*. *Perfoliate Cerastium*. Greece. June.
- Cerinth aspera*. *Rough Honeywort*. S. Europe. July and Aug.
- Cerinth major*. *Great Honeywort*. Siberia. July and Aug.
- Cerinth minor*. *Small Honeywort*. Austria. June—Oct.
- Chelidonium corniculatum*. *Red Celandine or Hornea Poppy*. Europe, England. June and July.
- Chelidonium hybridum*. *Violet-coloured Celandine or Horned Poppy*.
- Chenopodium ambrosioides*. *Mexican Goosefoot*. June—Oct.
- Chenopodium arifolium*. *Bearded Goosefoot*. Virginia. August.
- Chenopodium Atriplicis*. *Purple Goosefoot*. China. August.
- Chenopodium Botrys*. *Cut-leaved Goosefoot*. S. Europe. June—Sept.
- Chenopodium guineense*. *Guinea Goosefoot*. August.
- Chenopodium Scoparia*. *Summer Cypress*. Greece. June—Aug.
- Chlora perfoliata*. *Yellow-wort, or Perfoliate Centaury*. Europe, Britain. June and July.
- Chrysanthemum coronarium*. *Garden Chrysanthemum*. Candia and Sicily. July—Sept.—Yellow, white, double.
- Chrysanthemum Myconis*. *Tongue-leaved Chrysanthemum*. Italy. June and July.
- Chrysanthemum fegetum*. *Corn Marygold*. Europe, Britain. June and July.
- Chrysanthemum tricolorum*. *Three-coloured Chrysanthemum*. Barbary. July—Oct.
- Cicer arietinum*. *Chick Pea*. S. Europe and Levant. July and Aug.
- Cichorium divaricatum*. *Branching Endive*. Barbary. July and Aug.
- Cichorium Endivia*. *Garden Endive*. China. July and Aug.
- Cichorium pumilum*. *Dwarf Endive*. July and Aug.
- Cistus ægyptiacus*. *Egyptian Cistus*. June and July.
- Cistus guttatus*. *Annual spotted-flowered Cistus*. Europe, England. June and July.
- Cistus ledifolius*. *Ledum-leaved Cistus*. S. France. June and July.
- Cistus falcifolius*. *Willow-leaved Cistus*. Spain. June and July.
- Cleome violacea*. *Violet-coloured Cleome*. Portugal. June and July.
- Cleonia lusitanica*. *Sweet-scented Cleonia*. Spain and Portugal. June and July.
- Clypeola Jonthlaspi*. *Annual Treacle Mustard*. France and Italy. May—July.
- Cnicus Acarna*. *Yellow Cnicus*. Spain. July—Sept.
- Commelina communis*. *Common American Commelina*. America. June and July.
- Convolvulus hederaceus*. *Ivy-leaved Bindweed*. Asia, Africa, America. June and July.
- Convolvulus Nil.* *Azure-blue Bindweed*. America. July and Aug.
- Convolvulus purpureus*. *Purple Bindweed*. America. July and Aug.
- Convolvulus fibricus*. *Siberian Bindweed*. July and Aug.
- Convolvulus ficulus*. *Small-flowered Bindweed*. S. Europe. June—Aug.
- Convolvulus spithameus*. *Small Bindweed*. Virginia. Aug. and Sept.
- Convolvulus tricolor*. *Three-coloured Bindweed*. Spain. June—Aug.
- Coriandrum fativum*. *Common Coriander*. Europe, England. June.
- Coriandrum testiculatum*. *Small Coriander*. S. Europe. June and July.
- Corispermum hyssopifolium*. *Hyssop-leaved Tick-feed*. S. France and Russia. July.
- Corispermum squarrosum*. *Rough-spiked Tick-feed*. Russia. Aug. and Sept.
- Coronilla cretica*. *Cretan Coronilla*. Candia. June and July.
- Coronilla Securidaca*. *Hatebet-Vetch*. Spain. July and Aug.
- Corrigiola littoralis*. *Bastard Knot-grass*. Europe, England. July and Aug.
- Crambe hispanica*. *Spanish Colewort*. Spain. June and July.
- Crassula rubens*. *Hardy annual Crassula*. Switzerland and Italy. May and June.
- Crassula verticillaris*. *Whorl-flowered Crassula*. July.
- Crepis alpina*. *Alpine Crepis*. Italy. July.
- Crepis aspera*. *Rough Crepis*. S. Europe. June and July.
- Crepis barbata*. *Bearded Crepis*. S. Europe. June and July.
- Crepis Dioscoridis*. *Dioscorides' Crepis*. France. June and July.
- Crepis hispida*. *Hispid Crepis*. Morocco. June and July.
- Crepis rubra*. *Red Crepis*. Italy. June and July.
- Crepis fucculenta*. *Fleshy Crepis*. Madeira. June—Aug.
- Crepis tectorum*. *Smooth Crepis*. Europe, Britain. June—Sept.
- Crepis virens*. *Green Crepis*. S. Europe. June and July.
- Croton tinctorium*. *Officinal Croton*. Spain and S. France. July.
- Crucianella angustifolia*. *Narrow-leaved Crosswort*. S. Europe. July.
- Crucianella latifolia*. *Broad-leaved Crosswort*. S. Europe. July.
- Crucianella patula*. *Spreading Crosswort*. Spain. July.
- Cuminum Cuminum*. *Cumin*. Egypt. June and July.
- Cunila pulegioides*. *Pennyroyal-leaved Cunila*. N. Amer. August.
- Cynoglossum linifolium*. *Venus's Navelwort*. Portugal. June and July.
- Daucus Gingidium*. *Shining Carrot*. S. France. June and July.
- Daucus mauritanicus*. *Fine-leaved Carrot*. Spain. June and July.
- Daucus maricatus*. *Prickly-seeded Carrot*. Barbary. June and July.
- Daucus Visnaga*. *Spanish Pick-tooth*. S. Europe. June—Aug.
- Delphinium Ajacis*. *Upright Larkspur*. Switzerland. June and July.—Various colours, single and double.
- Delphinium Consolida*. *Branching Larkspur*. Europe, England. June and July. Blue, red, white, &c.
- Dianthus prolier*. *Proliferous Pink*. Europe, England. July and Aug.
- Dracocephalum canescens*. *Hoary Dragon's-head*. Levant. July and Aug.
- Dracocephalum Moldavica*. *Moldavian Dragon's-head or Balm*.
- Dracocephalum peltatum*. *Willow-leaved Dragon's-head*. Levant. July and Aug.
- Dracocephalum thymiflorum*. *Thyme-flowered Dragon's-head*. Siberia. June—Sept.
- Echinops strigosus*. *Annual Globe Thistle*. Spain. July and Aug.
- Echium creticum*. *Cretan Viper's-Bugloss*. Levant. July and Aug.
- Echium lusitanicum*. *Portugal Viper's-Bugloss*. S. Europe. July and Aug.
- Echium orientale*. *Oriental Viper's-Bugloss*. Levant. July.
- Echium parviflorum*. *Small-flowered Viper's-Bugloss*. Barbary. July and Aug.
- Echium plantagineum*. *Plantain-leaved Viper's-Bugloss*. S. Europe. July and Aug.
- Echium rubrum*. *Red Viper's-Bugloss*. Austria. July and Aug.
- Echium violaceum*. *Violet-flowered Viper's-Bugloss*. S. Europe. July and Aug.
- Ellisia Nyctelea*. *Cut-leaved Ellisia*. Virginia. July and Aug.
- Erigeron bonariense*. *Buck's-horn Erigeron*. S. Amer. July and Aug.
- Erigeron canadense*. *Canadian Erigeron*. N. Amer. and England. Aug. and Sept.
- Erigeron Gouani*. *Cluster-flowered Erigeron*. Canary islands. July and Aug.

- Erigeron ficulum*. Red-stalked Erigeron. Sicily. Aug. and Sept.
Erodium ciconium. Long-beaked Crane's-bill. S. Europe. June and July.
Erodium cicutarium. Hemlock-leaved Crane's-bill. Europe, Britain. April—Sept.
Erodium gruinum. Broad-leaved annual Crane's-bill. Candia. June and July.
Erodium malacoides. Mallow-leaved Crane's-bill. S. Europe. May—July.
Erodium moschatum. Musk Crane's-bill. Europe, England. May—July.
Erodium romanum. Roman Crane's-bill. Italy. May and June.
Ervum Ervilia. Official Tare. France, Italy, and Levant. June.
Ervum hirsutum. Hairy Tare. Europe, Britain. June.
Ervum Lens. Lentil. France. May and June.
Ervum monanthos. One-flowered Tare or Lentil. Russia. May and June.
Ervum solonense. Spring Tare. France. April and May.
Ervum tetraspermum. Smooth Tare. Europe, Britain. May and June.
Erysimum angustifolium. Narrow-leaved Hedge Mustard. Hungary. July and Aug.
Erysimum cheiranthoides. Treacle Worm-feed. Europe, Britain. July and Aug.
Erysimum diffusum. Diffuse Hedge-Mustard. Hungary. July and Aug.
Erysimum odoratum. Sweet-scented Hedge-Mustard. Hungary. July and Aug.
Erysimum officinale. Common Hedge-Mustard. Europe, Britain. May.
Erysimum repandum. Spreading Hedge-Mustard. Spain and Austria. May and June.
Euphorbia Chamæsyce. Crenated annual Spurge. S. Europe. Siberia. July.
Euphorbia maculata. Spotted Spurge. America. July.
 Several Annual Spurges are natives of Britain, but are considered as Weeds.
Euphrasia Odontites. Red Eye-bright. Europe, Britain. July—Sept.
Euphrasia officinalis. Common Eye-bright. Europe, Britain. July—Sept.
Frankenia pulverulenta. Mealy Frankenia. Europe, England. July.
Fumaria capnoides. White-flowered Fumitory. S. Europe. May—Oct.
Fumaria capreolata. Ramping Fumitory. Europe, Britain. May—Aug.
Fumaria claviculata. Climbing Fumitory. Europe, Britain. June and July.
Fumaria officinalis. Common Fumitory. Europe, Britain. May—Aug.
Fumaria sempervirens. Glaucous Fumitory. N. Amer. July and Aug.
Fumaria spicata. Narrow-leaved Fumitory. S. Europe. July and Aug.
Galeopsis Ladanum. Red Dead-Nettle. Europe, England. July and Aug.
Galeopsis Tetrahit. Common Dead-Nettle. Europe, Britain. August.
Galeopsis verficolor. Various-coloured Dead-Nettle. Europe, Britain. August.
Galeopsis villosa. Yellow-flowered Dead-Nettle. Europe, Britain. July and Aug.
Garidella Nigellastrum. Fennel-leaved Garidella. S. France. June and July.
Gentiana Amarella. Autumnal Gentian. Europe, Britain. August.
Gentiana campestris. Field Gentian. Europe, England. August.
Geranium bohemicum. Bohemian Crane's-bill. June—Aug.
Geranium carolinianum. Carolina Crane's-bill. N. Amer. July.
Geranium divaricatum. Spreading Crane's-bill. Hungary. June—Aug.
 Several other annual Crane's-bills are natives of England, as *columbinum*, *diffectum*, *lucidum*, *molle*, *purpureum*, *puffillum*, *robertianum*, *rotundifolium*.
Gerardia purpurea. Purple Gerardia. N. Amer. July and Aug.
Geropogon glabrum. Smooth Geropogon or Old Man's Beard. Italy. July and Aug.
Gypsophila viscosa. Clammy Gypsophila. Levant. June and July.
Hasselquistia cordata. Heart-leaved Hasselquistia. July.
Hedysarum Caput-galli. Cock's-head Hedysarum. France. June—Aug.
Hedysarum Crista-galli. Cock's-comb Hedysarum. S. Europe. June—Aug.
Hedysarum flexuosum. Zigzag-podded Hedysarum. Levant. June and July.
Hedysarum humile. Dwarf Hedysarum. Spain and S. France. July and Aug.
Hedysarum muricatum. Prickly-podded Hedysarum. Patagonia. June and July.
Helianthus annuus. Annual Sun-flower. Mexico and Peru. June—Oct. Single and double.
Helianthus indicus. Dwarf annual Sunflower. E. Indies. June—Oct.
Helianthus tubiflorus. Tube-flowered Sunflower. Mexico. August.
Heliotropium europæum. European Turnsole or Heliotrope. France and Italy. June—Oct.
Heliotropium supinum. Trailing Turnsole or Heliotrope. S. Europe. June and July.
Hesperis africana. African Rocket. Africa. June and July.
Hesperis verna. Early-flowering Rocket. S. France. May.
Hibiscus Trionum. Bladder Hibiscus. Italy. June—Sept.
Hippocrepis multifiliquosa. Many-podded Horse-shoe Vetch. S. Europe. July and Aug.
Hippocrepis unifiliquosa. Single-podded Horse-shoe Vetch. Italy. June and July.
Hyoscyamus albus. White Henbane. S. Europe. August.
Hyoscyamus pusillus. Dwarf Henbane. Persia. July.
Hyoscyamus reticulatus. Egyptian Henbane. Egypt. July.
Hyoseris cretica. Cretan Hyoseris. Candia. June and July.
Hyoseris Hedynois. Branching Hyoseris. S. Europe. June.
Hyoseris minima. Least Hyoseris. Europe, Britain. May and June.
Hyoseris Rhagadioloides. Nipple-wort Hyoseris. S. Europe. July and Aug.
Hypecoum pendulum. Pendulous Hypecoum. S. France. June and July.
Hypecoum procumbens. Procumbent Hypecoum. S. Europe. June and July.
Hypochaeris glabra. Smooth Hypochaeris. Europe, Britain. July.
Jasione montana. Annual Sheep's Scabious. Europe, Britain. June—Sept.
Iberis amara. White Candy-tuft. Europe, Britain. June and July.
Iberis linifolia. Flax-leaved Candy-tuft. Spain and Portugal. July.
Iberis nudicaulis. Naked-stalked Candy-tuft or Rock-crests. Europe, Britain. May.
Iberis pinnata. Winged Candy-tuft. S. Europe. June—Aug.
Iberis umbellata. Purple Candy-tuft. S. Europe. June and July.
Impatiens Noli tangere. Common yellow Balsam. Europe, England. June.
Inula undulata. Wave-leaved Inula. Egypt. July.
Ipomoea coccinea. Scarlet Ipomoea. W. Indies. July and Aug.
Ipomoea hederifolia. Ivy-leaved Ipomoea. S. Amer. July.
Ipomoea lacunosa. Starry Ipomoea. Virginia and Carolina. July.
Ipomoea solanifolia. Nightshade-leaved Ipomoea. America. July and Aug.
Ipomoea tannifolia. Tannus-leaved Ipomoea. Carolina. July.
Ipomoea triloba. Three-lobed Ipomoea. W. Indies. June and July.
Ipomoea violacea. Violet-flowered Ipomoea. America. July and Aug.
Isatis lusitanica. Portugal Woad. Spain and Levant. June and July.
Isnardia palustris. Marsh Isnardia. Europe, N. Amer. and West Indies. July.
Isopyrum fumarioides. Fumitory-leaved Isopyrum. Siberia. June.
Knautia orientalis. Oriental Knautia. Levant. June—Sept.
Koenigia islandica. Iceland Koenigia. Iceland. April.
Lactuca quercina. Oak-leaved Lettuce. Sweden. May and June.
Lactuca saligna. Least Lettuce. Europe, England. July and Aug.
Lactuca sativa. Garden Lettuce. June and July.
Lactuca Scariola. Prickly Lettuce. Europe, England. July.
Lagoecia Cuminoides. Wild Cumin. Levant. June and July.
Lagurus ovatus. Oval-spiked Lagurus. S. Europe. July—Sept.
Lapsana communis. Common Nipple-wort. Europe, Britain. June and July.
Lapsana Kolpinia. Small Nipple-wort. Siberia and Levant. July.
Lapsana Rhagadiolus. Heart-leaved Nipple-wort. Levant. June and July.
Lapsana stellata. Starry Nipple-wort. S. France and Italy. June and July.
Lapsana Zaciutha. Warted Nipple-wort. S. Europe. June and July.
Lathyrus amphicarpos. Subterranean Lathyrus or Earth-pea. Levant. June and July.
Lathyrus angulatus. Angular-seeded Lathyrus. S. Europe. June and July.
Lathyrus annuus. Yellow annual Lathyrus. France and Spain. July.

- Lathyrus Aphaca*. *Yellow Vetchling*. Europe, England. June and July.
- Lathyrus articulatus*. *Jointed-podded Lathyrus*. S. Europe. July.
- Lathyrus Cicera*. *Flat-podded Lathyrus*, or *dwarf Chickling Vetch*. France and Spain. June and July.
- Lathyrus Clymenum*. *Various-flowered Lathyrus*. Levant. July.
- Lathyrus hirsutus*. *Hairy Lathyrus*. Europe, England. July.
- Lathyrus inconspicuus*. *Small-flowered Lathyrus*. Levant. July.
- Lathyrus italicus*. *Italian Lathyrus*. Italy. July.
- Lathyrus Nitfolia*. *Crimson Grass-Vetch*. Europe, England. May.
- Lathyrus odoratus*. *Sweet-Pea*. Sicily. June and July. Purple, red, white, variegated or Painted Lady.
- Lathyrus sativus*. *Blue Chickling-Vetch*. France and Spain. June and July.
- Lathyrus setifolius*. *Narrow-leaved Lathyrus*. S. France and Italy. June and July.
- Lathyrus sphaericus*. *Spherical-seeded Lathyrus*. S. Europe. June and July.
- Lathyrus tingitanus*. *Tungier Pea*. Barbary. June and July.
- Lavatera cretica*. *Cretan Lavatera*. Candia. July.
- Lavatera trimestris*. *Common annual Lavatera*. S. Europe and Levant. July—Sept.
- Leonurus Marrubiastrum*. *Small-flowered Motherwort*. Austria. June—Aug.
- Lepidium chalcipense*. *Aleppo Pepperwort*. May and June.
- Lepidium didymum*. *Procumbent Pepperwort*. Europe, England. June—Aug.
- Lepidium perfoliatum*. *Various-leaved Pepperwort*. Austria and Levant. July.
- Lepidium petraeum*. *Rock Pepperwort*. Europe, Britain. April and May.
- Lepidium oleraceum*. *Notch-leaved Pepperwort*. New Zealand. September.
- Lepidium ruderale*. *Narrow-leaved Pepperwort*. Europe, Britain. June and July.
- Lepidium sativum*. *Garden Cress*. June and July.
- Lepidium spinosum*. *Prickly Pepperwort*. Levant. September.
- Linum catharticum*. *Purging Flax*. Europe, Britain. August.
- Linum catharticum*. *Annual Yellow Flax*. S. France. July.
- Linum Radiola*. *Least Flax*, or *All-seed*. Europe, Britain. August.
- Linum strictum*. *Upright Flax*. S. Europe. July and Aug.
- Linum usitatissimum*. *Common Flax*. Europe, Britain. June.
- Lobelia cliftoniana*. *Purple Lobelia*. America. July—Oct.
- Lobelia inflata*. *Bladder-podded Lobelia*. Virginia and Canada. July and Aug.
- Lobelia urens*. *Stinging Lobelia*. England. June.
- Loeflingia hispanica*. *Spanish Loeflingia*. June.
- Lotus conjugatus*. *Twin-podded Bird's-foot Trefoil*. Montpellier. July.
- Lotus edulis*. *Esulent Bird's-foot Trefoil*. Italy and Candia. July and Aug.
- Lotus ornithopodioides*. *Claw-podded Bird's-foot Trefoil*. Sicily. June—Aug.
- Lotus tetragonolobus*. *Winged Pea*. Sicily. July and Aug.
- Ludwigia alternifolia*. *Alternate-leaved Ludwigia*. Virginia. June and July.
- Lunaria annua*. *Annual Honesty*. Germany. May and June.
- Lupinus albus*. *White Lupine*. Levant. July and Aug.
- Lupinus angustifolius*. *Narrow-leaved Blue Lupine*. Spain and Sicily. July and Aug.
- Lupinus hirsutus*. *Great Blue Lupine*. S. Europe and Levant. July and Aug.
- Lupinus linifolius*. *Flax-leaved Lupine*. July and Aug.
- Lupinus luteus*. *Yellow Lupine*. Sicily. July and Aug.
- Lupinus pilosus*. *Rose Lupine*. S. Europe. July and Aug.
- Lupinus varius*. *Small blue Lupine*. Spain, France, and Sicily. July and Aug.
- Lychnis læta*. *Small Portugal Campion*. July.
- Lycopsis arvensis*. *Small wild Bugloss*. Europe, Britain. June and July.
- Lycopsis vesicaria*. *Bladder-podded wild Bugloss*. S. Europe. June and July.
- Lythrum Linum stellatum*. *Small Loose-strife*. Italy. June.
- Lythrum Hyssopifolia*. *Hyssop-leaved Willow-herb*. Europe, England. August.
- Malva ægyptiaca*. *Egyptian Mallow*. June and July.
- Malva americana*. *American Mallow*. N. Amer. June and July.
- Malva caroliniana*. *Creeping Mallow*. Carolina. July and Aug.
- Malva crispa*. *Curled-leaved Mallow*. Syria. June and July.
- Malva hispanica*. *Spanish Mallow*. June and July.
- Malva limensis*. *Blue-flowered Mallow*. Peru. July.
- Malva mauritiana*. *Ivy-leaved Mallow*. S. Europe. June and July.
- Malva nicæensis*. *Italian Mallow*. June and July.
- Malva peruviana*. *Peruvian Mallow*. June—Aug.
- Malva rotundifolia*. *Round-leaved or Dwarf Mallow*. Europe, Britain. June—Aug.
- Malva verticillata*. *Whorl-flowered Mallow*. China. June and July.
- Malva virgata*. *Slender Mallow*. July and Aug.
- Matricaria Chamomilla*. *Corn Feverfew*. Europe, Britain. June and July.
- Matricaria suaveolens*. *Sweet Feverfew*. Europe, Britain. June—Aug.
- Medicago circinnata*. *Kidney-podded Medick*. Spain and Italy. July and Aug.
- Medicago polymorpha*. *Snail, Hedgehog, &c.* Europe. June—Aug.
- Melampyrum arvense*. *Purple Cow-wheat*. Europe, England. June.
- Melampyrum cristatum*. *Crested Cow-wheat*. Europe, Britain. July and Aug.
- Melampyrum pratense*. *Meadow Cow-wheat*. Europe, England. July and Aug.
- Mercurialis annua*. *Annual Mercury*. Europe, Britain. August.
- Minuartia dichotoma*. *Forked Minuartia*. Spain. June and July.
- Mollugo verticillata*. *Whorled Mollugo*. Virginia. June—Aug.
- Moluccella lævis*. *Smooth Molucca Balm*. Syria. July and Aug.
- Moluccella spinosa*. *Prickly Molucca Balm*. Levant. July and Aug.
- Montia fontana*. *Water Chick-weed*. Europe, Britain. April and May.
- Myagrum paniculatum*. *Panicled Gold of Pleasure*. Europe. July and Aug.
- Myagrum perfoliatum*. *Perfoliate Gold of Pleasure*. France and Switzerland. June and July.
- Myagrum fativum*. *Cultivated Gold of Pleasure*. Europe, Britain. May and June.
- Myosotis apula*. *Small Scorpion-grass*. S. Europe. June and July.
- Myosotis Lappula*. *Prickly-seeded Scorpion-grass*. Europe. April—Aug.
- Myosurus minimus*. *Mouse-tail*. Europe, Britain. April and May.
- Nepeta botryoides*. *Cut-leaved Catmint*. Siberia. June and July.
- Nicotiana glutinosa*. *Clammy Tobacco*. Peru. July—Sept.
- Nicotiana odorata*. *White-flowering Tobacco*. New Holland. July—Sept.
- Nicotiana paniculata*. *Panicled Tobacco*. Peru. July—Sept.
- Nicotiana rustica*. *Common Tobacco*. N. Amer. July—Sept.
- Nicotiana Tabacum*. *Virginian Tobacco*. N. Amer. July and Aug.
- Nicotiana undulata*. *Waved-leaved Tobacco*. Peru. July—Sept.
- Nigella arvensis*. *Corn Fennel-flower*. Europe. June—Sept.
- Nigella coarctata*. *Dwarf Fennel-flower*. S. Europe. June—Sept.
- Nigella damascena*. *Common Fennel-flower*. S. Europe. June—Sept.
- Nigella hispanica*. *Spanish Fennel-flower*. S. Europe. June—Sept.
- Nigella orientalis*. *Eastern or Yellow Fennel-flower*. Syria. July—Sept.
- Nigella fativa*. *Small-flowered Fennel-flower*. Candia and Egypt. June—Sept.
- Nolana prostrata*. *Trailing Nolana*. Peru. July—Sept.
- Oenothera mollissima*. *Soft Oenothera*. Buenos Ayres. June—Oct.
- Oenothera purpurea*. *Purple Oenothera*. N. Amer. June and July.
- Oenothera sinuata*. *Scollop-leaved Oenothera*. N. Amer.
- Oenothera tetraptera*. *Square-capsuled Oenothera*. S. Amer. June and July.
- Oenothera villosa*. *Villous Oenothera*. Cape. June—Oct.
- Ononis alopecuroides*. *Fox-tail Rest-harrow*. Sicily and Portugal. July and Aug.
- Ononis mitissima*. *Cluster-flowered Rest-harrow*. Spain and Portugal. June—Aug.
- Ononis pubescens*. *Downy Rest-harrow*. S. Europe. August.
- Ononis reclinata*. *Spreading Rest-harrow*. Spain. June—Aug.
- Ononis viscosa*. *Clammy Rest-harrow*. S. Europe. July and Aug.
- Ornithopus compressus*. *Hairy Bird's-foot*. S. Europe. June and July.
- Ornithopus perpusillus*. *Common Bird's-foot*. Europe, Britain. May—Aug.
- Ornithopus scorpioides*. *Purflane-leaved Bird's-foot*. S. Europe. June and July.
- Papaver Argemone*. *Rough Poppy*.
- Papaver dubium*. *Smooth Poppy*.
- Papaver hybridum*. *Bastard Poppy*.
- Papaver Rhoeas*. *Corn Poppy*.
- All natives of Britain, and flowering in June and July.
- Papaver somniferum*. *Officinal Poppy*. June and July.—Variety, with double flowers of various colours.

- Parietaria hirsutissima*. Chickweed-leaved Pellitory. Spain and Portugal. July.
- Pedicularis palustris*. Marsh Lousewort. Europe, Britain. June.
- Pedicularis sylvatica*. Common Lousewort. Europe, Britain. May and June.
- Pharnaceum Cerviana*. Umbelled Pharnaceum. Russia and Spain. June.
- Phascolus vulgaris*. Common Kidney-bean.—Variety, Scarlet Kidney-bean.
- Physalis angulata*. Tooth-leaved Winter-Cherry. Both Indies. June—Sept.
- Physalis pruinosa*. Hairy annual Winter-Cherry. America. July and Aug.
- Picris echioides*. Rough Picris or Ox-tongue. Europe, England. July and Aug.
- Picris hieracioides*. Hawkweed Picris or Yellow Succory. Europe, England. July.
- Pimpinella Anisum*. Anise. Egypt. July.
- Pisum Ochrus*. Yellow-flowered Pea. S. Europe and Levant. June and July.
- Pisum sativum*. Garden and field Peas. S. Europe. June—Sept.
- Plantago asiatica*. Asiatic Plantain. Siberia. July.
- Plantago Coronopus*. Buck's-horn Plantain. Europe, Britain. June—Aug.
- Plantago indica*. Indian Plantain. Egypt and India. July and Aug.
- Plantago Loefflingii*. Narrow-leaved Plantain. Europe, England. July and Aug.
- Plantago Psyllium*. Clammy Plantain. S. Europe and Canary Islands. July.
- Plantago squarrosa*. Leafy-spiked Plantain. Egypt. Aug. and Sept.
- Plantago virginica*. Virginian Plantain. N. Amer. June—Sept.
- Polycarpon tetraphyllum*. Four-leaved Polycarpon. Europe, Britain. July.
- Polycnemum arvense*. Trailing Polycnemum. Italy, France and Germany. July.
- Polygonum Convolvulus*. Black Bindweed. Europe, Britain. May—Sept.
- Polygonum Fagopyrum*. Buck-wheat. Europe, England. July and Aug.
- Polygonum orientale*. Oriental Persicaria. E. Indies. July—Oct. Red and white.
- Portulaca oleracea*. Garden Purslane. Both Indies. June and July.
- Portulaca pilosa*. Hairy Purslane. W. Indies. June and July.
- Prenanthes muralis*. Wall Prenanthes. Europe, Britain. July.
- Pulmonaria maritima*. Sea Lungwort. Europe, Britain. July.
- Ranunculus falcatus*. Crooked-podded Crowfoot. S. Europe and Levant. May and June.
- Several of our wild species are Annuals.
- Raphanus Raphanistrum*. Wild Radish. Europe, Britain. June and July.
- Raphanus sativus*. Garden Radish. China. May and June.
- Raphanus tenellus*. Small Radish. Siberia. June and July.
- Reseda alba*. Upright White Reseda. Spain and S. France. May—Oct.
- Reseda lutea*. Yellow Reseda. Europe, Britain. July.
- Reseda Luteola*. Dyer's-weed or Weld. Europe, Britain. June.
- Reseda mediterranea*. Various-leaved Reseda. Palestine. June—Sept.
- Reseda odorata*. Sweet Reseda, or Mignionette. Egypt. June—Oct.
- Reseda Phytocuma*. Trifid Reseda. S. Europe. June—Sept.
- Reseda Sefanoides*. Spear-leaved Reseda. S. France. July and Aug.
- Ricotia ægyptiaca*. Egyptian Ricotia. June and July.
- Rudbeckia amplexicaulis*. Stem-clasping Rudbeckia. S. Amer. June and July.
- Rumex ægyptius*. Egyptian Dock. June and July.
- Rumex bucephalophorus*. Basil-leaved Dock. Italy. June.
- Rumex dentatus*. Toothed Dock. Egypt. July and Aug.
- Rumex persicarioides*. Persicaria-leaved Dock. Virginia. June and July.
- Rumex rosens*. Rose Dock. Egypt. July and Aug.
- Rumex spinosus*. Prickly-seeded Dock. Candia. June and July.
- Rumex vesicarius*. Bladder Dock or Sorrel. Africa. July and Aug.
- Salsola altissima*. Grass-leaved Salt-wort. Italy. July and August.
- Salsola Kali*. Prickly Saltwort. Europe, Britain. July and Aug.
- Salsola muricata*. Hairy Saltwort. Egypt. July and Aug.
- Salsola salsa*. Striped-stalked Saltwort. Astræan. Aug. and Sept.
- Salsola Soda*. Long fleshy-leaved Saltwort. S. Europe. July and Aug.
- Salvia ægyptiaca*. Egyptian Sage. Egypt and Canary Islands. June and July.
- Salvia Æthiopis*. Woolly Sage or Clary. Austria. May and June.
- Salvia clandestina*. Cut-leaved Sage. Italy. July and Aug.
- Salvia hispanica*. Spanish Sage. Spain and Italy. June and July.
- Salvia Horminum*. Red-topped Sage. S. Europe. June—Aug.
- Salvia laciniata*. Jagged-leaved Sage. July and Aug.
- Salvia nilotica*. Nilotic Sage. Egypt. June and July.
- Salvia Spielmanni*. Serrate-leaved Sage. June and July.
- Salvia truncata*. Blunt-leaved Sage. July and Aug.
- Salvia viridis*. Green-topped Sage. Italy. July and Aug.
- Saponaria orientalis*. Small annual Soapwort. Levant. June—Aug.
- Saponaria porrigens*. Hairy Soapwort. Levant. July and Aug.
- Saponaria Vaccaria*. Perfoliate Soapwort. Germany and France. July and Aug.
- Sarothra Gentianoides*. Bastard Gentian. Virginia and Pennsylvania. July.
- Satureia hortensis*. Summer Savoury. S. France and Italy. June—Aug.
- Scabiosa integrifolia*. Red-flowered Scabious. S. Europe. July.
- Scabiosa maritima*. Sea Scabious. Italy and France. July.
- Scabiosa palestina*. Palestine Scabious. July and Aug.
- Scabiosa papposa*. Downy-headed Scabious. S. Europe. July and Aug.
- Scabiosa prolifera*. Prolifis Scabious. Egypt. July and Aug.
- Scabiosa sicula*. Sicilian Scabious. August.
- Scabiosa stellata*. Starry Scabious. Spain. July and Aug.
- Scabiosa syriaca*. Syrian Scabious. July.
- Scabiosa transylvanica*. Transylvanian Scabious. July.
- Scandix Anthriscus*. Rough Cicely or Chervil. Europe, Britain. May and June.
- Scandix australis*. Radiated Cicely or Chervil. S. Europe. May and June.
- Scandix Cerefolium*. Garden Chervil. Europe. May and June.
- Scandix Pecten*. Corn Cicely, Shepherd's Needle or Venus's Comb. Europe, Britain. June and July.
- Scolymus maculatus*. Annual Golden Thistle. S. Europe. July and Aug.
- Scorpiurus muricata*. Two-flowered Caterpillar. S. Europe. June and July.
- Scorpiurus fuleata*. Furrowed Caterpillar. S. Europe. June and July.
- Scorpiurus vermiculata*. Common Caterpillar. S. Europe. June and July.
- Scorzonera picroides*. Various-leaved Viper's-grass. Montpellier. June—Aug.
- Scorzonera tingitana*. Peppy-leaved Viper's-grass. Barbary. June—Sept.
- Scrophularia peregrina*. Nettle-leaved Figwort. Italy. June—Aug.
- Sedum annuum*. Annual Stone-crop. N. Europe. August.
- Sedum Cypæa*. Purslane-leaved Stone-crop. France and Switzerland. July and Aug.
- Sedum hispanicum*. Spanish Stone-crop. July.
- Sedum stellatum*. Starry Stone-crop. France and Italy. June and July.
- Selinum Monnieri*. Annual Selinum. S. France. July and Aug.
- Senecio ægyptius*. Egyptian Groundsel. July and Aug.
- Senecio cernuus*. Drooping Groundsel. E. Indies. July and Aug.
- Senecio elegans*. Purple Jacobæa. Cape. June—Aug.—Double.
- Senecio hieracifolius*. Hawkweed-leaved Groundsel. N. Amer. July and Aug.
- Senecio triflorus*. Three-flowered Groundsel. Egypt. July—Sept.
- Seriola æthnensis*. Rough Seriola. Italy. July and Aug.
- Seriola lævigata*. Smooth Seriola. Candia. July and Aug.
- Seriola urens*. Stinging Seriola. S. Europe. July and Aug.
- Seseli Ammoides*. Milfoil-leaved Meadow Saxifrage. S. Europe. June and July.
- Sherardia arvensis*. Field Maddier. Europe, Britain. May and June.
- Sicyos angulata*. Single-seeded Cucumber. N. Amer. July—Sept.
- Sideritis elegans*. Dark-flowered Ironwort. July.
- Sideritis montana*. Mountain Ironwort. Italy and Austria. July and Aug.
- Sideritis romana*. Roman Ironwort. Italy. June—Aug.
- Sigesbeckia flosculosa*. Small-flowered Sigesbeckia. Peru. June and July.
- Silene anglica*. English Catchfly. June and July.
- Silene antirrhina*. Snapdragon Catchfly. Virginia. May—Aug.
- Silene apetala*. Apetalous Catchfly. May—Aug.
- Silene Armeria*. Lobel's Catchfly. Europe, Britain. July and Aug.

- Silene Behen. Bladder Catchfly. Candia. June and July.*
Silene bellidifolia. Daisy-leaved Catchfly. July.
Silene clandestina. Hidden-flowered Catchfly. Cape. May—Aug.
Silene conica. Corn Catchfly. Europe, England. July.
Silene conoidea. Conic Catchfly. S. Europe. June and July.
Silene cretica. Cretan Catchfly. Candia. June—Aug.
Silene dichotoma. Forked Catchfly. Hungary. July.
Silene gallica. French Catchfly. S. Europe. July.
Silene inaperta. Close-flowered Catchfly. S. Europe. May—Aug.
Silene lusitanica. Portuguese Catchfly. June and July.
Silene Muscipula. Spanish Catchfly. June and July.
Silene noctiflora. Night-flowering Catchfly. Europe, England. July.
Silene nocturna. Night-smelling Catchfly. S. Europe. July.
Silene orchidea. Orchis-flowered Catchfly. Levant. May and June.
Silene pendula. Pendulous Catchfly. Italy. May—Aug.
Silene portensis. Oporto Catchfly. Portugal. June and July.
Silene quinquevulnera. Variegated Catchfly. Europe, England. July and Aug.
Silene sericea. Silky Catchfly. S. Europe. July.
Silene stricta. Upright Catchfly. Spain. June and July.
Silene vespertina. Evening Catchfly. Barbary. July.
Silene virginica. Virginian Catchfly. May—Aug.
Sinapis alba. White Mustard. Europe, Britain. June and July.
Sinapis Allionii. Pinnated Mustard. Italy. July.
Sinapis arvensis. Wild Mustard or Charlock. Europe, Britain. June and July.
Sinapis brassicata. Cabbage-leaved Mustard. China. June and July.
Sinapis chinensis. Chinese Mustard. July.
Sinapis erucoides. Spanish Mustard. July.
Sinapis hispida. Rough Mustard. Morocco. July.
Sinapis juncea. Entire-leaved Mustard. China. July.
Sinapis lævigata. Smooth Mustard. S. Europe. July.
Sinapis nigra. Common Black Mustard. Europe, Britain. June.
Sinapis orientalis. Oriental Mustard. Levant. June and July.
Sisymbrium altissimum. Tall Sisymbrium. Siberia. June and July.
Sisymbrium asperum. Rough-podded Sisymbrium. S. France. May and June.
Sisymbrium Barclieri. Small Sisymbrium. S. Europe. June and July.
Sisymbrium burisfolium. Various-leaved Sisymbrium. S. Europe. June and July.
Sisymbrium Columnæ. Hoary-leaved Sisymbrium. Austria. July and Aug.
Sisymbrium Irio. Broad-leaved Sisymbrium. Europe, Britain. July and Aug.
Sisymbrium Loefelii. Hairy-leaved Sisymbrium. Austria. July and Aug.
Sisymbrium orientale. Oriental Sisymbrium. Levant. July.
Sisymbrium pannonicum. Hungarian Sisymbrium. Hungary. August.
Sisymbrium polyceratum. Succory-leaved Sisymbrium. S. Europe. June and July.
Sisymbrium Sophia. Flixweed. Europe, Britain. June and July.
Sisymbrium supinum. Trailing Sisymbrium. S. Europe. June and July.
Sisymbrium terrestre. Annual Water Radish. Europe, England. June—Sept.
Solanum Lycopersicum. Love-Apple. S. Amer. July—Sept.
Solanum nigrum. Common Nightshade. Europe, Britain, &c. July. Berries yellow, black or red.
Solanum tuberosum. Potato. Peru. July and Aug.
Sonchus alpinus. Alpine Sowthistle. Europe, England. July and Aug.
Sonchus oleraceus. Common Sowthistle. Europe, Britain. June—Aug.
Sonchus tenerrimus. Clammy Sowthistle. Italy and S. France. July and Aug.
Spermacoce tenuior. Slender Button-weed. America. June—Aug.
Spinacia oleracea. Spinage.
Stachys annua. White annual Stachys. Germany and France. July and Aug.
Stachys arvensis. Corn Stachys. Europe, Britain. August.
Stellaria dichotoma. Forked Stichwort. Siberia. July.
Stellera Passerina. Flax-leaved Stellera. S. Europe. July and Aug.
Tagetes erecta. African Marygold. Mexico. June—Sept. Single, double, and quill-flowered.
Tagetes patula. French Marygold. Mexico. July—Oct. Single and double.
Tanacetum annuum. Annual Tansy. Spain and Italy. July.
Teucrium Botrys. Cut-leaved Annual Germander. S. Europe. July—Sept.
Teucrium Chamæpitys. Ground-pine Germander. Europe, England. June and July.
Thelygonum Cynocrambe. Purslane-leaved Theligenum. S. Europe. July.
Thlaspi arvense. Field Bastard Cress. Europe, Britain. June and July.
Thlaspi campestre. Wild Bastard Cress or Mithridate Mustard. June and July.
Thlaspi ceratocarpon. Siberian Bastard Cress. July.
Thlaspi perfoliatum. Perfoliate Bastard Cress. France, Switzerland and Germany. June and July.
Thymus Acinos. Corn Thyme or Basil. Europe, Britain. June—Aug.
Tillæa muscosa. Procrumbent Tillæa. Europe, England. June—Oct.
Tordylium apulum. Small Hartwort. Italy. July.
Tordylium maximum. Great Hartwort. Italy. July.
Tordylium officinale. Officinal Hartwort. Europe, England. July.
Tordylium syriacum. Syrian Hartwort. July.
Tragopogon Pteroides. Prickly-cupped Goat's-beard. S. Europe. July and Aug.
Trapa natans. Floating Water-Caltrops. Europe. June—Aug.
Tribulus terrestris. Small Caltrops. S. Europe. June and July.
Trichostema dichotoma. Marjoram-leaved Trichostema. Virginia and Pennsylvania. June and July.
Trifolium albidum. White Trefoil. Germany. July and Aug.
Trifolium alexandrinum. Egyptian Trefoil. June.
Trifolium arvense. Hare's-foot Trefoil. Europe, Britain. July and Aug.
Trifolium Cherleri. Hairy Trefoil. S. Europe. May and June.
Trifolium clypeatum. Shield-seeded Trefoil. Levant. July and Aug.
Trifolium coeruleum. Blue Melilot Trefoil. Germany. Aug. and Sept.
Trifolium creticum. Cretan Melilot Trefoil. June—Aug.
Trifolium diffusum. Diffuse Trefoil. Hungary. July.
Trifolium filiforme. Slender Trefoil. Europe, Britain. June—Aug.
Trifolium glomeratum. Round-headed Trefoil. Europe, Britain. June.
Trifolium incarnatum. Flesh-coloured Trefoil. Italy. June and July.
Trifolium indicum. Indian Melilot Trefoil. E. Indies. June—Aug.
Trifolium involucratum. Stripe-flowered Trefoil. N. Amer. June—Aug.
Trifolium italicum. Italian Melilot Trefoil. June—Aug.
Trifolium lappaceum. Burdock-seeded Trefoil. France. July.
Trifolium mauritanicum. Barbary Trefoil. June—Aug.
Trifolium messinense. Messina Trefoil. Sicily. June—Aug.
Trifolium ornithopodioides. Bird's-foot Melilot Trefoil. Europe, Britain. June.
Trifolium pictum. Painted Trefoil. July.
Trifolium polonicum. Polish Melilot Trefoil. June—Aug.
Trifolium procumbens. Hep Trefoil. Europe, Britain. May—Sept.
Trifolium resupinatum. Trailing Trefoil. Europe. June and July.
Trifolium scabrum. Rugged Trefoil. Europe, Britain. May and June.
Trifolium spumosum. Bladder-podded Trefoil. S. Europe. June and July.
Trifolium squarrosum. Round-leaved Trefoil. Spain. July.
Trifolium stellatum. Starry Trefoil. S. Europe. July and Aug.
Trifolium striatum. Soft-knotted Trefoil. Europe, Britain. June.
Trifolium subterraneum. Subterranean Trefoil. Europe, Britain. May.
Trifolium suffocatum. Sand Trefoil. Europe, Britain. May and June.
Trifolium tomentosum. Woolly-podded Trefoil. Europe. June and July.
Trigonella corniculata. Horse-shoe Fenugreek. S. Europe. June and July.
Trigonella Foeniculum græcum. Common Fenugreek. Montpellier. June—Aug.
Trigonella hamosa. Egyptian Fenugreek. July.
Trigonella monspeliaca. Trailing Fenugreek. Montpellier. June and July.
Trigonella polycerata. Spanish Fenugreek. France, Italy and Spain. July.
Trigonella ruthenica. Small Fenugreek. Siberia. June and July.
Trigonella spinosa. Thorny Fenugreek. Candia. July and Aug.
Tropæolum majus. Great Indian Cress. Peru. June—Oct.
Tropæolum minus. Small Indian Cress. Peru. June—Oct.
Valantia hispida. Hissid Crosswort. S. Europe. July.
Valantia muralis. Wall Crosswort. S. Europe. May—July.
Valantia pedemontana. Small Crosswort. Italy. July.

Valeriana Calcitrapa. <i>Cut-leaved Valerian</i> . Portugal. May—july.	Vicia sativa. <i>Common Vetch</i> or <i>Tare</i> . Europe, Britain. May and june.
Valeriana cornucopiæ. <i>Purple Valerian</i> . Barbary, Spain, and Sicily. May—Aug.	Viola tricolor. <i>Heart's-ease</i> or <i>Pansies</i> . Europe, Britain. May—Sept.
Valeriana Locusta. <i>Corn Valerian</i> , or <i>Lamb's Lettuce</i> . Europe, Britain. April—june.—Several varieties.	Urtica Dodartii. <i>Pellitory-leaved Nettle</i> . S. Europe. July and Aug.
Velezia rigida. <i>Rigid Velezia</i> . Spain. July.	Urtica pilulifera. <i>Roman Nettle</i> . Europe, England. July and Aug.
Vella annua. <i>Annual Vella</i> or <i>Crefs Rocket</i> . Europe, England. June.	Xanthium strumarium. <i>Lesser Burdock</i> . Europe, England. July and Aug.
Verbascum Boerhaavii. <i>Annual Mullein</i> . S. Europe. July.	Xeranthemum annuum. <i>Annual Xeranthemum</i> . S. Europe. July and Aug. Purple and white.
Verbena prostrata. <i>Spreading Vervain</i> . S. Amer. July and Aug.	Zannichellia palustris. <i>Marsh Zannichellia</i> . Europe, Britain. July.
Verbena supina. <i>Trailing Vervain</i> . Spain and Portugal. June and july.	Zea Mays. <i>Indian Corn</i> . America. June and july.
Veronica acinifolia. <i>Basil-leaved Speedwell</i> . S. Europe. April and may.	Zinnia multiflora. <i>Red-flowered Zinnia</i> . N. Amer. June—Oct.
Veronica peregrina. <i>Knotgrafs-leaved Speedwell</i> . N. Europe. May and june.	Zinnia pauciflora. <i>Yellow-flowered Zinnia</i> . Peru. July and Aug.
Several small species are wild in England.	Zinnia revoluta. <i>Revolute-flowered Zinnia</i> . S. Amer. July and Aug.
Vicia Faba. <i>Bean</i> . Egypt. June and july.	Zinnia verticillata. <i>Whorl-leaved Zinnia</i> . S. Amer. July and Aug.
Vicia hybrida. <i>Hairy-flowered Yellow Vetch</i> . Europe, England. June—Aug.	Zinnia violacea. <i>Purple-flowered Zinnia</i> . Mexico. July and Aug.
Vicia lathyroides. <i>Dwarf Vetch</i> . Europe, Britain. April—june.	Ziziphora capitata. <i>Ovate-leaved Ziziphora</i> . Syria. July and Aug.
Vicia lutea. <i>Smooth-flowered Yellow Vetch</i> . Europe, England. June and july.	Ziziphora tenuior. <i>Spear-leaved Ziziphora</i> . Levant. June and july.
Vicia narbonensis. <i>Broad-leaved Vetch</i> . France. June.	
Vicia nissolia. <i>Red-flowered Vetch</i> . Levant. June and july.	
Vicia peregrina. <i>Broad-podded Vetch</i> . France. July.	

GREENHOUSE AND STOVE PLANTS.

A. Annual.
B. Biennial.
P. Perennial.
h. Shrub, and Tree.

G. Greenhouse.
S. Bark Stove.
D. S. Dry Stove.

- ABROMA angusta. Maple-leaved Abroma. Philippine islands. July—Sept. S. h.
- Abrus precatorius. Jamaica Wild Liquorice. Both Indies. S. h.
- Acalypha indica. Indian Acalypha. E. Indies. July. S. A.
- Acalypha virginica. Virginian Acalypha. Both Indies and N. Amer. July and Aug. S. A.
- Achania Malvaviscus. Scarlet Achania or Bastard Hibiscus. Jamaica. May—Oct. S. h.
- Achania mollis. Soft-leaved Achania. America. Aug.—Sept. S. h.
- Achania pilosa. Hairy-leaved Achania. Jamaica. Nov. S. B.
- Achillea ægyptiaca. Egyptian Milfoil. Levant. July—Sept. G. h.
- Achras mammosa. Mammee Sapota. S. Amer. S. h.
- Achras falcifolia. Willow-leaved Sapota. S. Amer. S. h.
- Achras Sapota. Common Sapota. S. Amer. S. h.
- Achyranthes aspera. Harsh Achyranthes. Both Indies. May—Aug. S. h.
- Achyranthes lappacea. Burry Achyranthes. E. Indies. Aug.—Oct. S. h.
- Achyranthes muricata. Prickly Achyranthes. India. Aug.—Nov. S. P.
- Achyranthes nivea. White Achyranthes. Canary islands. May—July. G. h.
- Achyranthes patula. Spreading Achyranthes. E. Indies. July—Oct. S. B.
- Adansonia digitata. Ethiopian Sour Gourd, or Monkeys-bread. Senegal and Egypt. S. h.
- Adelia Acidoton. Box-leaved Adelia. Jamaica. June. S. h.
- Adonis vesticaria. Blistering Adonis. Cape. March, April. G. P.
- Ægiphila martinicensis. Martinico Ægiphila. West Indies. November. S. h.
- Æschynomene americana. Hairy Æschynomene. Jamaica. July and Aug. S. A.
- Æschynomene bispinosa. Two-spined Æschynomene. E. Indies. July and Aug. S. A.
- Æschynomene grandiflora. Great-flowered Æschynomene. E. Indies. S. B.
- Æschynomene Sesban. Egyptian Æschynomene. July and Aug. S. B.
- Afzelia cassioides. Cassia-leaved Afzelia. Sierra Leona. S. h.
- Agapanthus umbellatus. African blue Lily. Cape. Aug.—Jan. G. P.
- Agave americana. Common American Agave. S. Amer. Aug.—Oct. G. h.
- Agave foetida. Fetid or smooth-leaved Agave. S. Amer. G. h.
- Agave lurida. Vera Cruz Agave. S. Amer. G. h.
- Agave tuberosa. Tubercus-rooted Agave. America. G. h.
- Agave virginica. Virginian Agave. Carolina and Virginia. Sept. G. P.
- Agave vivipara. Viviparous Agave. America. Aug.—Oct. G. h.
- Aitonia capensis. Cape Aitonia. May—Sept. G. h.
- Aizoon Glioides. Hairy Aizoon. Cape. June—Aug. G. h.
- Aizoon lanceolatum. Panicle Aizoon. Cape. Aug. G. B.
- Albica altissima. Tall Albica. April and May.
- Albica coarctata. Channel-leaved or Compact-flowered Albica. May.
- Albica fastigiata. Upright-flowered Albica. May.
- Albica major. Great Albica. May.
- Albica maxima. Greatest Albica. August.
- Albica minor. Small Albica. May and June.
- Albica parviflora. Small-flowered Albica. May and June.
- Albica viscosa. Clammy Albica. May and June.
- All natives of the Cape. G.
- Aletris capensis. Waved-leaved Aletris. Cape. Jan—April. G. P.
- Aletris fragrans. Sweet-scented Aletris. Africa. Feb. and March. S. h.
- Aletris glauca. Glauca Aletris. Cape. Jan. G. P.
- Aletris hyacinthoides. Hyacinth-like Aletris. Ceylon and Guinea. June—Nov. D. S. P.
- Aletris pumila. Dwarf Aletris. Cape. Jan. G. P.
- Aletris Uvaria. Great Orange-flowered Aletris. Cape. Aug. and Sept. G. P.
- Aleurites triloba. Three-lobed Aleurites. S. Seas. S. h.
- Allamanda cathartica. Willow-leaved Allamanda. Guiana. S. h.
- Allium gracile. Jamaica Garlic. Feb. S. P.
- Aloe. About 40 species in our dry Stoves; natives of Africa.
- Alpinia maculata. Spotted Alpinia. W. Indies. S. P.
- Alpinia racemosa. Clustered Alpinia. Jamaica. S. P.
- Alstroemeria Ligt. Striped-flowered Alstroemeria. Peru. Feb. and March. S. P.
- Alstroemeria Pelegrina. Spotted-flowered Alstroemeria. Peru. June—Sept. G. P.
- Amaranthus cruentus. Various-leaved Amaranth. China. S. A.
- Amaranthus flavus. Pale Amaranth. India. July—Sept. S. A.
- Amaranthus gangeticus. Oval-spiked Amaranth. India. July—Sept. S. A.
- Amaranthus melancholicus. Two-coloured Amaranth. E. Indies. June—Sept. S. A.
- Amaranthus polygamus. Hermaphrodite Amaranth. E. Indies. July and Aug. S. A.
- Amaranthus polygonoides. Spotted-leaved Amaranth. Jamaica. August. S. A.
- Amaranthus sanguineus. Spreading or Bloody Amaranth. Bahama islands. July—Sept. S. A.
- Amaranthus spinosus. Prickly Amaranth. West Indies. July—Sept. S. A.
- Amaranthus tricolor. Three-coloured Amaranth. E. Indies. June—Sept. S. A.
- Amaryllis aloides. Aloe-leaved Amaryllis. Guinea. S. P.
- Amaryllis aurea. Golden Amaryllis. China. Aug.—Jan. S. P.
- Amaryllis Belladonna. Belladonna Lily. W. Indies. July—Sept. G. P.
- Amaryllis bivaginata. Two-sheathed Amaryllis. Cape. G. P.
- Amaryllis capensis. Cape Amaryllis. G. P.
- Amaryllis crispa. Curled-leaved Amaryllis. Cape. March and April. G. P.
- Amaryllis curvifolia. Channel-leaved Amaryllis. Cape. G. h.
- Amaryllis equestris. Barbadoes Lily. W. Indies. June—Aug. S. P.
- Amaryllis falcata. Sickle-leaved Amaryllis. Cape. June. G. P.
- Amaryllis formosissima. Jacobea Lily. S. Amer. May and June. G. P.
- Amaryllis Fothergillii. Japan Amaryllis. July and Aug. G. P.
- Amaryllis longifolia. Long-leaved Amaryllis. Cape. July. G. P.
- Amaryllis orientalis. Broad-leaved Amaryllis. Cape. June. —Aug. G. P.
- Amaryllis ornata. Cape Coast Lily. Guinea. June and July. S. P.
- Amaryllis Pumilio. Dwarf Amaryllis. Cape. Nov. G. P.
- Amaryllis purpurea. Purple-flowered Amaryllis. Cape. June—Aug. G. P.
- Amaryllis radiata. Narcissus-leaved Amaryllis. China. S. P.
- Amaryllis radula. Rasp-leaved Amaryllis. Cape. June. G. P.
- Amaryllis reginæ. Mexican Lily. S. Amer. May and June. S. P.
- Amaryllis reticulata. Netted-flowered Amaryllis. Brazil. April. S. P.
- Amaryllis revoluta. Revolute Amaryllis. Cape. Sept. G. P.
- Amaryllis farniensis. Guernsey Lily. Japan. Sept. and Oct. G. P.
- Amaryllis vittata. Ribband Amaryllis. Cape. April and May. G. P.
- Amaryllis undulata. Waved-leaved Amaryllis. Cape. March and April. G. P.
- Amaryllis zeylanica. Ceylon Amaryllis. E. Indies. June and July. S. P.
- Ambroma. See Abroma.
- Amellus lychnitis. Trailing Amellus. Cape. June and July. G. h.
- Ammannia debilis. Cluster-flowered Ammannia. E. Indies. July and Aug. S. A.
- Ammannia latifolia. Broad-leaved Ammannia. W. Indies. July and Aug. S. A.

- Amomum Granum Paradisi*. *Grains of Paradise*. Guinea. S. P.
Amomum Zernumbei. *Narrow-leaved Ginger*. E. Indies. Sept.—Nov. S. P.
Amomum Zinziber. *Narrow-leaved Ginger*. E. Indies. Sept. S. P.
Anacardium occidentale. *Cashew-nut*. Both Indies. S. h.
Anacyclus valentinus. *Fine-leaved Anacyclus*. Spain. June and July. G. A.
Anagallis monelli. *Italian blue Pimpernel*. Italy. May—Sept. G. P.
Ancistrum lucidum. *Shining Ancistrum*. Falkland islands. May and June. G. P.
Andromeda droseroides. *Clammy Andromeda*. Cape. July. G. h.
Andryala cheiranthifolia. *Various-leaved Andryala*. Madeira. May—Oct. G. P.
Andryala crithmifolia. *Sampire-leaved Andryala*. Madeira. June—Aug. G. B.
Andryala pinnatifida. *Wing-leaved Andryala*. Madeira and Canary-islands. July and Aug. G. B.
Andryala ragulina. *Downy Andryala*. Archipelago. June—Aug. G. P.
Annona hexapetala. *Long-leaved Custard-apple*. China and E. Indies. June and July. S. h.
Annona muricata. *Rough-fruited Custard-apple, or Sour-sop*. W. Indies. S. h.
Annona palustris. *Shining-leaved Custard-apple*. W. Indies. S. h.
Annona reticulata. *Netted Custard-apple*. S. America. S. h.
Annona squamosa. *Undulated Custard-apple*. S. Amer. S. h.
Annona tripetala. *Broad-leaved Custard-apple*. S. Amer. July and Aug. S. h.
Anthemis odorata. *Shrubby Chamomile*. Cape. April—June. G. h.
Anthericum albucoides. *Striped-flowered Anthericum*. Cape. August. G. P.
Anthericum alooides. *Aloe-leaved Anthericum*. Cape. May—Aug. G. P.
Anthericum asphodeloides. *Glaucous-leaved Anthericum*. Cape. May—Aug. G. P.
Anthericum canaliculatum. *Channelled Anthericum*. Cape. April. G. P.
Anthericum elatum. *Tall Anthericum*. Cape. Aug. and Sept. G. P.
Anthericum filiforme. *Thread-leaved Anthericum*. Cape. April. G. P.
Anthericum floribundum. *Thick-spiked Anthericum*. Cape. March and April. G. P.
Anthericum frutescens. *Shrubby Anthericum*. Cape. May—Aug. G. h.
Anthericum hispidum. *Hairy-leaved Anthericum*. Cape. May and June. G. P.
Anthericum revolutum. *Curled-flowered Anthericum*. Cape. Sept. G. P.
Anthericum triflorum. *Three-flowered Anthericum*. Cape. Nov. G. P.
Antholyza æthiopica. *Broad-leaved Antholyza*. Cape. May and June. G. P.
Antholyza Cunonia. *Scarlet-flowered Antholyza*. Cape. May and June. G. P.
Antholyza Meriana. *Red-flowered Antholyza*. Cape. May and June. G. P.
Antholyza Merianella. *Dwarf Antholyza*. Cape. May and June. G. P.
Antholyza plicata. *Plaited-leaved Antholyza*. Cape. April. G. P.
Antholyza ringens. *Narrow-leaved Antholyza*. Cape. May and June. G. P.
Antholyza spicata. *Spike-flowered Antholyza*. Cape. May and June. G. P.
Antholyza tubulosa. *Tube-flowered Antholyza*. Cape. May and June. G. P.
Anthospermum æthiopicum. *Amber Tree*. Cape. June and July. G. h.
Anthyllis Barba jovis. *Silvery Anthyllis, or Jupiter's beard*. Spain, Italy and Levant. March—May. G. h.
Anthyllis Cytifoides. *Downy-leaved Anthyllis*. Spain. April—June. G. h.
Anthyllis erinacea. *Prickly Anthyllis*. Spain. April and May. G. h.
Anthyllis Hermannia. *Lavender-leaved Anthyllis*. Levant. April—July. G. h.
Antidesma alexteria. *Laurel-leaved Antidesma*. E. Indies. June. S. h.
Antirrhinum bicornis. *Horned Toadflax*. Cape. July and Aug. G. A.
Antirrhinum macrocarpum. *Large-fruited Toadflax*. Cape. March. G. P.
Antirrhinum molle. *Woolly-leaved Snapdragon*. Spain. July—Oct. G. h.
Antirrhinum organifolium. *Marjoram-leaved Snapdragon*. S. Europe. June—Aug. G. P.
Antirrhinum reticulatum. *Net-flowered Snapdragon*. Algiers. June and July. G. P.
Antirrhinum triste. *Dark-flowered Toadflax*. Spain. July and Aug. G. P.
Antirrhinum villosum. *Villous Snapdragon*. Spain. July and Aug. G. P.
Apeiba Tibourbou. *Hairy Apeiba*. S. Amer. and W. Indies. S. h.
Aponogeton angustifolium. *Narrow-leaved Aponogeton*. Cape. May—Sept. G. P.
Aponogeton distachyon. *Broad-leaved Aponogeton*. Cape. May—Sept. G. P.
Arachis hypogæa. *American Earth-nut*. S. Amer. May and June. S. A.
Aralia capitata. *Cluster-flowered Aralia*. W. Indies. August. S. h.
Arbutus Andrachne. *Eastern Strawberry-tree*. March and April. Levant. G. h.
Arctopus echinatus. *Rough Arctopus*. Cape. G. P.
Arctotis acaulis. *Dwarf Arctotis*. April—July. G. P.
Arctotis argentea. *Silvery Arctotis*. August. G. B.
Arctotis aspera. *Rough-leaved Arctotis*. July—Sept. G. h.
Arctotis calendulacea. *Marygold-flowered Arctotis*. June—Aug. G. A.
Arctotis dentata. *Fine-leaved Arctotis*. July. G. A.
Arctotis grandiflora. *Great-flowered Arctotis*. March—May. G. B.
Arctotis paleacea. *Chaffy Arctotis*. April—Aug. G. h.
Arctotis paradoxa. *Chamomile-leaved Arctotis*. August. G. B.
Arctotis plantaginea. *Plantain-leaved Arctotis*. June—Aug. G. P.
Arctotis repens. *Creeping Arctotis*. July—Sept. G. P.
Arctotis scariosa. *Scaly Arctotis*. April—Aug. G. h.
Arctotis superba. *Superb Arctotis*. July and Aug. G. h.
 All natives of the Cape of Good Hope.
Ardisia excelsa. *Laurel-leaved Ardisia or Aderno*. Madeira. G. h.
Arduina bispinosa. *Two-spined Arduina*. Cape. March—Aug. G. h.
Arca oleracea. *Cabbage-tree*. West Indies. S. h.
Arethusa ciliaris. *Fringe-flowered Arethusa*. Cape. October. G. P.
Aristea cyanea. *Grass-leaved Aristea*. Cape. G. P.
Aristolochia longa. *Long-rooted Birthwort*. S. Europe. June—Oct. G. P.
Aristolochia odoratissima. *Sweet-scented Birthwort*. Jamaica. S. h.
Aristolochia Pifolochia. *Heart-leaved Birthwort*. S. Europe. July. G. h.
Aristolochia rotunda. *Round-rooted Birthwort*. S. Europe. May—Aug. G. P.
Aristolochia sempervirens. *Evergreen Birthwort*. Candia. May and June. H. h.
Aristolochia trilobata. *Three-lobed Birthwort*. S. Amer. June and July. S. h.
Artedia squamata. *Fennel-leaved Artedia*. Levant. July. G. A.
Artemisia argentea. *Broad-leaved Tree Wormwood*. Madeira. June and July. G. h.
Artemisia maderaspatana. *Madras Wormwood*. E. Indies. July and Aug. S. A.
Artemisia minima. *Least Wormwood*. China. S. A.
Artocarpus incisa. *Bread-fruit-tree*. Otaheite. S. h.
Artocarpus integrifolia. *Indian Jucæ tree*. E. Indies. S. h.
Arum auritum. *Ear-leaved Arum*. W. Indies. S. h.
Arum bicolorum. *Painted Arum*. June and July. S. P.
Arum bulbiferum. *Bulb-bearing Arum*. E. Indies. June and July. S. P.
Arum Colocasia. *Egyptian Arum*. Levant. S. P.
Arum crinitum. *Hairy-sheathed Arum*. Minorca. March and April. G. P.
Arum divaricatum. *Halbert-leaved Arum*. Ceylon. S. P.
Arum esculentum. *Esculent Arum*. E. Indies. S. P.
Arum hederaceum. *Ivy-leaved Arum*. W. Indies. S. h.
Arum macrorhizon. *Long-rooted Arum*. E. Indies. S. P.
Arum orixense. *Lobed Arum*. E. Indies. Aug. S. P.
Arum sagittæfolium. *Arrow-leaved Arum*. W. Indies. S. P.
Arum seguinum. *Dumb Cane*. W. Indies. May. S. h.
Arum ternatum. *Ternate-leaved Arum*. Japan. G. P.
Arum trilobatum. *Three-lobed Arum*. Ceylon. May and June. S. P.
Arum venosum. *Purple-flowered Arum*. March. S. P.
Arundo Bambos. See *Bambusa*.
Asclepias arborescens. *Tree Swallow-wort*. Cape. December. G. h.
Asclepias crispa. *Curled-leaved Swallow-wort*. Cape. G. h.
Asclepias curassavica. *Curassao Swallow-wort*. S. Amer. June—Sept. S. h.
Asclepias fruticosa. *Shrubby Swallow-wort*. Cape. June—Sept. G. h.
Asclepias gigantea. *Giant Swallow-wort*. E. Indies. July and Aug. S. h.
Asclepias Linaria. *Flax-leaved Swallow-wort*. S. Amer. G. P.
Asclepias parviflora. *Small-flowered Swallow-wort*. Carolina and E. Florida. July—Oct. G. P.

- Asclepias procera*. Bell-flowered tall Swallow-wort. Persia. July—Sept. S. h.
Asclepias undulata. Waved-leaved Swallow-wort. Cape. July. G. h.
Ascyrum Crux Andree. Common *Ascyrum*, or St. Andrew's cross. N. Amer. July and Aug. G. h.
Aspalathus albens. Silky *Aspalathus*. Cape. July. G. h.
Aspalathus argentea. Silvery *Aspalathus*. Cape. July and Aug. G. h.
Aspalathus candicans. White *Aspalathus*. Cape. June and July. G. h.
Aspalathus ciliaris. Ciliated *Aspalathus*. Cape. July and Aug. G. h.
Aspalathus ericifolia. Heath-leaved *Aspalathus*. Cape. July and Aug. G. h.
Aspalathus indica. Small flowered *Aspalathus*. E. Indies. S. h.
Aspalathus pedunculata. Small-leaved *Aspalathus*. Cape. August. G. h.
Asparagus acutifolius. Acute-leaved *Asparagus*. Spain, Portugal, and Levant. G. h.
Asparagus albus. White *Asparagus*. Spain and Portugal. G. h.
Asparagus aphyllus. Prickly *Asparagus*. S. Europe. G. h.
Asparagus asiaticus. Slender-stalked *Asparagus*. Asia. G. h.
Asparagus capensis. Cape *Asparagus*. Cape. G. h.
Asparagus declinatus. Long-leaved *Asparagus*. Cape. G. h.
Asparagus retrofractus. Larch-leaved *Asparagus*. Africa. Aug. and Sept. G. h.
Asparagus sarmentosus. Linear-leaved *Asparagus*. Ceylon. August. G. h.
Asparagus scandens. Climbing *Asparagus*. Cape. Sept. and Oct. G. h.
Aster Cymbalariae. Cymbalaria-leaved Starwort. Cape. June and July. G. h.
Aster crinitus. Acute-leaved Starwort. Cape. G. h.
Aster dentatus. Tooth-leaved Starwort. New Holland. May and June. G. h.
Aster fruticosus. Shrubby Starwort. Cape. April—June. G. h.
Aster pedunculatus. Long-stalked Starwort. Cape. June and July. G. h.
Aster reflexus. Reflex-leaved Starwort. Cape. April—June. G. h.
Athanasia annua. Annual *Athanasia*. Cape. July and Aug. G. A.
Athanasia capitata. Hairy *Athanasia*. Cape. Jan.—March. G. h.
Athanasia cinerea. Lavender-leaved *Athanasia*. Cape. May and June. G. h.
Athanasia crithmifolia. Sampire-leaved *Athanasia*. Cape. July and Aug. G. h.
Athanasia dentata. Notch-leaved *Athanasia*. Cape. July and Aug. G. h.
Athanasia filiformis. Fine-leaved *Athanasia*. Cape. August. G. h.
Athanasia linifolia. Flax-leaved *Athanasia*. Cape. August. G. h.
Athanasia parviflora. Small-flowered *Athanasia*. Cape. April. G. h.
Athanasia trifurcata. Trifid-leaved *Athanasia*. Cape. July and Aug. G. h.
Atraphaxis spinosa. Prickly branched *Atraphaxis*. Levant. August. G. h.
Atraphaxis undulata. Waved-leaved *Atraphaxis*. Cape. June and July. G. h.
Atriplex albicans. White Orache. Cape. June and July. G. h.
Atropa frutescens. Shrubby *Atropa*. Spain. Jan.—March. S. h.
Atropa physaloides. Blue-flowered *Atropa*. Peru. July—Sept. S. A.
Aubletia Tibourbou. Serrate-leaved *Aubletia*. Guiana. S. h.
Aucuba japonica. Blotch-leaved *Aucuba*. Japan. May—July. G. h.
Averrhoa Bilimbi. Ash-leaved *Averrhoa*. E. Indies. May and June. S. h.
Ayenia pusilla. Smooth *Ayenia*. Jamaica and Peru. July—Sept. S. B.
Baccharis ivæfolia. Notch-leaved *Baccharis*. Amer. July and Aug. G. P.
Baccharis neriifolia. Oleander-leaved *Baccharis*. Cape. Aug.—Nov. G. h.
Ballota disticha. Betony-leaved Black Horehound. E. Indies. Aug. S. A.
Bambusa arundinacea. Bamboo Cane. Both Indies. S. h.
Banisteria purpurea. Purple *Banisteria*. W. Indies. S. h.
Bankia dentata. Tooth-leaved *Bankia*.
Bankia ericæfolia. Heath-leaved *Bankia*.
Bankia grandis. Scalloped-leaved *Bankia*.
Bankia præinorfa. Snipped-leaved *Bankia*.
Bankia ferrata. Serrate-leaved *Bankia*.
Bankia spinulosa. Spiny *Bankia*.
 Natives of New Holland. G. h.
Barleria longifolia. Long-leaved *Barleria*. E. Indies. July—Sept. S. B.
Bafella alba. White Malabar Nightshade. China. July—Nov. S. B.
Bafella rubra. Red Malabar Nightshade. E. Indies. July—Nov. S. B.
Bauera rubioides. Three-leaved *Bauera*. New Holland. July—Sept. G. h.
Bauhinia aculeata. Prickly-stalked Mountain Ebony. West Indies. S. h.
Bauhinia aurita. Long-eared Mountain Ebony. Jamaica. Sept. S. h.
Bauhinia candida. Downy-leaved Mountain Ebony. E. Indies. May and June. S. h.
Bauhinia divaricata. Dwarf Mountain Ebony. W. Indies. June—Sept. S. h.
Bauhinia porrecta. Smooth broad-leaved Mountain Ebony. West Indies. July. S. h.
Bauhinia purpurea. Purple Mountain Ebony. E. Indies. S. h.
Bauhinia variegata. Variegated Mountain Ebony. E. Indies. S. h.
Begonia acuminata. Acuminate-leaved *Begonia*. W. Indies. May—Dec. S. h.
Begonia humilis. Dwarf or Rough-leaved *Begonia*. W. Indies. July—Oct. S. B.
Begonia macrophylla. Large-leaved *Begonia*. Jamaica. May—Dec. S. h.
Begonia nitida. Shining-leaved *Begonia*. Jamaica. May—Dec. S. h.
Beta patula. Spreading Beet. Madcira. August. G. B.
Bidens nivea. Snowy *Bidens*. N. Amer. June and July. G. P.
Bidens nodiflora. Sessile-flowered *Bidens*. E. Indies. S. A.
Bignonia crucigera. Two-leaved Trumpet-flower. W. Indies. S. h.
Bignonia indica. Indian Trumpet-flower. E. Indies. S. h.
Bignonia leucoxydon. Smooth five-leaved Trumpet-flower. W. Indies. July and Aug. S. h.
Bignonia longissima. Wave-leaved Trumpet-flower. W. Indies. S. h.
Bignonia Pandorana. Cluster-flowered Trumpet-flower. Norfolk island. March—June. G. h.
Bignonia pentaphylla. Hairy five-leaved Trumpet-flower. Jamaica. S. h.
Bignonia procera. Fern-leaved Trumpet-flower. Guiana. S. h.
Bignonia sempervirens. Yellow sweet-scented Trumpet-flower. N. Amer. June and July. G. h.
Bignonia stans. Branching-flowered Trumpet-flower. W. Indies. August. S. h.
Billardiera scandens. Climbing *Billardiera*. New Holland. June—Aug. G. h.
Biscutella sempervirens. Shrubby *Biscutella*. Spain. June and July. G. h.
Bixa Orellana. Heart-leaved *Bixa*, or *Arnotta*. Both Indies. S. h.
Blæria articulata. Jointed *Blæria*. Cape. August. G. h.
Blæria ciliaris. Ciliated *Blæria*. Cape. June—Aug. G. h.
Blæria ericoides. Heath-leaved *Blæria*. Cape. Aug.—Nov. G. h.
Blæria muscosa. Moss-leaved *Blæria*. Cape. June—Aug. G. h.
Blakea trinervia. Three-nerved *Blakea*. Jamaica. June and July. S. h.
Blandfordia cordata. Heart-leaved *Blandfordia*. S. Carolina. June. G. P.
Bocconia frutescens. Shrubby *Bocconia*, or Tree Celandine. Jamaica and Mexico. Jan.—April. S. h.
Boerhavia diffusa. Spreading Hogweed. Both Indies. Aug. and Sept. S. P.
Boerhavia erecta. Upright Hogweed. Both Indies. July—Sept. S. P.
Boerhavia hirsuta. Hairy Hogweed. W. Indies. May—Aug. S. P.
Boerhavia scandens. Climbing Hogweed. Jamaica. April—Sept. S. h.
Bombax Ceiba. Five-leaved Silk-Cotton Tree. E. Indies. S. h.
Bombax pentandrum. Seven-leaved Silk-Cotton Tree. E. Indies. S. h.
Bontia daphnoides. Barbadoes Wild Olive. W. Indies. June. S. h.
Borago africana. African Borage. Cape. July and Aug. G. A.
Borago indica. Indian Borage. E. Indies. June—Oct. G. A.
Borbonia cordata. Heart-leaved *Borbonia*.
Borbonia crenata. Notch-leaved *Borbonia*.
Borbonia lanceolata. Spear-leaved *Borbonia*. Cape. July and Aug. G. h.
Boronia pinnata. Winged-leaved *Boronia*. New Holland. Feb.—May. G. h.
Bosca Yermamora. Canary Golden-red tree. Canary islands. G. h.
Bromelia Ananas. Cultivated Pine-Apple. Both Indies. March and April. S. h.

- Bromelia pinguin*. *Wild Pine-Apple*. W. Indies. March and April. S. h.
- Brosimum alicastrum*. *Jamaica Bread-nut tree*. Jamaica. S. h.
- Brotera persica*. *Persian Brotera*. Persia. July. G. h.
- Browallia demissa*. *Spreading Browallia*. S. Amer. July—Sept. S. A.
- Browallia elata*. *Upright Browallia*. Peru. July—Sept. S. A.
- Brownea coccinea*. *Scarlet-flowered Brownea*. W. Indies. S. h.
- Brucea ferruginea*. *African Brucea*. April and May. S. h.
- Brunfelsia americana*. *Spear-leaved Brunfelsia*. W. Indies. June and July. S. h.
- Brunia abrotanoides*. *Southernwood-leaved Brunia*.
- Brunia lanuginosa*. *Woolly-headed Brunia*.
- Brunia nodiflora*. *Knotted-flowered Brunia*.
- Brunia paleacea*. *Chaffy Brunia*.
- Brunia radiata*. *Radiated Brunia*.
- Brunia superba*. *Pine-leaved Brunia*.
- Brunia verticillata*. *Whorled Brunia*. Cape. June—Aug. G. h.
- Bryonia africana*. *African or Smooth-leaved Briony*. Cape. July and Aug. G. P.
- Bryonia grandis*. *Great-flowered Briony*. India. S. P.
- Bryonia latebrofa*. *Hairy Briony*. Canary islands. June. G. P.
- Bryonia palmata*. *Palmated Briony*. Ceylon. S. P.
- Bryonia scabra*. *Globe-fruited Briony*. Cape. Sept. and Oct. G. P.
- Bryonia scabrella*. *Bristly Briony*. E. Indies. May—July. S. A.
- Bryonia verrucosa*. *Warted Briony*. Canary islands. G. P.
- Bubon galbanum*. *Lovage-leaved Bubon*. Cape. July and Aug. G. h.
- Bubon gummiferum*. *Gum-bearing Bubon*. Cape. July. G. h.
- Bubon lævigatum*. *Smooth Bubon*. Cape. Dec.—Feb. G. h.
- Bubon macedonicum*. *Macedonian Bubon or Parsley*. Barbary and Greece. June—Aug. G. B.
- Buchnera viscosa*. *Clammy Buchnera*. Cape. May—Aug. G. B.
- Buchnera pedunculata*. *Long-stalked Buchnera*. Cape. July—Oct. G. h.
- Bucida buceras*. *Olive-bark Tree*. Jamaica. S. h.
- Buddleia salviifolia*. *Sage-leaved Buddleia*. Cape. Aug. and Sept. G. h.
- Bumelia falicifolia*. *Willow-leaved Bumelia*. S. Amer. S. h.
- Buphthalmum arborecens*. *Tree Ox-eye*. Bermudas. May—Sept. G. h.
- Buphthalmum frutescens*. *Shrubby Ox-eye*. Virginia and Jamaica. June—Aug. G. h.
- Buphthalmum fericeum*. *Silky Ox-eye*. Canary islands. May—July. G. h.
- Bupleurum coriaceum*. *Thick-leaved shrubby Hare's-ear*. Gibraltar. G. h.
- Bupleurum difforme*. *Various-leaved Hare's-ear*. Cape. June—Aug. G. h.
- Bupleurum frutescens*. *Grass-leaved shrubby Hare's-ear*. Spain. Aug. and Sept. G. h.
- Bupleurum nudum*. *Naked-stalked Hare's-ear*. Cape. October. G. P.
- Bursera gummifera*. *Jamaica Birch-tree*. W. Indies. S. h.
- Butonica speciosa*. *Laurel-leaved Butonica*. E. Indies and South Sea Islands. S. h.
- Bystropogon canariense*. *Canary Bystropogon*. Madeira and Canary Islands. June—Aug. G. h.
- Bystropogon pectinatum*. *Balm-leaved Bystropogon*. Jamaica. Dec. and Jan. S. h.
- Bystropogon plumosum*. *Woolly-flowered Bystropogon*. Canary islands. June and July. G. h.
- Bystropogon punctatum*. *Cluster-flowered Bystropogon*. Madeira. July—Sept. G. h.
- Cacalia antcuphorbium*. *Oval-leaved Cacalia*. Cape. G. h.
- Cacalia articulata*. *Jointed-stalked Cacalia*. Cape. November. G. h.
- Cacalia canescens*. *Hoary-leaved Cacalia*. Cape. G. h.
- Cacalia carnosa*. *Narrow-leaved Cacalia*. Cape. June. G. h.
- Cacalia ficoides*. *Flat-leaved Cacalia*. Cape. June—Nov. G. h.
- Cacalia kleinia*. *Oleander-leaved Cacalia, or Cabbage-tree*. Canary Islands. Sept. and Oct. G. h.
- Cacalia papillaris*. *Rough-stalked Cacalia*. Cape. G. h.
- Cacalia porophyllum*. *Perforated Cacalia*. America. June—Oct. S. A.
- Cacalia repens*. *Glaucous-leaved Cacalia*. Cape. June. G. h.
- Cacalia scandens*. *Climbing Cacalia*. Cape. April. G. P.
- Cacalia sonchifolia*. *Sowthistle-leaved Cacalia*. E. Indies. July. S. A.
- Cactus cochenillifer*. *Cochineal Indian Fig*. S. Amer. July and Aug.
- Cactus curassavicus*. *Small Indian Fig*. Curassao.
- Cactus ficus-indica*. *White-spined Indian Fig*. S. Amer. July and Aug.
- Cactus flagelliformis*. *Creeping Cereus*. Peru. March—June.
- Cactus grandiflorus*. *Great night-flowering Cereus*. Jamaica and Vera Cruz. June and July.
- Cactus heptagonus*. *Seven-angled Torch-thistle*. W. Indies.
- Cactus hexagonus*. *Six-angled Torch-thistle*. Surinam. July and Aug.
- Cactus lanuginosus*. *Woolly Torch-thistle*. W. Indies.
- Cactus mammillaris*. *Small Melon-thistle*. W. Indies. July and Aug.
- Cactus melocactus*. *Great Melon-thistle or Turk's-cap*. W. Indies. July and Aug.
- Cactus opuntia*. *Common Indian Fig*. Amer. and S. Europe. July and Aug.
- Cactus pendulus*. *Slender or smooth Cereus*. W. Indies. September.
- Cactus pentagonus*. *Five-angled Torch-thistle*. America. July.
- Cactus pereskia*. *Barbadoes Gooseberry*. W. Indies.
- Cactus peruvianus*. *Peruvian Torch-thistle*. Jamaica and Peru.
- Cactus phyllanthus*. *Spleenwort-leaved Indian Fig*. S. Amer. June.
- Cactus repandus*. *Waved Torch-thistle*. W. Indies. August.
- Cactus royeri*. *Nine-angled Torch-thistle*. Amer.
- Cactus spinosissimus*. *Cluster-spined Indian Fig*. Jamaica.
- Cactus triangularis*. *Triangular Cereus*. W. Indies. July.
- Cactus tetragonus*. *Four-angled Torch-thistle*. S. Amer. July.
- Cactus tuna*. *Black-spined Indian Fig*. S. Amer. July and Aug. D. S. h.
- Cadia purpurea*. *Purple-flowered Cadia*. Arabia. S. h.
- Cæsalpinia bijuga*. *Broad-leaved Brasiletto*. Jamaica.
- Cæsalpinia brasiliensis*. *Smooth Brasiletto*. Jamaica.
- Cæsalpinia sappan*. *Narrow-leaved prickly Brasiletto*. E. Indies.
- Cæsalpinia vesicaria*. *Broad-leaved prickly Brasiletto*. Jamaica. S. h.
- Calceolaria fothergillii*. *Spatula-leaved Calceolaria*. Falkland-islands. May—Aug. G. B. or P.
- Calceolaria pinnata*. *Winged-leaved Calceolaria*. Peru. July—Oct. S. A.
- Calea lobata*. *Halbert-weed*. W. Indies. June and July. S. h.
- Calendula dentata*. *Tooth-leaved Marygold*. Cape. May and June. G. h.
- Calendula fruticosa*. *Shrubby Marygold*. Cape. June and July. G. h.
- Calendula graminifolia*. *Grass-leaved Marygold*. Cape. May and June. G. h.
- Calendula grandiflora*. *Great-flowered Marygold*. Cape. June and July. G. h.
- Calendula oppositifolia*. *Glaucous Marygold*. Cape. August. G. h.
- Calendula rigida*. *Rough-leaved Marygold*. Cape. December. G. h.
- Calendula tragus*. *Bending-stalked Marygold*. Cape. May and June. G. h.
- Calla æthiopica*. *Ethiopian Calla*. Cape. Jan.—May. G. P.
- Callicarpa americana*. *Sage-leaved Callicarpa*. Carolina. G. h.
- Callisia repens*. *Creeping Callisia*. W. Indies. June and July. S. P.
- Calophyllum calaba*. *Bay-leaved Calophyllum*. Both Indies. S. h.
- Calycanthus præcox*. *Japan All-spice*. Dec. and Jan. G. h.
- Camellia japonica*. *Japan Rose*. China and Japan. Jan.—May. G. h.
- Cameraria latifolia*. *Broad-leaved Cameraria*. Havannah. August. S. h.
- Campanula aurea*. *Golden Bell-flower*. Madeira. Aug. and Sept. G. h.
- Campanula fruticosa*. *Shrubby Bell-flower*. Cape. August. G. h.
- Campanula gracilis*. *Slender Bell-flower*. New Holland. June and July. G. P.
- Campanula laciniata*. *Jagged-leaved Bell-flower*. Greece. June—Aug. G. P.
- Campanula mollis*. *Soft Bell-flower*. Syria. May—Aug. G. P.
- Campanula nummularia*. *Monywort Bell-flower*. July. G. P.
- Campanula prismatocarpus*. *Long-capsuled Bell-flower*. Cape. September. G. A.
- Camphorosma monspeliaca*. *Hairy Camphorosma*. S. Europe. Aug. and Sept. G. h.
- Canarina campanula*. *Canary Bell-flower*. Canary Islands. Jan.—March. G. P.
- Canella alba*. *Laurel-leaved Canella*. W. Indies. S. h.
- Canna flaccida*. *Flaccid Indian Reed or Indian Shot*. S. Carolina. July. S. P.
- Canna glauca*. *Glaucous Indian Reed*. S. Amer. July. S. P.

- Canna indica*. Common Indian Reed. Both Indies. May—Aug. S. P.
- Capparis cynophallophora*. Long-podded Caper Tree. W. Indies. S. h.
- Capparis frondosa*. Broad-leaved Caper Tree. Carthage. S. h.
- Capparis linearis*. Linear-leaved Caper Tree. Carthage. S. h.
- Capparis spinosa*. Common Caper Tree. S. Europe. May and June. G. h.
- Capraria biflora*. Two-flowered Capraria or Sweet-weed. S. Amer. July and Aug. S. h.
- Capraria humilis*. Dwarf Capraria. E. Indies. July and Aug. S. A.
- Capraria lanceolata*. Willow-leaved Capraria. Cape. G. h.
- Capraria lucida*. Shining Capraria. Cape. April and May. G. B.
- Capraria undulata*. Wave-leaved Capraria. Cape. March—July. G. h.
- Capficum annuum*. Annual Capsicum. Both Indies. June—Aug. S. A.
- Capficum baccatum*. Small-fruited Capsicum or Bird Pepper. Both Indies. June—Sept. S. h.
- Capficum cerasiforme*. Cherry-Pepper. Both Indies. June and Aug. S. A.
- Capficum frutescens*. Shrubby Capsicum. Both Indies. June—Sept. S. h.
- Capficum grossum*. Heart-shaped Capsicum or Bell-Pepper. Both Indies. July. S. P.
- Cardiospermum Corindum*. Parsley-leaved Heart-seed. Brazil. July and Aug. S. A.
- Cardiospermum Halicacabum*. Smooth-leaved Heart-seed. Both Indies. July. S. A.
- Carica Papaya*. Papaw-tree. Both Indies. July. S. h.
- Carolinea insignis*. Large-flowered Caroline. Tobago. S. h.
- Carolinea princeps*. Digitate-leaved Caroline. Guiana. S. h.
- Carthamus falcifolius*. Willow-leaved Carthamus. Madeira. August. G. h.
- Caryota mitis*. Smooth Caryota. E. Indies. S. h.
- Caryota urens*. Torn-leaved Caryota. E. Indies. S. h.
- Cassia Abfus*. Four-leaved Cassia. Egypt and E. Indies. June and July. S. A.
- Cassia elata*. Broad-leaved Cassia. W. Indies. S. h.
- Cassia arborescens*. Tree Cassia. E. Indies. S. h.
- Cassia auriculata*. Eared Cassia. E. Indies. S. h.
- Cassia bicapsularis*. Six-leaved Cassia. W. Indies and Madeira. May and June. S. h.
- Cassia biflora*. Two-flowered Cassia. W. Indies. Jan—May. S. h.
- Cassia Chamæcrista*. Dwarf Cassia. W. Indies. June and July. S. A.
- Cassia corymbosa*. Corymbose Cassia. Buenos Ayres. June and July. G. h.
- Cassia diphylla*. Two-leaved Cassia. W. Indies. S. B.
- Cassia Fistula*. Purging Cassia. E. Indies. June and July. S. h.
- Cassia frondosa*. Shrubby smooth-leaved Cassia. W. Indies. March and April. S. h.
- Cassia javanica*. Java Cassia. E. Indies. S. h.
- Cassia ligustrina*. Privet-leaved Cassia. Bahama Islands. July—Sept. S. h.
- Cassia multiglandulosa*. Glandulous Cassia. June—Aug. G. h.
- Cassia nictitans*. Virginian Cassia. July. S. A.
- Cassia occidentalis*. Occidental Cassia. W. Indies. S. h.
- Cassia Senna*. Egyptian Cassia or Senna. July and Aug. S. A.
- Cassia stipulacea*. Large-stipuled Cassia. Chili. S. h.
- Cassia Tagera*. Long-podded Cassia. E. Indies. S. h.
- Cassia Tora*. Ovate-leaved Cassia or Wild Senna. E. Indies. August. S. A.
- Cassia vinea*. Twiggy Cassia. Jamaica. S. h.
- Cassine capensis*. Cape Cassine or Phillyrea. Cape. July and Aug. G. h.
- Cassine Maurocenia*. Great Hottentot Cherry. Cape. July and Aug. G. h.
- Casuarina equisetifolia*. Horse tail Casuarina. E. Indies and South Sea Islands. Oct. and Nov. S. h.
- Casuarina stricta*. Upright Casuarina. New South Wales. Nov. and Dec. G. h.
- Casuarina torulosa*. Cork-barked Casuarina. New South Wales. S. h.
- Catesbaea spinosa*. Lily-thorn. Island of Providence. June and July. S. h.
- Ceanothus africanus*. African evergreen Ceanothus. Cape. March and April. G. h.
- Ceanothus asiaticus*. Asian Ceanothus. Ceylon. S. h.
- Cecropia peltata*. Peltate-leaved Cecropia. Jamaica. S. h.
- Cedrela odorata*. Barbadoes Bastard Cedar. W. Indies. S. h.
- Celastrus buxifolius*. Box-leaved Staff-tree. Cape. May and June. G. h.
- Celastrus Cassinoides*. Crenated Staff-tree. Canary Islands. Aug. and Sept. G. h.
- Celastrus lucidus*. Shining Staff-tree, or small Hottentot-Cherry. Cape. April—Sept. G. h.
- Celastrus octogonus*. Angular-leaved Staff-tree. Peru. Oct. tober. S. h.
- Celastrus pyracanthus*. Pyracantha-leaved Staff-tree. Cape. May and June. G. h.
- Celastrus undulatus*. Waved-leaved Staff-tree. Island of Bourbon. S. h.
- Celosia argentea*. Silvery-spiked Celosia. China. June—Sept. S. A.
- Celosia castrensis*. Branched Celosia or Cock's-comb. E. Indies. July—Sept. S. A.
- Celosia coccinea*. Scarlet Celosia, or Chinese Cock's-comb. China. July—Sept. S. A.
- Celosia cristata*. Common Celosia, or Cock's-comb. Asia. July—Sept.
- Celosia Monsonia*. Downy Celosia. E. Indies. Aug. and Sept. S. A.
- Celosia nodiflora*. Knotted Celosia. E. Indies. July and Aug. S. A.
- Celosia paniculata*. Panicked Celosia. Jamaica. June—Sept. S. P.
- Celosia procumbens*. Procumbent Celosia. S. Domingo. July. S. A.
- Celosia trigyna*. Ovate-leaved Celosia. Senegal. Aug.—Oct. S. A.
- Celsia Arcturus*. Scollop-leaved Celsia. Candia. July—Sept. G. B.
- Celsia cormandeliana*. Clammy Celsia. E. Indies. August. S. A.
- Celsia cretica*. Great-flowered Celsia. July. G. B.
- Celtis micrantha*. Jamaica Nettle-tree. Aug. and Sept. S. h.
- Centaurea ægyptica*. Egyptian Centaury. June—Sept. G. P.
- Centaurea argentea*. Silvery Centaury. Candia. July and Aug. G. h.
- Centaurea Cineraria*. White-leaved Mountain Centaury. Italy. July and Aug. G. P.
- Centaurea ragulina*. Cretan Centaury. June and July. G. P.
- Centaurea sempervirens*. Evergreen Centaury. Spain and Portugal. July and Aug. G. P.
- Centaurea spinosa*. Prickly-branched Centaury. Candia. G. P.
- Cephaelis elata*. Tall Cephaelis. Jamaica. S. h.
- Ceratonis Siliqua*. Carob-tree or St John's bread. Sicily and Levant. G. h.
- Cerbera Ahouai*. Ovate-leaved Cerbera. Brazil. June and July. S. h.
- Cerbera Thevetia*. Linear-leaved Cerbera. S. Amer. S. h.
- Ceropegia sagittata*. Arrow-leaved Ceropegia. Cape. G. h.
- Cestrum auriculatum*. Ear-leaved Cestrum. Peru. June. S. h.
- Cestrum diurnum*. Day-smelling Cestrum. W. Indies. November. S. h.
- Cestrum laurifolium*. Laurel-leaved Cestrum. W. Indies. August. S. h.
- Cestrum nocturnum*. Night-smelling Cestrum. W. Indies. November. S. h.
- Cestrum Parqui*. Willow-leaved Cestrum. Chili. June and July. G. h.
- Cestrum venenatum*. Oval-leaved Cestrum. Cape. G. h.
- Cestrum vespertinum*. Cluster-flowered Cestrum. W. Indies. May and June. S. h.
- Chamærops humilis*. Dwarf Fan Palm. S. Europe. G. h.
- Cheiranthus callosus*. Cape Stock. G. h.
- Cheiranthus Farselia*. Flat-podded Stock. Egypt. June and July. G. h.
- Cheiranthus mutabilis*. Changeable Stock. Madeira. March—May. G. h.
- Cheiranthus semperflorens*. White-flowered Stock. Barbary. June and July. G. h.
- Cheiranthus strictus*. Upright Stock. Cape. G. h.
- Cheiranthus tristis*. Dark-flowered Stock. S. Europe. May—July. G. h.
- Chenolea diffusa*. Silky Chenolea. Cape. Aug. and Sept. G. h.
- Chenopodium anthelminticum*. Shrubby Goosefoot. America. G. h.
- Chenopodium laterale*. Branching oblong-leaved Goosefoot. Aug. and Sept. S. A.
- Chiococca racemosa*. Opposite-leaved Chiococca, or Snowberry. Jamaica. September. S. h.
- Chironia baccifera*. Berry-bearing Chironia. Cape. June and July. G. h.
- Chironia frutescens*. Shrubby Chironia. Cape. June—Sept. G. h.
- Chironia latifolia*. Broad-leaved Chironia. Cape. June—Sept. G. h.
- Chironia linoides*. Flax-leaved Chironia. Cape. June—Aug. G. h.
- Chloranthus inconspicuus*. Tea-leaved Chloranthus, or Chulae. China. May—Aug. G. h.
- Chrysanthemum floculosum*. Tooth-leaved Chrysanthemum. Candia and Africa. June—Oct. G. h.
- Chrysanthemum frutescens*. Shrubby Chrysanthemum. Canary Islands. Jan.—May. G. h.
- Chrysanthemum indicum*. Purple-flowered Chrysanthemum. China. Sept.—Nov. G. P.
- Chrysanthemum lacerum*. Cut-leaved Chrysanthemum. Canary Islands. Jan.—May. G. h.
- Chrysanthemum pinnatifidum*. Pinnatifid-leaved Chrysanthemum. Madeira. May—Aug. G. h.
- Chryfobalanus

- Chrysobalanus Icaco*. *Cocoa Plum-tree*. W. Indies. S. h.
Chrysocoma cernua. *Small Shrubby Goldilocks*. Cape. May—Sept. G. h.
Chrysocoma cilata. *Heath-leaved Goldilocks*. Cape. July—Oct. G. h.
Chrysocoma Coma aurea. *Great shrubby Goldilocks*. Cape. June—Aug. G. h.
Chrysophyllum argenteum. *Narrow-leaved Star Apple*. Martinico. S. h.
Chrysophyllum Cainito. *Broad-leaved Star Apple*. W. Indies. S. h.
Cinchona caribaea. *Caribbean Cinchona*. W. Indies. S. h.
Cineraria Amelloides. *Blue-flowered Cineraria, or Cape Aster*. Cape. March—Sept. G. h.
Cineraria aurita. *Purple-flowered Cineraria*. Madeira. June and July. G. h.
Cineraria cruenta. *Purple-leaved Cineraria*. Canary Islands. Feb. and March. G. P.
Cineraria geifolia. *Kidney-leaved Cineraria*. Cape. June—Aug. G. h.
Cineraria humifusa. *Trailing Cineraria*. Cape. July and Aug. G. P.
Cineraria lanata. *Woolly-leaved Cineraria*. Canary Islands. May—July. G. h.
Cineraria lobata. *Lobe-leaved Cineraria*. Cape. June—Aug. G. h.
Cineraria malvæfolia. *Mallow-leaved Cineraria*. Azores. August. G. h.
Cineraria parviflora. *Small-flowered Cineraria*. Cape. July. G. h.
Cineraria populifolia. *Poplar-leaved Cineraria*. Canary Islands. June—Aug. G. h.
Cineraria viscosa. *Clammy Cineraria*. June—Aug. G. B.
Cissampelos capensis. *Oval-leaved Cissampelos*. Cape. G. h.
Cissampelos smilacina. *Smilax-leaved Cissampelos*. S. Carolina. G. h.
Cistus acida. *Three-leaved Cistus*. Jamaica.
Cistus Sicyoides. *Heart-leaved Cistus*. Jamaica.
Cistus vitiginea. *Vine-leaved Cistus*. India. S. h.
Cistus algarvensis. *Algarvia Cistus*. Spain. July. G. h.
Cistus angustifolius. *Narrow-leaved Cistus*. June and July. G. h.
Cistus canariensis. *Canary Cistus*. June and July. G. h.
Cistus creticus. *Cretan Cistus*. Levant. June—Aug. G. h.
Cistus crispus. *Curled-leaved Cistus*. Portugal. June—Aug. G. h.
Cistus formosus. *Large yellow flowered Cistus*. Portugal. June—Aug. G. h.
Cistus glutinosus. *Glutinous Cistus*. S. Europe. June and July. G. h.
Cistus halimifolius. *Sea Purslane-leaved Cistus*. Portugal. June—Aug. G. h.
Cistus hirtus. *Hairy Cistus*. Spain. June and July. G. h.
Cistus lævis. *Larch-leaved Cistus*. S. Europe. June—Aug. G. h.
Cistus laxus. *Wave-leaved Cistus*. Spain. July. G. h.
Cistus Libanotis. *Rosemary-leaved Cistus*. Spain. June. G. h.
Cistus monspeliensis. *Montpelier Cistus*. S. Europe. July. G. h.
Cistus syriacus. *Syrian Cistus*. Levant. G. h.
Cistus vaginatus. *Sheathed Cistus*. Teneriffe. April—June. G. h.
Cistus villosus. *Villous Cistus*. Spain. July. G. h.
Cistus umbellatus. *Umbelled Cistus*. S. Europe. June—Aug. G. h.
Citharexylum caudatum. *Oval-leaved Fiddle-wood*. Jamaica. S. h.
Citharexylum quadrangulare. *Square-stalked Fiddle-wood*. Jamaica. S. h.
Citharexylum villosum. *Hairy-leaved Fiddle-wood*. St. Domingo. S. h.
Citrus Aurantium. *Orange*. E. Indies. May—July. G. h.
Citrus decumana. *Shaddock*. E. Indies. May—July. G. h.
Citrus Medica. *Lemon*. Asia. May—July. G. h.
Clematis calycina. *Minorca Virgin's Bower*. Feb. G. h.
Clematis florida. *Japan Virgin's Bower*. April—Sept. G. h.
Cleome arabica. *Arabian Cleome*. June and July. S. A.
Cleome dodecandra. *Three-leaved Cleome*. Both Indies. June and July. S. A.
Cleome gigantea. *Gigantic Cleome*. S. Amer. June and July. S. h.
Cleome heptaphylla. *Seven-leaved Cleome*. Both Indies. June and July. S. A.
Cleome ornithopodioides. *Bird's-foot Cleome*. Levant. June and July. S. A.
Cleome pentaphylla. *Five-leaved Cleome*. Both Indies. June and July. S. A.
Cleome spinosa. *Prickly Cleome*. W. Indies. July. S. A.
Cleome triphylla. *Three-leaved Cleome*. W. Indies. June and July. S. A. or B.
Cleome viscosa. *Viscous Cleome*. Ceylon. June and July. S. A.
Clerodendrum fortunatum. *Entire-leaved Clerodendrum*. E. Indies. July. S. h.
Clerodendrum squamatum. *Downy-leaved Clerodendrum*. E. Indies. June—Sept. G. h.
Clethra arborea. *Tree Clethra*. Madeira. Aug. and Sept. G. h.
Cliffortia cuneata. *Wedge-leaved Cliffortia*. Cape. April. G. h.
Cliffortia ilicifolia. *Ilex-leaved Cliffortia*. Cape. June and July. G. h.
Cliffortia obcordata. *Heart-leaved Cliffortia*. Cape. June and July. G. h.
Cliffortia ruscifolia. *Ruscus-leaved Cliffortia*. Cape. June and July. G. h.
Cliffortia trifoliata. *Three-leaved Cliffortia*. Cape. March—June. G. h.
Clinopodium rugosum. *Wrinkled Clinopodium*. Carolina. June and July. G. P.
Clitoria frutescens. *Shrubby Clitoria*. W. Indies. S. h.
Clitoria Ternatea. *Wing-leaved Clitoria*. E. Indies. July and Aug. S. P.
Clitoria virginiana. *Small-flowered Clitoria*. Virginia and West Indies. July. S. A.
Clusia flava. *Yellow-flowered Balsam-tree*. Jamaica. September. S. h.
Cluytia alaternoides. *Narrow-leaved Cluytia*. Jan.—March.
Cluytia daphnoides. *Hairy-leaved Cluytia*. June.
Cluytia pulchella. *Broad-leaved Cluytia*. March—June. Cape. G. h.
Cneorum tricoccum. *Widow-wail*. S. France and Spain. May—Sept. G. h.
Coccoloba barbadensis. *Barbadoes Sea-side Grape*.
Coccoloba excoxiata. *Oval-leaved Sea-side Grape*. W. Indies.
Coccoloba pubescens. *Downy Sea-side Grape*. W. Indies.
Coccoloba punctata. *Spear-leaved Sea-side Grape*. W. Indies.
Coccoloba uvifera. *Round-leaved Sea-side Grape*. W. Indies. S. h.
Cocos aculeata. *Great Macaw-tree*. Jamaica.
Cocos guineensis. *Small prickly Cocoa Nut*. Jamaica.
Cocos nucifera. *Common Cocoa-nut Tree*. Both Indies. S. h.
Codon Royeni. *Prickly Codon*. Cape. Sept. G. h.
Coffea arabica. *Coffee-tree*. Yemen. Oct. and Nov. S. h.
Coix Lacryma Jobi. *Job's-tears*. E. Indies. July. S. P.
Coldenia procumbens. *Trailing Coldenia*. E. Indies. July and Aug. S. A.
Colebrookia bulbifera. *Bulb-bearing Colebrookia*. E. Indies. S. P.
Collinsonia scabriuscula. *Rough-stalked Collinsonia*. E. Florida. G. P.
Columnnea hirsuta. *Hairy Columnnea*. Jamaica. Nov. S. h.
Colutea frutescens. *Scarlet Bladder-Senna*. Cape. June and July. G. h.
Colutea herbacea. *Annual Bladder-Senna*. Cape. June and July. G. A.
Colutea perennans. *Perennial Bladder Senna*. Africa. August. G. P.
Commelina africana. *African Commelina*. Cape. May—Oct. G. P.
Commelina spirata. *Spear-leaved Commelina*. E. Indies. July and Aug. S. A.
Commelina tuberosa. *Tuberous-rooted Commelina*. Mexico. June and July. S. P.
Commelina Zanonina. *Gentian-leaved Commelina*. W. Indies. July—Dec. S. P.
Comocladia integrifolia. *Entire-leaved Maiden Plum*. Jamaica. S. h.
Conchium aciculare. *Needle-leaved Conchium*.
Conchium gibbosum. *Large-fruited Conchium*.
Conchium longifolium. *Long-leaved Conchium*.
Conchium nervosum. *Nerved Conchium*.
Conchium salignum. *Willow-leaved Conchium*. New Holland. June and July. G. h.
Conium africanum. *Rue-leaved Hemlock*. Cape. June—Sept. G. A.
Conium dichotomum. *Forked Hemlock*. Cape. June and July. G. A.
Conium rigens. *Fine-leaved Hemlock*. Cape. June. G. h.
Conocarpus erecta. *Jamaica Button-tree*. S. h.
Convolvulus althæoides. *Silky-leaved Bindweed*. Levant. June—Sept. G. P.
Convolvulus Batatas. *Tuberous-rooted Bindweed*. Both Indies. S. P.
Convolvulus brasiliensis. *Broad-leaved Bindweed*. South Amer. S. P.
Convolvulus cairicus. *Jagged-leaved Bindweed*. Egypt. June and July. G. P.
Convolvulus canariensis. *Canary Bindweed*. May—Aug. G. h.
Convolvulus Cantabrica. *Flax-leaved Bindweed*. S. Europe. June—Aug. G. P.
Convolvulus Cneorum. *Silvery-leaved Bindweed*. Levant. June—Aug. G. h.

- Convolvulus diffeſus*. *Cut-leaved Bindweed*. America. Aug. and Sept. S. A.
- Convolvulus farinofus*. *Mealy-ftalked Bindweed*. Madeira. May and June. G. P.
- Convolvulus floridus*. *Many-flowered Bindweed*. Canary Iſlands. Aug. and Sept. G. h.
- Convolvulus hederaceus*. *Ivy-leaved Bindweed*. E. Indies. July and Aug. S. A.
- Convolvulus Hermannæ*. *Crenated Bindweed*. Peru. Aug. and Sept. G. P.
- Convolvulus Jalapa*. *Jalap Bindweed*. S. Amer. Aug. and Sept. S. h.
- Convolvulus linearis*. *Linear Bindweed*. June—Aug. G. h.
- Convolvulus macrocarpos*. *Long-fruited Bindweed*. S. Amer. July and Aug. S. A.
- Convolvulus Medium*. *Arrow-headed Bindweed*. E. Indies. July and Aug. S. A.
- Convolvulus muricatus*. *Rough-ftalked Bindweed*. E. Indies. July and Aug. S. A.
- Convolvulus Nil*. *Blue Bindweed*. America. July—Sept. S. A.
- Convolvulus obſcurus*. *Hairy Bindweed*. E. Indies. July—Aug. S. A.
- Convolvulus panduratus*. *Virginian Bindweed*. Carolina and Virginia. June—Sept. G. P.
- Convolvulus pentaphyllus*. *Five-leaved Bindweed*. W. Indies. Aug. and Sept. S. A.
- Convolvulus Pes capræ*. *Thick-leaved Bindweed*. E. Indies. June and July. S. A.
- Convolvulus rupeſtris*. *Rock Bindweed*. Madeira. July. G. h.
- Convolvulus ſcoparius*. *Broom Bindweed*. Canary Iſlands. Aug. and Sept. G. h.
- Convolvulus ſpecioſus*. *Heart-leaved Bindweed*. E. Indies. Aug. and Sept. S. h.
- Convolvulus tridentatus*. *Trifid Bindweed*. E. Indies. July and Aug. S. A.
- Convolvulus Turpethum*. *Square-ftalked Bindweed*. Ceylon. S. P.
- Convolvulus umbellatus*. *Umbelled Bindweed*. W. Indies. June and July. S. P.
- Conyza ægyptiaca*. *Egyptian Fleabane*. July. S. A.
- Conyza anthelmintica*. *Purple Fleabane*. E. Indies. Aug. and Sept. S. B.
- Conyza candida*. *Hoary-leaved Fleabane*. Candia. June and July. G. h.
- Conyza incifa*. *Cut-leaved Fleabane*. Cape. June and July. G. h.
- Conyza Inuloides*. *Cluster-flowered Fleabane*. Teneriffe. July and Aug. G. h.
- Conyza patula*. *Spreading Fleabane*. China. Aug. and Sept. S. A.
- Conyza rugoſa*. *St. Helena Fleabane*. Nov. G. h.
- Conyza ſaxatilis*. *Rock Fleabane*. S. Europe. July and Aug. G. h.
- Conyza ſcricea*. *Silky-leaved Fleabane*. Canary Iſlands. G. h.
- Conyza fordida*. *Small-flowered Fleabane*. S. Europe. July—Sept. G. h.
- Conyza virgata*. *Winged-ftalked Fleabane*. Carolina. and W. Indies. Aug. and Sept. G. P.
- Copaifera officinalis*. *Balm of Capevi Tree*. S. Amer. S. h.
- Corchorus æſtuans*. *Hornbeam-leaved Corchorus*. S. Amer. June and July. S. A.
- Corchorus capſularis*. *Heart-leaved Corchorus*. E. Indies. June and July. S. A.
- Corchorus olitorius*. *Bristly-leaved Corchorus*. Aſia, Africa and America. June—Aug. S. A.
- Corchorus filiquoſus*. *Germander-leaved Corchorus*. W. Indies. June—Aug. S. h.
- Cordia Collococca*. *Long-leaved Cordia*. Jamaica.
- Cordia Myxa*. *Smooth-leaved Cordia*. Egypt and E. Indies.
- Cordia Patagonula*. *Spear-leaved Cordia*, or *Patagonula*. June—Aug.
- Cordia Sebeſtena*. *Rough-leaved Cordia*. Both Indies. S. h.
- Coreopſis anguſtifolia*. *Narrow-leaved Coreopſis*. Carolina and Florida. June. G. P.
- Coris monſpelienſis*. *Montpelier Coris*. S. Europe. June and July. G. B.
- Cornutia pyramidata*. *Hoary-leaved Cornutia*. W. Indies. S. h.
- Coronilla glauca*. *Seven-leaved Coronilla*. S. France. May—July. G. h.
- Coronilla juncea*. *Ruſh-ftalked Coronilla*. S. Europe. June and July. G. h.
- Coronilla valentina*. *Nix-leaved Coronilla*. Spain. Feb. and March. G. h.
- Correa alba*. *White Correa*. New Holland. April—July. G. h.
- Corypha umbraculifera*. *Great Fan-Palm*. E. Indies. S. h.
- Coſtus arabicus*. *Arabian Coſtus*. Both Indies. Auguſt. S. P.
- Coſtus ſpecioſus*. *Large-flowered Coſtus*. E. Indies. Auguſt. S. P.
- Cotula Anthemoides*. *Dwarf Cotula*. St. Helena. July. S. A.
- Cotula coronopifolia*. *Buck's-horn Cotula*. Cape. July and Aug. G. A.
- Cotula ſtriſta*. *Silvery Cotula*. Cape. May and June. G. h.
- Cotula turbinata*. *Radiated Cotula*. Cape. July and Aug. G. A.
- Cotyledon fascicularis*. *Cluster-leaved Navelwort*. Cape. July—Sept. G. h.
- Cotyledon hemiſphærica*. *Thick-leaved Navelwort*. Cape. June and July. G. h.
- Cotyledon laciniata*. *Cut-leaved Navelwort*. E. Indies. July and Aug. D. S. h.
- Cotyledon orbiculata*. *Round-leaved Navelwort*. Cape. July—Sept. G. h.
- Cotyledon ferrata*. *Notch-leaved Navelwort*. Candia and Siberia. June and July. G. h.
- Cotyledon ſpuria*. *Narrow-leaved Navelwort*. Cape. July and Aug. G. h.
- Crambe fruticoſa*. *Shrubby Colewort*. Madeira. G. h.
- Crambe ſtrigofa*. *Rough-leaved ſhrubby Colewort*. Canary Iſlands. May and June. G. h.
- Crassula acutifolia*. *Acute-leaved Crassula*.
- Crassula alooides*. *Spike-flowered Crassula*. June—Aug. B.
- Crassula arboreſcens*. *Tree Crassula*. June and July.
- Crassula capitella*. *Square-spiked Crassula*. July and Aug. B.
- Crassula centauroides*. *Centaury-flowered Crassula*. May and June. B.
- Crassula ciliata*. *Ciliated Crassula*. July and Aug. P.
- Crassula coccinea*. *Scarlet-flowered Crassula*. June—Aug.
- Crassula connata*. *Connate Crassula*. July and Aug.
- Crassula cordata*. *Heart-leaved Crassula*. May—Aug.
- Crassula Cotyledon*. *Cotyledon Crassula*.
- Crassula cultrata*. *Sharp-leaved Crassula*. July and Aug.
- Crassula dichotoma*. *Forked Crassula*. June and July. A.
- Crassula diſſuſa*. *Diffuſe Crassula*. July. A.
- Crassula expanſa*. *Awl-leaved Crassula*. June and July. A.
- Crassula falcata*. *Sickle-leaved Crassula*. July and Aug.
- Crassula glomerata*. *Clustered Crassula*. June and July. A.
- Crassula hirtuta*. *Hairy Crassula*. July and Aug.
- Crassula imbricata*. *Imbricated Crassula*. June.
- Crassula lactea*. *White Crassula*. Sept. and Oct.
- Crassula lineolata*. *Channelled Crassula*. June—Aug. B.
- Crassula marginalis*. *Margined Crassula*. July and Aug.
- Crassula mollis*. *Soft Crassula*. Auguſt.
- Crassula obliqua*. *Oblique-leaved Crassula*. April and May.
- Crassula obvallata*. *Houſelock-leaved Crassula*. June and July.
- Crassula odoratiſſima*. *Sweet-smelling Crassula*. March—June.
- Crassula orbicularis*. *Starry Crassula*. July. P.
- Crassula pellucida*. *Pellucid Crassula*. B.
- Crassula perfoliata*. *Perfoliate Crassula*. July and Aug.
- Crassula pulchella*. *Reflex-leaved Crassula*. July. A.
- Crassula punctata*. *Dotted Crassula*. April—Aug.
- Crassula ramofa*. *Branching Crassula*. July and Aug.
- Crassula retroflexa*. *Orange-flowered Crassula*. June. A.
- Crassula ſcabra*. *Rough-leaved Crassula*. June and July.
- Crassula ſparſa*. *Alternate-leaved Crassula*. July. B.
- Crassula ſpathulata*. *Crenated Crassula*. July and Aug.
- Crassula tetragona*. *Square-leaved Crassula*.
- Natives of the Cape of Good Hope. All Shrubby, except ſuch as are otherwiſe marked. G. or D. S.
- Cratævia capparoides*. *Caper-flowered Cratævia*. Sierra Leona. July and Aug. S. h.
- Crepis filiformis*. *Fine-leaved Crepis*. Madeira. June. G. B.
- Crepis rigens*. *Bristly-leaved Crepis*. Azores. July and Aug. G. P.
- Crepis ſucculenta*. *Fleſhy-leaved Crepis*. Madeira. Aug. and Sept. G. A.
- Creſcentia Cujete*. *Calabaſh tree*. Jamaica. S. h.
- Crinum americanum*. *Broad-leaved Crinum*. S. Amer. July and Aug. S. P.
- Crinum auſtrale*. *Botany Bay Crinum*. New Holland. July and Aug. G. P.
- Crinum erubeſcens*. *Red-ftalked Crinum*. W. Indies. July and Aug. S. P.
- Crinum giganteum*. *Giant Crinum*. Sierra Leona. June. S. P.
- Crithmum latifolium*. *Wedge-leaved Sampire*. Canary Iſlands. July. G. B.
- Crotalaria axillaris*. *Axillary Crotalaria*. Guinea. July. S. A.
- Crotalaria biflora*. *Two-flowered Crotalaria*. E. Indies. July. S. A.
- Crotalaria cordifolia*. *Heart-leaved Crotalaria*. May—July. G. h.
- Crotalaria diſſuſa*. *Spreading Crotalaria*. Cape. July and Aug. G. B.
- Crotalaria elegans*. *Scarlet-flowered Crotalaria*. Cape. May—July. G. h.
- Crotalaria floribunda*. *Small-flowered Crotalaria*. Cape. July and Aug. G. h.
- Crotalaria incana*. *Hoary Crotalaria*. W. Indies. July and Aug. S. A.

- Crotalaria incanescens*. Downy *Crotalaria*. Cape. June—
Oct. G. h.
- Crotalaria juncea*. Rush-leaved *Crotalaria*. E. Indies. June
and July. S. A.
- Crotalaria laburnifolia*. Laburnum-leaved *Crotalaria*. E. Indies.
July. S. A.
- Crotalaria lotifolia*. Lotus-leaved *Crotalaria*. Jamaica. June
and July. S. A.
- Crotalaria pallida*. Pale-flowered *Crotalaria*. Africa. June
and July. S. A.
- Crotalaria perfoliata*. Perfoliate *Crotalaria*. Carolina. August.
G. P.
- Crotalaria retusa*. Wedge-leaved *Crotalaria*. E. Indies. June
and July. S. A.
- Crotalaria sagittalis*. Arrow *Crotalaria*. Jamaica. June and
July. S. A.
- Crotalaria triflora*. Three-flowered *Crotalaria*. Cape. June
and July. G. B.
- Crotalaria verrucosa*. Blue-flowered *Crotalaria*. E. Indies.
July and Aug. S. A.
- Croton argenteum*. Silvery-leaved *Croton*. S. Amer. S. A.
- Croton Allroites*. Woolly-leaved *Croton*. W. Indies. July
and Aug. S. h.
- Croton glabellum*. Laurel-leaved *Croton*. Jamaica. S. h.
- Croton lincaire*. Willow-leaved *Croton*. Jamaica. July.
S. h.
- Croton lobatum*. Various-leaved *Croton*. Vera Cruz. July
and Aug. S. A.
- Croton polygamum*. Silky-leaved *Croton*. W. Indies. S. h.
- Croton sebiferum*. Tallow-tree. China. September. G. h.
- Croton Tiglium*. Purging *Croton*. E. Indies. September.
S. h.
- Crucianella maritima*. Sea Crosswort. S. Europe. July.
G. h.
- Cucumis Anguria*. Prickly-fruited Cucumber. Jamaica. July
and Aug. S. A.
- Cucumis Chate*. Hairy Cucumber. Levant. June. S. A.
- Cucumis Colocynthis*. Bitter Cucumber or Gourd. May—
Aug. S. A.
- Cucumis Dudaim*. Apple-shaped Cucumber. Levant. July
and Aug. S. A.
- Cucumis flexuosus*. Serpent Cucumber or Melon. July and
Aug. S. A.
- Cucumis Melo*. Melon. May—Sept. S. A.
- Cucumis prophetarum*. Globe Cucumber. Levant. June—
Sept. S. A.
- All these, except the Melon, may be cultivated, like the
common Cucumber, without heat or covering.
- Cucurbita Citrullus*. Water Melon. S. Europe. July—Sept.
S. A.
- Cucurbita lagenaria*. Bottle Gourd. Both Indies. July—
Sept. S. A.
- Cuphea viscosissima*. Clammy *Cuphea*. America. July and
Aug. G. A.
- Cupressus juniperoides*. African Cypress. Cape. G. h.
- Curcuma longa*. Long-rooted Turmeric. E. Indies. August.
S. P.
- Curtisia faginea*. Beach-leaved *Curtisia*, or *Hassagay-tree*. Cape.
G. h.
- Cussonia spicata*. Spike-flowered *Cussonia*. Cape. G. h.
- Cyanella capensis*. Purple-flowered *Cyanella*. Cape. July.
G. P.
- Cyanella lutea*. Yellow-flowered *Cyanella*. Cape. July.
G. P.
- Cycas circinalis*. Broad-leaved *Cycas*. E. Indies. August.
S. h.
- Cycas revoluta*. Narrow-leaved *Cycas*. China and Japan.
Aug. S. h.
- Cyclamen persicum*. Persian *Cyclamen*. I. of Cyprus. Feb.
—April. G. P.
- Cylista villosa*. Hairy *Cylista*. April and May. S. h.
- Cynanchum crispiflorum*. Curled-flowered *Cynanchum*. S. Amer.
July. S. h.
- Cynanchum erectum*. Upright *Cynanchum*. Syria. July and
Aug. S. h.
- Cynanchum extensum*. Hairy-flowered *Cynanchum*. E. Indies.
July and Aug. S. h.
- Cynanchum hirtum*. Hairy *Cynanchum*. America. S. h.
- Cynanchum viminalis*. Naked *Cynanchum*. Cape. D. S. h.
- Cyperus alternifolius*. Alternate-leaved *Cyperus*. Madagascar.
Feb. and March. S. P.
- Cyperus strigosus*. Bristle-spiked *Cyperus*. W. Indies. July
and Aug. S. P.
- Cyperus viscosus*. Clammy *Cyperus*. Jamaica. May—Aug.
S. P.
- Cyrtilla pulchella*. Scarlet-flowered *Cyrtilla*. Jamaica. Aug.—
Oct. S. P.
- Cyrtanthus angustifolius*. Narrow-leaved *Cyrtanthus*. Cape.
July. G. P.
- Cyrtanthus obliquus*. Oblique-leaved *Cyrtanthus*. Cape. July.
G. P.
- Cytisus Cajan*. Pigeon Pea. Both Indies. July and Aug.
S. B.
- Cytisus divaricatus*. Clammy-podded *Cytisus*. Spain. July
and Aug. G. h.
- Cytisus foliolosus*. Leafy *Cytisus*. Canary Islands. July and
Aug. G. h.
- Cytisus proliferus*. White-flowered *Cytisus*. Canary Islands.
April and May. G. h.
- Cytisus tomentosus*. Woolly-leaved *Cytisus*. Cape. August.
G. h.
- Dais cotinifolia*. Cotinus-leaved *Dais*. Cape. July and Aug.
G. h.
- Dalechampia scandens*. Climbing *Dalechampia*. W. Indies.
June and July. S. h.
- Daphne Gnidium*. Flax-leaved *Daphne*. S. Europe. June
and July. G. h.
- Daphne Lagetto*. Laurel-leaved *Daphne*. W. Indies. S. h.
- Daphne odora*. Sweet-scented *Daphne*. China. March—
May. G. h.
- Datura arborea*. Tree Thorn-Apple. Peru. August. S. h.
- Datura fastuosa*. Purple Thorn-Apple. Egypt. July—Nov.
S. A.
- Datura ferrox*. Long-spined Thorn-Apple. China. July—Sept.
S. A.
- Datura laevis*. Smooth capsuled Thorn-Apple. Africa. July—
Sept. S. A.
- Datura Metel*. Downy Thorn-Apple. Asia, Africa, and Ca-
nary Islands. June—Sept. S. A.
- Daviesia ulicina*. Furze-leaved *Daviesia*. New Holland.
April and May. G. h.
- Decumaria barbara*. Climbing *Decumaria*. Carolina. June
and July. G. h.
- Dentella repens*. Creeping *Dentella*. New Holland. July.
G. A.
- Dianthus albens*. Cape Pink. August. G. P.
- Dichondra fericea*. Silky *Dichondra*. Jamaica. July. S. P.
- Didelta carnosa*. Succulent-leaved *Didelta*. Cape. July.
G. h.
- Didelta spinosa*. Opposite-leaved *Didelta*. Cape. June and
July. G. h.
- Digitalis canariensis*. Canary Foxglove. Canary Islands. June
and July. G. h.
- Digitalis obscura*. Willow-leaved Fox-glove. Spain. June—
Aug. G. h.
- Digitalis Sceptum*. Shrubby Fox-glove. Madeira. June and
July. G. h.
- Dillenia scandens*. Climbing *Dillenia*. New Holland. June
and July. G. h.
- Dionaea Muscipula*. Venus's Fly-trap. Carolina. July and
Aug. G. P.
- Dioscorea aculeata*. Prickly *Dioscorea*. E. Indies. S. P.
- Dioscorea alata*. Wing-stalked *Dioscorea*. Both Indies. S. P.
- Dioscorea anguina*. Snake *Dioscorea*. E. Indies. S. P.
- Dioscorea bulbifera*. Bulb-bearing *Dioscorea*. Both Indies.
S. P.
- Dioscorea glabra*. Smooth *Dioscorea*. E. Indies. S. P.
- Dioscorea rubella*. Red *Dioscorea*. E. Indies. S. P.
- Dioscorea fativa*. Cultivated *Dioscorea*, or *Yam*. W. Indies,
August. S. P.
- Diosma capitata*. Headed *Diosma*. April and May.
- Diosma ciliata*. Ciliated *Diosma*. April and May.
- Diosma crenata*. Crenated *Diosma*. August.
- Diosma cupressina*. Cypress *Diosma*. June and July.
- Diosma ericoides*. Heath-leaved *Diosma*. March—July.
- Diosma hirsuta*. Hairy *Diosma*. March—July.
- Diosma hispida*. Rough *Diosma*. June and July.
- Diosma imbricata*. Imbricated *Diosma*. May—July.
- Diosma latifolia*. Broad-leaved *Diosma*. August.
- Diosma linearis*. Linear-leaved *Diosma*. March—July.
- Diosma oppositifolia*. Opposite-leaved *Diosma*. March—July.
- Diosma orbicularis*. Round-leaved *Diosma*. May—July.
- Diosma ovata*. Ovate-leaved *Diosma*. May—July.
- Diosma pubescens*. Downy *Diosma*. May—July.
- Diosma pulchella*. Pretty *Diosma*.
- Diosma rubra*. Red-flowering *Diosma*. Feb. and March.
- Diosma rugosa*. Umbelled *Diosma*. May—July.
- Diosma serratifolia*. Serrate-leaved *Diosma*. May.
- Diosma tetragona*. Four-cornered *Diosma*. July and Aug.
- Diosma villosa*. Villous *Diosma*. July.
- Diosma uniflora*. One-flowered *Diosma*. May—July.
- All these are shrubby, and natives of the Cape of Good
Hope: consequently require the protection of a Greenhouse or
Dry Stove.
- Difandra prostrata*. Trailing *Difandra*. Madeira. G. P.
- Dodonaea angustifolia*. Narrow-leaved *Dodonaea*. Cape.
May—Aug. G. h.
- Dodonaea heterophylla*. Various-leaved *Dodonaea*. New Hol-
land. G. h.
- Dodonaea triquetra*. Three-sided *Dodonaea*. New Holland.
July. G. h.
- Dodonaea viscosa*. Viscous or broad-leaved *Dodonaea*. Both
Indies. June and July. S. h.
- Dolichos biflorus*. Two-flowered *Dolichos*. India. July and
Aug. S. A.
- Dolichos bulbosus*. Bulbous *Dolichos*. W. Indies. S. P.
- Dolichos Catjang*. Linear-podded *Dolichos*. E. Indies. June
and July. S. A.
- Dolichos ensiformis*. Scymitar-podded *Dolichos*. E. Indies.
July and Aug. S. A.

Dolichos Lablab. *Black-seeded Dolichos.* Egypt. June and July. S. A.
Dolichos lignosus. *Woody Dolichos.* E. Indies. July and August. S. h.
Dolichos minimus. *Least Dolichos.* Jamaica. July. S. A.
Dolichos pilosus. *Hairy Dolichos.* E. Indies. Aug. S. A.
Dolichos pruriens. *Horse-eye Bean.* W. Indies. S. h.
Dolichos purpureus. *Purple Dolichos.* Both Indies. July. S. A.
Dolichos reticulatus. *Net-leaved Dolichos.* New South Wales. G. h.
Dolichos scarabæoides. *Silvery-leaved Dolichos.* E. Indies. June and July. S. A.
Dolichos sesquipedalis. *Long-podded Dolichos.* W. Indies. August. S. A.
Dolichos sinensis. *Chinese Dolichos.* E. Indies. July. S. A.
Dolichos soja. *Soy Dolichos.* E. Indies. June and July. S. A.
Dolichos tranquebaricus. *Tranquebar Dolichos.* E. Indies. June and July. S. A.
Dolichos unguiculatus. *Bird's-foot Dolichos.* W. Indies. June and July. S. A.
Dolichos urens. *Cow-itch.* W. Indies. June and July. S. h.
 Though the annual species may, like many others from hot climates, be cultivated in the open air, especially if they be raised on a hot-bed; yet they more properly belong to the tender, than the hardy plants.
Dombeya erythroxylon. *Red-wood.* St. Helena. May—July. S. h.
Dorstenia contrajerva. *Angular-leaved Dorstenia.* S. Amer. May—Aug. S. P.
Dracæna coculea. *Blue-flowered Dracæna.* New Holland. August. G. P.
Dracæna draco. *Dragon-tree.* E. Indies. S. h.
Dracæna ensifolia. *Sword-leaved Dracæna.* E. Indies. August. S. h.
Dracæna ferrea. *Purple-leaved Dracæna.* China. March and April. S. h.
Dracæna marginata. *Aloe-leaved Dracæna.* I. Bourbon. April. S. h.
Dracocephalum canariense. *Balm of Gilead.* Canary Islands. June—Sept. G. h.
Dracontium pertusum. *Perforated Dragon.* W. Indies. April—June. S. h.
Duranta ellisia. *Prickly Duranta.* W. Indies. August. S. h.
Duranta plumieri. *Smooth Duranta.* S. Amer. October. S. h.
Ebenus cretica. *Cretan Ebony.* June and July. G. h.
Ebenus pinnata. *Pinnated Ebony.* Barbary and Levant. July. G. B.
Echites suberecta. *Ovate-leaved Echites, or Savanna-flower.* Jamaica. S. h.
Echites torulosa. *Climbing Echites.* Jamaica. S. h.
Echites umbellata. *Umbelled Echites.* Jamaica. S. h.
Echium argenteum. *Silvery Viper's Bugloss.* Cape. July. G. h.
Echium candicans. *Hoary Viper's Bugloss.* Madeira. May. G. h.
Echium fastuosum. *Hairy Viper's Bugloss.* Madeira. May—July. G. h.
Echium ferocissimum. *Prickly Viper's Bugloss.* Cape. July. G. h.
Echium fruticosum. *Shrubby Viper's Bugloss.* Cape. May and June. G. h.
Echium giganteum. *Giant Viper's Bugloss.* Canary Islands. May—July. G. h.
Echium glaucophyllum. *Sea-green Viper's Bugloss.* Cape. July. G. h.
Echium grandiflorum. *Great-flowered Viper's Bugloss.* Cape. April and May. G. h.
Echium lævigatum. *Smooth-stalked Viper's Bugloss.* Cape. June and July. G. h.
Echium strictum. *Upright Viper's Bugloss.* Canary Islands. May—July. G. h.
Eclipta erecta. *Upright Eclipta.* W. Indies. July—Sept. S. B.
Eclipta latifolia. *Ovate-leaved Eclipta.* E. Indies. Sept. and Oct. S. B.
Eclipta prostrata. *Trailing Eclipta.* E. Indies. August. S. B.
Ehretia bourreria. *Ovate-leaved Ehretia.* W. Indies. S. h.
Ehretia tinifolia. *Pinus-leaved Ehretia.* Jamaica. June and July. S. h.
Elrihartia panicata. *Panicled Ehrharta.* Cape. May—July. G. P.
Ekebergia capensis. *Ash-leaved Ekebergia.* Cape. G. h.
Elæagnus orientalis. *Oriental Oleaster.* Levant. G. h.
Elæis guineensis. *Oily Palm.* Africa. S. h.
Elæodendrum orientale. *Oriental Elæodendrum.* S. h.
Elate sylvestris. *Prickly-leaved Elate.* E. Indies. S. h.
Elephantopus scaber. *Rough-leaved Elephant's-foot.* E. Indies. June—Sept. S. P.
Embothrium buxifolium. *Box-leaved Embothrium.* March—June.

Embothrium filicifolium. *Sulphurwort-leaved Embothrium.* All natives of New Holland. G. h.
Empleurum ferrulatum. *Cape Empleurum.* G. h.
Enfelia limensis. *Downy-leaved Enfelia.* Peru. July. G. h.
Epidendrum aloifolium. *Aloe-leaved Epidendrum.* E. Indies. June.
Epidendrum barringtoniæ. *Large-flowered Epidendrum.* Jamaica. June and July.
Epidendrum ciliare. *Ciliated Epidendrum.* W. Indies. Aug.
Epidendrum eoccineum. *Scarlet-flowered Epidendrum.* W. Indies.
Epidendrum cochleatum. *Shell-flowered Epidendrum.* W. Indies. June and July.
Epidendrum cucullatum. *Channel-leaved Epidendrum.* W. Indies. July and Aug.
Epidendrum ensifolium. *Sword-leaved Epidendrum.* China. June and July.
Epidendrum fragrans. *Sweet-scented Epidendrum.* Jamaica. Aug.—Oct.
Epidendrum fuscum. *Brown Epidendrum.* Jamaica. Aug. and Sept.
Epidendrum lineare. *Linear-leaved Epidendrum.* W. Indies.
Epidendrum nutans. *Nodding Epidendrum.* Jamaica.
Epidendrum secundum. *Pale-flowered Epidendrum.* W. Indies. July.
Epidendrum sinense. *Chinese Epidendrum.* September.
Epidendrum tripterum. *Three-sided Epidendrum.* W. Indies. June and July.
Epidendrum vanilla. *Vanilla.* S. Amer.
Epidendrum umbellatum. *Umbelled Epidendrum.* W. Indies.
 Vanilla is shrubby; the rest are perennial. They are all stove plants.
Eranthemum pulchellum. *Blue-flowered Eranthemum.* E. Indies. Jan—May. S. h.
 Erica. Of this beautiful genus above two hundred and fifty species are cultivated in England. About twelve of these are from the South of Europe, one is from Lapland; five are natives of Great Britain and Ireland; one is from Madeira; and the rest are from the Cape of Good Hope. They are all shrubby, and inhabitants of the Greenhouse, except the British species, and 2 or 3 of the Europeans. An accurate list of all may be seen in Mr. James Donn's Catalogue of the Cambridge Botanic Garden.
Erigeron foetidus. *Stinking Erigeron.* Africa. Aug.—Nov. G. P.
Erinus fragrans. *Cape Erinus.* May and June. G. P.
Eriocephalus africanus. *Cluster-leaved Eriocephalus.* Cape. March—Aug. G. h.
Eriocephalus racemosus. *Silvery-leaved Eriocephalus.* Cape. March—Aug. G. h.
Eriopermum latifolium. *Broad-leaved Eriopermum.* Cape. August. G. P.
Erithalis frutescens. *Shrubby Erithalis.* Jamaica. S. h.
Erodium cerasifolium. *Thick-leaved Crane's-bill.* Cyprus. May and June. G. P.
Erodium glaucophyllum. *Glaucous Crane's-bill.* Egypt. July and Aug. G. A.
Erodium hymenoides. *Ternate-leaved Crane's-bill.* Barbary. May—Oct. G. P.
Erodium incarnatum. *Flesh-coloured Crane's-bill.* Cape. May—July. G. h.
Eryngium foetidum. *Stinking Eryngo.* W. Indies. Aug.—Oct. S. P.
Erysimum bicorne. *Horned Hedge Mustard.* Canary Islands. Aug. and Sept. G. A.
Erythrina carnea. *Flesh-coloured Coral-tree.* Vera Cruz. May. S. h.
Erythrina corallodendron. *Smooth-leaved Coral tree.* W. Indies. May and June. S. h.
Erythrina crista galli. *Cock's-comb Coral-tree.* Brasil. S. h.
Erythrina herbacea. *Herbaceous Erythrina.* Carolina. September. G. P.
Erythrina picta. *Prickly-leaved Coral-tree.* India. S. h.
Ethulia conyzoides. *Panicled Ethulia.* India. July and Aug. S. A.
Eucalyptus corymbosa. *Willow-leaved Eucalyptus.*
Eucalyptus marginata. *Margined Eucalyptus.*
Eucalyptus obliqua. *Oblique-leaved Eucalyptus.* July.
Eucalyptus piperita. *Peppermint-tree.*
 Natives of New Holland. G. h.
Euclea racemosa. *Round-leaved or Cluster-flowered Euclea.* Cape. Nov. and Dec. G. h.
Eucemis nana. *Dwarf Eucemis.* May.
Eucemis punctata. *Spotted Eucemis.* July.
Eucemis regia. *Tongue-leaved Eucemis.* June and July.
Eucemis striata. *Stripe-leaved Eucemis.* July.
Eucemis undulata. *Waved-leaved Eucemis.* June and July. Cape. G. P.
Eugenia elliptica. *Oval-leaved Eugenia.* New Holland. G. h.
Eugenia jambos. *Willow-leaved Eugenia.* E. Indies. May—July. S. h.
Eugenia malaccensis. *Broad-leaved Eugenia.* E. Indies. S. h.

- Evolvulus alfinoides*. *Chickweed-leaved Evolvulus*. E. Indies. June and July. S. A.
Evolvulus limifolius. *Flax-leaved Evolvulus*. Jamaica. Aug. and Sept. S. A.
Eupatorium Dalea. *Shrubby Eupatorium*. Jamaica. August. S. h.
Eupatorium odoratum. *Sweet-scented Eupatorium*. Jamaica. Aug. and Sept. S. h.
Euphorbia anacantha. *Scaly Spurge*. Cape. Sept. and Oct. D. S. h.
Euphorbia antiquorum. *Triangular Spurge*. India. D. S. h.
Euphorbia balsamifera. *Balsam Spurge*. Canary Islands. D. S. h.
Euphorbia canariensis. *Canary Spurge*. Canary Islands. March and April. D. S. h.
Euphorbia Caput Medusæ. *Medusa's-head Spurge*. Cape. May—Sept. G. h.
Euphorbia cereiformis. *Naked Spurge*. Cape. June and July. D. S. h.
Euphorbia Clava. *Club Spurge*. Cape. Jan.—Aug. G. h.
Euphorbia cotinifolia. *Round-leaved Spurge*. S. Amer. July and Aug. S. h.
Euphorbia cucumerina. *Cucumber Spurge*. Cape. D. S. h.
Euphorbia heptagona. *Seven-angled Spurge*. Cape. July—Nov. D. S. h.
Euphorbia heterophylla. *Various-leaved Spurge*. W. Indies. April—Sept. S. B.
Euphorbia hypericifolia. *Hypericum-leaved Spurge*. W. Indies. June—Aug. S. A.
Euphorbia Hyffrix. *Porcupine Spurge*. Cape. June and July. D. S. h.
Euphorbia juncea. *Linear-leaved Spurge*. Porto Santo near Madeira. July. G. P.
Euphorbia læta. *Mezercon-leaved Spurge*. June and July. G. P.
Euphorbia mamillaris. *Warted Spurge*. Cape. July and Aug. D. S. h.
Euphorbia mauritanica. *Mauritanian Spurge*. Africa. May—Sept. D. S. h.
Euphorbia mellifera. *Honey-bearing Spurge*. Madeira. April and May. G. h.
Euphorbia meloformis. *Melon-shaped Spurge*. Cape. May—Sept. D. S. h.
Euphorbia multiangulata. *Many-angled Spurge*. June—Sept. D. S. h.
Euphorbia nerifolia. *Oleander-leaved Spurge*. E. Indies. June and July. D. S. h.
Euphorbia nudiflora. *Naked-flowered Spurge*. June—Sept. S. h.
Euphorbia officinarum. *Officinal Spurge*. Africa. June and July. D. S. h.
Euphorbia pilulifera. *Globe-flowered Spurge*. E. Indies. June—Aug. S. A.
Euphorbia piscatoria. *Smooth spear-leaved Spurge*. Madeira and Canary Islands. D. S. h.
Euphorbia prostrata. *Trailing red Spurge*. W. Indies. July and Aug. S. A.
Euphorbia punicea. *Scarlet-flowered Spurge*. Jamaica. Jan.—May. S. h.
Euphorbia Scolopendria. *Flat-leaved Spurge*. June—Aug. D. S. h.
Euphorbia ferrata. *Narrow notch-leaved Spurge*. S. Europe. G. P.
Euphorbia spinosa. *Spiny Spurge*. Levant. May—Sept. G. h.
Euphorbia Tirucalli. *Indian-Tree Spurge*. E. Indies. D. S. h.
Euphorbia Tithymaloides. *Laurel-leaved Spurge*. S. Amer. June and July. D. S. h.
Exacum viscosum. *Clammy Exacum*. Canary Islands. June and July. G. h.
Fabricia lævigata. *Smooth Fabricia*. New Holland. G. h.
Fagara piperita. *Ash-leaved Fagara*. Japan. Sept. G. h.
Fagara Pterota. *Lentiscus-leaved Fagara*. Jamaica. Aug. and Sept. S. h.
Fagara Tragodes. *Prickly-leaved Fagara*. W. Indies. S. h.
Fagonia cretica. *Cretan Fagonia*. Candia. July and Aug. G. A.
Ferraria pavonia. *Spotted Ferraria*. Mexico. May—Aug. G. P.
Falkia repens. *Creeping Falkia*. Cape. May—Aug. G. P.
Ferraria viridiflora. *Green-flowered Ferraria*. Cape. May—Aug. G. P.
Ferraria undulata. *Wave-flowered Ferraria*. Cape. April—July. G. P.
Ficus bengalensis. *Bengal Fig-tree*. E. Indies. April.
Ficus benjamina. *Ovate-leaved Fig-tree*. E. Indies.
Ficus coriacea. *Leathery-leaved Fig-tree*. E. Indies.
Ficus costata. *Rib-leaved Fig-tree*. E. Indies.
Ficus heterophylla. *Rough-leaved Fig-tree*. E. Indies.
Ficus indica. *Indian Fig-tree*. E. Indies.
Ficus lucida. *Shining-leaved Fig-tree*. E. Indies.
Ficus nymphææfolia. *Water-Lily-leaved Fig-tree*. E. Indies.
Ficus pedunculata. *Willow-leaved Fig-tree*. S. Amer.
Ficus pertusa. *Laurel-leaved Fig-tree*. S. Amer.
Ficus racemosa. *Clustered or Red-wooded Fig-tree*. E. Indies.
Ficus religiosa. *Poplar-leaved Fig-tree*. E. Indies.
Ficus stipulata. *Trailing Fig-tree*. China and Japan.
Ficus venosa. *Veined-leaved Fig-tree*. E. Indies.
Ficus virens. *Round-fruited Fig-tree*. W. Indies. S. h.
Flacourtia Ramontchi. *Shining-leaved Flacourtia*. Madagascar. June and July. S. h.
Flagellaria indica. *Indian Flagellaria*. E. Indies and Guinea. S. h.
Forfkohlea angustifolia. *Narrow-leaved Forfkohlea*. Teneriffe. G. A.
Forfkohlea tenacissima. *Clammy Forfkohlea*. Egypt. June—Aug. G. A.
Fuchsia coccinea. *Scarlet Fuchsia*. Chili. May—Sept. G. h.
Fuchsia lycioides. *Boxthorn-leaved Fuchsia*. Chili. May—Sept. G. h.
Fumaria vesicaria. *Bladdered Fumitory*. Cape. July. G. A.
Fufanus compressus. *Flat-stalked Fufanus*. Cape. G. h.
Galega grandiflora. *Great-flowered or Rose-coloured Galega*. May—Sept. G. h.
Galega ochroleuca. *Yellow Goat's-Rue*. E. Indies. July. S. h.
Galega pallens. *Pale-coloured Galega*. Cape. July. G. h.
Galega piscatoria. *Woolly Galega*. India and S. Sea Islands. June and July. S. B.
Galega purpurea. *Purple Galega*. E. Indies. July and Aug. S. P.
Galega stricta. *Upright Galega*. Cape. May and June. G. h.
Galenia africana. *African Galenia*. Cape. June—Aug. G. h.
Gardenia dumetorum. *Spiny Gardenia*. E. Indies. S. h.
Gardenia florida. *Cape Jasmine*. China, CochinChina, Japan, and S. Sea Islands. June—Aug. G. h.
Gardenia latifolia. *Broad-leaved Gardenia*. E. Indies. S. h.
Gardenia Randia. *Round-leaved Gardenia*. W. Indies. S. h.
Gardenia Rothmannia. *Spotted-flowered Gardenia*. Cape. June—Aug. G. h.
Gardenia Thunbergia. *Starry Gardenia*. Cape. June—Aug. G. h.
Genista canariensis. *Canary Genista or Cytisus*. Canary Islands and Spain. May—Sept. G. h.
Genista linifolia. *Flax-leaved Genista or Broom*. Spain. April—July. G. h.
Gentiana maritima. *Procumbent Sea Gentian*. S. Europe and Azores. G. P.
Gentiana viscosa. See *Exacum*.
Geoffroya inermis. *Smooth Geoffroya, or Bastard Cabbage-tree*. Jamaica. S. h.
Geranium anemonefolium. *Anemone-leaved Crane's-bill*. Madeira. May—Sept. G. h.
Geranium canescens. *Silky Crane's-bill*. Cape. May—July. G. h.
Geranium incanum. *Hoary Crane's-bill*. Cape. May—July. G. h.
Gesneria tomentosa. *Woolly Gesneria*. S. Amer. August. S. h.
Gethyllis ciliaris. *Fringed Gethyllis*. Cape. G. P.
Gethyllis spiralis. *Spiral Gethyllis*. Cape. July. G. P.
Gethyllis villosa. *Hairy Gethyllis*. Cape. G. P.
Gisekia pharnacioides. *Trailing Gisekia*. E. Indies. June. S. A.
Gladiolus abbreviatus. *Narrow-tubed Corn-flag*. June and July.
Gladiolus alatus. *Wing-flowered Corn-flag*. May and June.
Gladiolus albidus. *White-flowered Corn-flag*. May.
Gladiolus angustus. *Narrow-leaved Corn-flag*. May and June.
Gladiolus bicolor. *Two-coloured Corn-flag*. March.
Gladiolus blandus. *Blush-flowered Corn-flag*. May and June.
Gladiolus Cardinalis. *Large-flowered Corn-flag*. May—July.
Gladiolus carinatus. *Spotted-stalked Corn-flag*. April and May.
Gladiolus carneus. *Flesh-coloured Corn-flag*. April and May.
Gladiolus crispus. *Curled-leaved Corn-flag*. June and July.
Gladiolus cuspidatus. *Sharp-pointed Corn-flag*. April and May.
Gladiolus flavus. *Yellow Corn-flag*. Feb. and March.
Gladiolus floribundus. *Cluster-flowered Corn-flag*. May and June.
Gladiolus galeatus. *Helmet-flowered Corn-flag*. June and July.
Gladiolus gracilis. *Slender Corn-flag*. March.
Gladiolus gramineus. *Grass-leaved Corn-flag*. May and June.
Gladiolus hirsutus. *Hairy Corn-flag*. April and May.
Gladiolus iridifolius. *Iris-leaved Corn-flag*. May and June.
Gladiolus laccatus. *Dark-flowered Corn-flag*. May and June.
Gladiolus lineatus. *Pencilled Corn-flag*. May and June.
Gladiolus Meriana. *Great Corn-flag*. May and June.
Gladiolus Merianella. *Red-flowered Corn-flag*. May and June.
Gladiolus Milleri. *Miller's Corn-flag*. April and May.
Gladiolus montanus. *Mountain Corn-flag*. July.
Gladiolus orchidiflorus. *Orchis-flowered Corn-flag*. March.
Gladiolus plicatus. *Plaited-leaved Corn-flag*. May and June.
Gladiolus polystachius. *Many-spiked Corn-flag*. May and June.
Gladiolus recurvus. *Gaping-flowered Corn-flag*. May.
Gladiolus roseus. *Rose-coloured Corn-flag*. May and June.
Gladiolus securiger. *Copper-coloured Corn-flag*. May.

- Gladiolus striatus*. *Striped-flowered Corn-flag*. June.
Gladiolus strictus. *Upright blue Corn-flag*. May and June.
Gladiolus tristis. *Square-stalked Corn-flag*. May and June.
Gladiolus tubiflorus. *Long-tubed Corn-flag*. June.
Gladiolus versicolor. *Various-coloured Corn-flag*. May and June.
Gladiolus viridis. *Green flowered Corn-flag*. July.
Gladiolus undulatus. *Waved-leaved Corn-flag*. May and June.
Gladiolus Watsonia. *Scarlet-flowered Corn-flag*. April and May.
 Natives of the Cape of Good Hope. G. P.
Glinus lotoides. *Hairy Glinus*. S. Europe and Levant.
 July. G. A.
Globularia alypum. *Three-tooth-leaved Globularia*. S. Europe. Aug.—Nov. G. h.
Globularia longifolia. *Long-leaved Globularia*. Madeira. July and Aug. G. h.
Globularia spinosa. *Prickly-leaved Globularia*. Spain. May. G. P.
Gloriosa superba. *Superb Lily*. E. Indies and Guinea. July and August. S. P.
Gloxinia maculata. *Spotted Gloxinia*. S. Amer. July and Aug. S. P.
Glycine bimaculata. *Two-spotted Glycine*. New Holland. March—May. G. h.
Glycine bituminosa. *Clammy Glycine*. Cape. April—Sept. G. h.
Glycine caribæa. *Trailing or hairy-podded Glycine*. W. Indies. Sept. and Oct. S. h.
Glycine coccinea. *Scarlet-flowered Glycine*. New Holland. March—May. G. h.
Glycine debilis. *Hairy Glycine*. E. Indies. June and July. S. B.
Glycine monophylla. *Simple-leaved Glycine*. Cape. August. G. P.
Glycine reticulata. *Net-leaved Glycine*. Jamaica. S. h.
Glycine rubicunda. *Red-flowered Glycine*. New Holland. March—July. G. h.
Gnaphalium arboreum. *Tree Everlasting*. Cape. June—Aug. G. h.
Gnaphalium australe. *Botany Bay Everlasting*. New Holland. April—Sept. G. h.
Gnaphalium congestum. *Close-headed Everlasting*. Cape. May and June. G. h.
Gnaphalium crassifolium. *Thick-leaved Everlasting*. Cape. July. G. h.
Gnaphalium cymosum. *Branching Everlasting*. Cape. April—Sept. G. h.
Gnaphalium declinatum. *Creeping Everlasting*. Cape. July. G. P.
Gnaphalium ericoides. *Heath-leaved Everlasting*. Cape. April—Aug. G. h.
Gnaphalium eximium. *Choice Everlasting*. Cape. May—July. G. h.
Gnaphalium foetidum. *Strong-scented Everlasting*. Cape. July—Oct. G. B.
Gnaphalium fruticans. *Shrubby Everlasting*. Cape. June—Aug. G. h.
Gnaphalium glomeratum. *Cluster-flowered Everlasting*. Cape. August. G. P.
Gnaphalium grandiflorum. *Great-flowered Everlasting*. Cape. June—Aug. G. h.
Gnaphalium helianthemifolium. *Cistus-leaved Everlasting*. Cape. July—Oct. G. h.
Gnaphalium ignescens. *Red-flowered Everlasting*. Cape. June—Oct. G. P.
Gnaphalium maritimum. *Sea Everlasting*. Cape. June—Aug. G. h.
Gnaphalium odoratissimum. *Sweet-scented Everlasting*. Cape. April—Aug. G. h.
Gnaphalium orientale. *Broad-leaved Everlasting*. Cape. April—Sept. G. h.
Gnaphalium patulum. *Spreading Everlasting*. Cape. June—Sept. G. h.
Gnaphalium rutilans. *Shining-flowered Everlasting*. Cape. June and July. G. h.
Gnaphalium undulatum. *Waved-leaved Everlasting*. Africa. June—Sept. G. A.
Gnidia lævigata. *Smooth Gnidia*.
Gnidia oppositifolia. *Opposite-leaved Gnidia*.
Gnidia pinifolia. *Pine-leaved Gnidia*.
Gnidia sericea. *Silky Gnidia*.
Gnidia simplex. *Flax-leaved Gnidia*. Cape. G. h.
Gomphrena brasiliensis. *Brazilian Globe Amaranth*. Brazil. S. h.
Gomphrena globosa. *Common Globe Amaranth*. E. Indies. July—Oct. S. A.
Gomphrena perennis. *Perennial Globe Amaranth*. S. Amer. July—Oct. S. P.
Goodenia calendulacea. *Marygold-leaved Goodenia*.
Goodenia lævigata. *Smooth Goodenia*.
Goodenia ovata. *Ovate-leaved Goodenia*. New Holland. June—Oct. G. h.
Gordonia franklinia. *Oblong-leaved Loblolly Bay*.
Gordonia lasianthus. *Smooth Loblolly Bay*.
Gordonia pubescens. *Downy Loblolly Bay*. S. Carolina. Aug. and Sep. G. h.
Gorteria cernua. *Drooping Gorteria*. May.
Gorteria ciliaris. *Ciliated Gorteria*. June—Aug.
Gorteria echinata. *Prickly Gorteria*. July. Annual.
Gorteria fruticosa. *Shrubby Gorteria*. Aug. and Sept.
Gorteria perfonata. *Annual Gorteria*. July and Aug. Annual.
Gorteria rigens. *Great-flowered Gorteria*. April—July.
Gorteria spinosa. *Prickly Gorteria*. July and Aug.
Gorteria squarrosa. *Scaly Gorteria*. July and Aug. Cape. G. Shrubby, except perfonata and echinata.
Gossypium arboreum. *Tree Cotton*. E. Indies. June—Aug. S. h.
Gossypium barbadense. *Barbadoes Cotton-tree*. Sept. S. B.
Gossypium herbaceum. *Common Cotton*. E. Indies. July. S. A.
Gossypium religiosum. *Spotted-barked Cotton-tree*. India. July. S. h.
Gouania domingensis. *Chatw. Stick*. W. Indies. S. h.
Gratiola Monnieria. *Thyme-leaved Gratiola*. Both Indies and S. Sea Islands. July—Sept. S. P.
Grewia occidentalis. *Elm-leaved Grewia*. Cape. July—Sept. G. h.
Grewia orientalis. *Eastern Grewia*. E. Indies. July—Sept. S. h.
Grewia salicifolia. *Sage-leaved Grewia*. E. Indies. S. h.
Gronovia scandens. *Climbing Gronovia*. Jamaica. June and July. S. A.
Guajacum officinale. *Officinal Guajacum, or Lignum Vitæ*. W. Indies. S. h.
Guarea trichilioides. *Ash-leaved Guarea*. S. Amer. S. h.
Guilandina Bonduc. *Yellow Bonduc or Nicker-tree*. Both Indies. S. h.
Guilandina Bonducella. *Gray Bonduc*. Both Indies. S. h.
Guilandina Moringa. *Smooth Bonduc*. E. Indies. S. h.
Gunnera perpenfa. *Marsh-Marygold-leaved Gunnera*. Cape. G. P.
Hæmanthus albiflos. *White-flowered Hæmanthus*. August.
Hæmanthus carinatus. *Keeled Hæmanthus*. August.
Hæmanthus ciliaris. *Ciliated Hæmanthus*.
Hæmanthus coccineus. *Scarlet Hæmanthus*. Aug.—Oct.
Hæmanthus maculatus. *Spotted-leaved Hæmanthus*.
Hæmanthus multiflorus. *Many-flowered Hæmanthus*. May—Sept. Sierra Leona.
Hæmanthus obliquus. *Oblique-leaved Hæmanthus*.
Hæmanthus orbicularis. *Orbicular-leaved Hæmanthus*. Aug.—Oct.
Hæmanthus pubescens. *Downy Hæmanthus*. August.
Hæmanthus pumilio. *Dwarf Hæmanthus*.
Hæmanthus puniceus. *Colechicum-leaved Hæmanthus*.
Hæmanthus spiralis. *Spiral-stalked Hæmanthus*. March—July.
Hæmanthus tigrinus. *Tiger Hæmanthus*.
Hæmanthus toxicarius. *Fan-leaved Hæmanthus*.
Hæmanthus undulatus. *Waved-leaved Hæmanthus*.
 All natives of the Cape, except multiflorus. G. P.
Hæmatoxylum campechianum. *Logwood*. S. Amer. S. h.
Halleria lucida. *African Fly Honeyfuckle*. Cape. June—Aug. G. h.
Haloragis Cercodia. *Whorl-flowered Haloragis*. New Zealand. May—Sept. G. h.
Hamellia grandiflora. *Great-flowered Hamellia*. W. Indies. September. S. h.
Hamellia patens. *Spreading Hamellia*. W. Indies. July and Aug. S. h.
Hasselquistia ægyptiaca. *Egyptian Hasselquistia*. Egypt. July. G. A.
Hebenstretia aurea. *Golden Hebenstretia*. Cape. July and Aug. G. B.
Hebenstretia cordata. *Heart-leaved Hebenstretia*. Cape. G. h.
Hebenstretia dentata. *Tooth-leaved Hebenstretia*. March—July. G. B.
Hedychium coronarium. E. Indies. July. S. P.
Hedysarum abyssinicum. *Abyssinian Hedysarum*. S. P.
Hedysarum Alhagi. *Prickly Hedysarum*. Levant. G. P.
Hedysarum canescens. *Rough-leaved Hedysarum*. W. Indies. July—Sept. S. P.
Hedysarum crinitum. *Crooked-podded Hedysarum*. E. Indies. S. h.
Hedysarum flexuosum. *Waved-podded Hedysarum*. Asia. July and Aug. G. A.
Hedysarum gangeticum. *Ovate-leaved Hedysarum*. E. Indies. June and July. S. A.
Hedysarum gramineum. *Grass-leaved Hedysarum*. E. Indies. July and Aug. S. A.
Hedysarum gyrans. *Moving Hedysarum*. E. Indies. July and Aug. S. B.
Hedysarum lagopodioides. *Hairy-podded Hedysarum*. China. S. P.
Hedysarum maculatum. *Spotted Hedysarum*. India. August. S. A.
Hedysarum nummularifolium. *Moneywort-leaved Hedysarum*. India. July—Sept. S. A.
Hedysarum pictum. *Painted-leaved Hedysarum*. Guinea. S. h.
Hedysarum pulchellum. *Slender Hedysarum*. E. Indies. S. h.
 Hedysarum

- Hedysarum strobiliferum*. *Strobile-bearing Hedysarum*. E. Indies. July and Aug. S. h.
- Hedysarum styracifolium*. *Storax-leaved Hedysarum*. China. S. h.
- Hedysarum tortuosum*. *Twisted-podded Hedysarum*. Vera Cruz. July and Aug. S. h.
- Hedysarum triflorum*. *Three-flowered Hedysarum*. Both Indies. S. B.
- Hedysarum triquetrum*. *Triangular-stalked Hedysarum*. E. Indies. S. B.
- Hedysarum Vespertilionis*. *Bat-winged Hedysarum*. Cochinchina. July and Aug. S. A, or B.
- Heliconia Bihai*. *Plantain-leaved Heliconia*. W. Indies. April and May. S. P.
- Heliconia Pfitzingeri*. *Parrot-beaked Heliconia*. W. Indies. May and June. S. P.
- Helicteres baruenfis*. *Small-fruited Helicteres*. W. Indies. S. h.
- Helicteres Ifoa*. *Great-fruited Helicteres*, or *Screw-tree*. Jamaica. June and July. S. h.
- Heliocarpus americana*. *American Heliocarpus*. Vera Cruz. S. h.
- Heliophila araboides*. *Blue-flowered Heliophila*. June and July. A.
- Heliophila coronopifolia*. *Buck's-horn Heliophila*. June—Oct. h.
- Heliophila filiformis*. *Divaricated Heliophila*. July and Aug. A.
- Heliophila incana*. *Hoary Heliophila*. June—Oct. h.
- Heliophila pinnata*. *Wing-leaved Heliophila*. June and July. A.
- Natives of the Cape of Good Hope.
- Heliotropium curassavicum*. *Glaucous Turnsole* or *Heliotrope*. W. Indies. June and July. S. A.
- Heliotropium indicum*. *Indian Turnsole* or *Heliotrope*. W. Indies. July and Aug. S. A.
- Heliotropium parviflorum*. *Small-flowered Turnsole* or *Heliotrope*. W. Indies. July and Aug. S. B.
- Heliotropium peruvianum*. *Peruvian Turnsole* or *Heliotrope*. Peru. May—Aug. G. h.
- Hemimeris linearis*. *Linear-leaved Hemimeris*. Peru. April—July. G. h.
- Hemimeris urticifolia*. *Nettle-leaved Hemimeris*. Peru. June—Sept. G. h.
- Heritiera littoralis*. *Laurel-leaved Looking-glass Plant*. E. Indies. S. h.
- Hermannia alnifolia*. *Alder-leaved Hermannia*. March—May.
- Hermannia althæifolia*. *Althæa-leaved Hermannia*. March—June.
- Hermannia candicans*. *Hoary Hermannia*. April—June.
- Hermannia decumbens*. *Decumbent Hermannia*. May—Aug.
- Hermannia denudata*. *Smooth Hermannia*. May and June.
- Hermannia disticha*. *Round leaved Hermannia*. May and June.
- Hermannia hirsuta*. *Hairy Hermannia*. May and June.
- Hermannia hyssopifolia*. *Hyssop-leaved Hermannia*. April and May.
- Hermannia lavandulifolia*. *Lavender-leaved Hermannia*. May—Aug.
- Hermannia micans*. *Glistening Hermannia*. May and June.
- Hermannia odorata*. *Sweet-scented Hermannia*. May—Aug.
- Hermannia plicata*. *Plaited Hermannia*. Aug.—Oct.
- Hermannia trifurcata*. *Three-forked Hermannia*. June.
- Natives of the Cape of Good Hope. G. h.
- Hernandia sonora*. *Jack in a box*. W. Indies. S. h.
- Hibiscus Abelmoschus*. *Target-leaved Hibiscus* or *Musk*. Both Indies. July and Aug. S. h.
- Hibiscus æthiopicus*. *Dwarf wedge-leaved Hibiscus*. Cape. August. G. h.
- Hibiscus cannabinus*. *Hemp-leaved Hibiscus*. E. Indies. June and July. S. A.
- Hibiscus esculentus*. *Eatable Hibiscus* or *Okro*. W. Indies. June and July. S. A.
- Hibiscus ficulneus*. *Fig-leaved Hibiscus*. Ceylon. June and July. S. h.
- Hibiscus hispidus*. *Hairy-stalked Hibiscus*. Cape. July. G. A.
- Hibiscus Manihot*. *Palmate-leaved Hibiscus*. China and Japan. August. S. h.
- Hibiscus mutabilis*. *Changeable Hibiscus*. E. Indies. Nov. and Dec. S. h.
- Hibiscus Patterfonius*. *Leather-leaved Hibiscus*. Norfolk Island. July and Aug. G. h.
- Hibiscus phoeniceus*. *Small-flowered Hibiscus*. E. Indies. July and Aug. S. B.
- Hibiscus populneus*. *Peplar-leaved Hibiscus*. E. Indies. S. h.
- Hibiscus præmorsus*. *Round-leaved Shrubby Hibiscus*. Cape. June—Aug. G. h.
- Hibiscus radiatus*. *Rayed Hibiscus*. June and July. S. A.
- Hibiscus Rosa sinensis*. *China Rose*. E. Indies. July and Aug. S. h.
- Hibiscus Sabdariffa*. *Various-leaved Hibiscus*. E. Indies. June and July. S. h.
- Hibiscus Solandra*. *Maple-leaved Hibiscus*. Bourbon. July and Aug. S. A.
- Hibiscus speciosus*. *Scarlet-flowered Hibiscus*. S. Carolina. G. P.
- Hibiscus spinifex*. *Prickly-fruited Hibiscus*. W. Indies. July. S. h.
- Hibiscus surattensis*. *Prickly-stalked Hibiscus*. E. Indies. July. S. A.
- Hibiscus tiliaceus*. *Lime tree-leaved Hibiscus*. E. Indies. S. h.
- Hibiscus vesicarius*. *Bladder Hibiscus*. Cape. G. A.
- Hibiscus vitifolius*. *Vine-leaved Hibiscus*. E. Indies. July. S. B.
- Hillia longiflora*. *Long-flowered Hillia*. Jamaica. July. S. h.
- Hippia frutescens*. *Shrubby Hippia*. Cape. July and Aug. G. h.
- Hippia integrifolia*. *Annual Hippia*. E. Indies. July and Aug. S. A.
- Hippocrepis balearica*. *Shrubby Horse-shoe Vetch*. Minorca. May and June. G. h.
- Hippomane biglandulosa*. *Laurel-leaved Manchineel-tree*.
- Hippomane Mancinella*. *Common Manchineel-tree*. West Indies. S. h.
- Hiræa reclinata*. *Yellow-flowered Hiræa*. Carthagenæ. S. h.
- Hirtella americana*. *American Hirtella*. W. Indies. S. h.
- Hura crepitans*. *Sand-box tree*. Mexico and W. Indies. S. h.
- Hyacinthus revolutus*. *Wave-leaved Hyacinth*. Cape. August. G. P.
- Hydrangea hortensis*. *Changeable Hydrangea*. China. Jan.—Sept. G. h.
- Hydrangea radiata*. *Rayed Hydrangea*. Carolina. July and Aug. G. h.
- Hydrocotyle asiatica*. *Asiatic Pennywort*. E. Indies. July and Aug. G. P.
- Hydrocotyle Spananthe*. *Panicled Pennywort*. Caraccas. July and Aug. G. B.
- Hymenæa Courbaril*. *Locust Tree*. West Indies. S. h.
- Hyoscyamus aureus*. *Golden Henbane*. Levant. March—Oct. G. h.
- Hyoseris pygmæa*. *Dwarf Hyoseris*. Madeira. June and July. G. A.
- Hyperanthera Moringa*. *Smooth Hyperanthera*. Both Indies. S. h.
- Hypericum ægyptiacum*. *Egyptian St. John's-wort*. June and July. G. h.
- Hypericum balearicum*. *Warted St. John's-wort*. Majorca. March—Aug. G. h.
- Hypericum canariense*. *Canary St. John's-wort*. July—Sept. G. h.
- Hypericum Coris*. *Heath-leaved St. John's-wort*. S. Europe and Levant. May—Sept. G. h.
- Hypericum crispum*. *Curled-leaved St. John's-wort*. Greece. G. P.
- Hypericum foliosum*. *Shining St. John's-wort*. Azores. August. G. h.
- Hypericum floribundum*. *Many-flowered St. John's-wort*. Madeira. August. G. h.
- Hypericum glandulosum*. *Glandulous St. John's-wort*. Madeira. May—Aug. G. h.
- Hypericum monogynum*. *Chinese St. John's-wort*. March—Sept. G. h.
- Hypericum perfoliatum*. *Perfoliate St. John's-wort*. Italy. May and June. G. P.
- Hypericum reflexum*. *Reflex-leaved St. John's-wort*. Teneriffe. June—Aug. G. h.
- Hypericum tomentosum*. *Woolly St. John's-wort*. S. Europe. July—Sept. G. P.
- Hypoxis aquatica*. *Aquatic Hypoxis*. Cape. July. G. P.
- Hypoxis decumbens*. *Trailing Hypoxis*. Jamaica. June—Sept. S. P.
- Hypoxis obliqua*. *Oblique-leaved Hypoxis*. Cape. July. G. P.
- Hypoxis plicata*. *Plaited-leaved Hypoxis*. Cape. G. P.
- Hypoxis ferrata*. *Serrate-leaved Hypoxis*. Cape. July. G. P.
- Hypoxis fobolifera*. *Hairy Hypoxis*. Cape. June—Sept. G. P.
- Hypoxis stellata*. *Star-flowered Hypoxis*. Cape. July. G. P.
- Hypoxis villosa*. *Villous Hypoxis*. Cape. June—Sept. G. P.
- Jacquinia armillaris*. *Obtuse-leaved Jacquinia*. W. Indies. S. h.
- Jacquinia ruscifolia*. *Prickly Jacquinia*. S. Amer. G. h.
- Jasminum azoricum*. *Azorian Jasmine*. Madeira. June—Oct. G. h.
- Jasminum glaucum*. *Glaucous Jasmine*. Cape. August. G. h.
- Jasminum grandiflorum*. *Catalanion Jasmine*. E. Indies. June—Oct. G. h.
- Jasminum odoratissimum*. *Sweet-scented Jasmine*. Madeira. May—Oct. G. h.

- Jasminum Sambac.* *Arabian Jasmine.* E. Indies. May—Aug. S. h.
Jasminum simplicifolium. *Simple-leaved Jasmine.* New Holland. July—Sept. G. h.
Jatropha Curcas. *Angular-leaved Physic-nut.* S. Amer.
Jatropha Manihot. *Cassava.* S. Amer. July and Aug.
Jatropha multifida. *Multifid or French Physic-nut.* S. Amer. June—Aug.
Jatropha panduræfolia. *Fiddle-leaved Physic-nut.* Cuba. May—Sept.
Jatropha urens. *Stinging Physic-nut.* Brazil. May—July. S. h.
Iberis gibraltarica. *Gibraltar Candy-tuft.* Spain. May and June. G. h.
Iberis semperflorens. *Broad-leaved Evergreen Candy-tuft.* Sicily and Persia. G. h.
Ilex Caffine. *Daboon Holly.* Carolina. August. G. h.
Ilex Perado. *Thick-leaved Holly.* Madeira. April and May. G. h.
Ilex vomitoria. *South Sea Tea.* W. Florida. G. h.
Illecebrum javanicum. *Spear-leaved Illecebrum.* E. Indies. May—Aug. S. P.
Illecebrum lanatum. *Woolly Illecebrum.* E. Indies. May—Oct. S. B.
Illecebrum sessile. *Seffile-flowered Illecebrum.* E. Indies. July. S. B.
Illecebrum suffruticosum. *Shrubby Illecebrum.* S. Europe. G. h.
Illicium flavum. *Yellow-flowered Illicium.* Florida. May—July. G. h.
Illicium floridanum. *Red-flowered Illicium or Aniseed-tree.* Florida. April—June. G. h.
Impatiens Balsamina. *Garden Balsam.* E. Indies. July—Sept. S. A.
Indigofera amoena. *Scarlet-flowered Indigo.* Cape. April—July. G. h.
Indigofera angustifolia. *Narrow-leaved Indigo.* Cape. June and July. G. h.
Indigofera Anil. *Sickle-podded Indigo.* E. Indies. July. S. B.
Indigofera argentea. *Silvery-leaved Indigo.* W. Indies. July. S. h.
Indigofera australis. *Botany Bay Indigo.* New Holland. April and May. G. h.
Indigofera candicans. *Hoary Indigo.* Cape. July—Sept. G. h.
Indigofera coriacea. *Leathery-leaved Indigo.* Cape. July and Aug. G. h.
Indigofera cytisoides. *Angular-stalked Indigo.* Cape. June and July. G. h.
Indigofera denudata. *Small Indigo.* Cape. April and May. G. h.
Indigofera enneaphylla. *Trailing Indigo.* E. Indies. July and Aug. S. A.
Indigofera inconspicua. *Climbing Indigo.* New Holland. June. G. P.
Indigofera linifolia. *Flax-leaved Indigo.* E. Indies. July. S. A.
Indigofera pforaloides. *Long-spiked Indigo.* Cape. July—Sept. G. h.
Indigofera sarmentosa. *Dwarf Indigo.* Cape. June. G. P.
Indigofera tinctoria. *Dyer's Indigo.* E. Indies. July and Aug. S. h.
Indigofera trita. *Oval-leaved Indigo.* E. Indies. S. h.
Inula viscosa. *Clammy Inula.* S. Europe. July and Aug. G. P.
Ipomæa bona nox. *Prickly Ipomea.* W. Indies. July and Aug. S. A.
Ipomæa coccinea. *Scarlet Ipomea.* W. Indies. July and Aug. S. A.
Ipomæa hederifolia. *Ivy-leaved Ipomea.* S. Amer. July. S. A.
Ipomæa pes tigridis. *Palmated Ipomea.* August. S. A.
Ipomæa quamoclit. *Winged-leaved Ipomea.* E. Indies. July and Aug. S. A.
Ipomæa rubra. *Upright Ipomea.* Carolina. Sept. G. h.
Ipomæa triloba. *Three-lobed Ipomea.* W. Indies. July and Aug. S. A.
Ipomæa tuberosa. *Tuberous-rooted Ipomea.* W. Indies. S. P.
Iris bituminosa. *Clammy Iris.* Cape. G. P.
Iris chinensis. *Chinese Iris.* June. G. P.
Iris ciliata. *Fringe-leaved Iris.* Cape. G. P.
Iris edulis. *Eatable Iris.* Cape. May and June. G. P.
Iris martinicensis. *Martinico Iris.* June—Aug. S. P.
Iris pavonia. *Peacock Iris.* Cape. June—Aug. G. P.
Iris tricuspidis. *Single-flowered Iris.* Cape. June. G. P.
Iris villosa. *Downy-leaved Iris.* Cape. May and June. G. P.
Itea Cyrilla. *Clustered Itea.* Carolina. July and Aug. G. h.
Itea spinosa. *Spiny Itea.* New Holland. July and Aug. G. h.
Justicia erecta. *Upright Justicia.* America. July—Sept. S. B.
Justicia Adhatoda. *Malabar Nut.* E. Indies. June—Sept. G. h.
Justicia bicalyculata. *Malabar Justicia.* E. Indies. July—Oct. S. A.
Justicia ciliaris. *Ciliated Justicia.* July. S. A.
Justicia coccinea. *Scarlet Justicia.* S. Amer. March—May. S. h.
Justicia Ecbohium. *Long-spiked Justicia.* E. Indies. May—Aug. S. h.
Justicia formosa. *Downy Justicia.* Jamaica. March. S. h.
Justicia hyssopifolia. *Hyssop-leaved Justicia.* Canary Islands. June and July. G. h.
Justicia lithospermifolia. *Gromwell-leaved Justicia.* June—Sept. S. A.
Justicia lucida. *Shining-leaved Justicia.* E. Indies. August. S. h.
Justicia malabarica. *Malabar Justicia.* E. Indies. August. S. A.
Justicia nitida. *Glossy Justicia.* W. Indies. August. S. h.
Justicia nufuta. *Nose Justicia.* E. Indies. April—July. S. h.
Justicia orchioides. *Broom-leaved Justicia.* Cape. August. G. h.
Justicia parviflora. *Small-flowered Justicia.* E. Indies. July and Aug. S. P.
Justicia pectoralis. *Forked Justicia.* W. Indies. May—July. S. B.
Justicia peruviana. *Peruvian Justicia.* June and July. S. h.
Justicia picta. *Painted Justicia.* Asia. S. h.
Justicia punicea. *Red Justicia.* W. Indies. June and July. S. h.
Justicia salicifolia. *Willow-leaved Justicia.* W. Indies. July. S. P.
Justicia sexangularis. *Chickweed-leaved Justicia.* S. Amer. July. S. A.
Justicia spinosa. *Thorny Justicia.* Jamaica. July and Aug. S. h.
Justicia superba. *Superb Justicia.* S. Amer. June and July. G. h.
Ixia aristata. *Bearded Ixia.* April and May.
Ixia aulica. *Cluster-flowered Ixia.* April.
Ixia bicolor. *Two-coloured Ixia.* May.
Ixia bulbifera. *Bulb-bearing Ixia.* May and June.
Ixia columnaris. *Columnar Ixia.* May.
Ixia corymbosa. *Corymbose Ixia.* May.
Ixia crateroides. *Crimson-flowered Ixia.* May.
Ixia crispa. *Curled Ixia.* May and June.
Ixia crocata. *Crocus-flowered Ixia.* May.
Ixia deusta. *Copper-flowered Ixia.* May.
Ixia erecta. *Upright Ixia.* May.
Ixia excisa. *Pink-flowered Ixia.* May.
Ixia falcata. *Sickle-leaved Ixia.* May.
Ixia flexuosa. *Bending-stalked Ixia.* April and May.
Ixia grandiflora. *Great-flowered Ixia.* April and May.
Ixia humilis. *Dwarf Ixia.* May.
Ixia longiflora. *Long-flowered Ixia.* April and May.
Ixia maculata. *Spotted Ixia.* May.
Ixia marginata. *Margined Ixia.* April.
Ixia patens. *Spreading Ixia.* April.
Ixia plantaginea. *Fox-tail Ixia.* June and July.
Ixia polystachya. *Many-spiked Ixia.* May and June.
Ixia radiata. *Star-flowered Ixia.* June.
Ixia rosea. *Rose-coloured Ixia.* May.
Ixia rubro-cyanea. *Purple and red Ixia.* May and June.
Ixia scillaris. *Squill-flowered Ixia.* May.
Ixia secunda. *Small-flowered Ixia.* May.
Ixia spicata. *Spiked Ixia.* May.
Ixia squalida. *Dingy Ixia.* May.
Ixia tricolor. *Three-coloured Ixia.* April.
Ixia villosa. *Dark red Ixia.* May and June.
All natives of the Cape of Good Hope. G. P.
Ixora alba. *White Ixora.*
Ixora coccinea. *Scarlet Ixora.* June—Aug.
Ixora Pavetta. *Sweet-smelling Ixora.* Aug.—Oct. E. Indies. S. h.
Kæmpferia angustifolia. *Narrow-leaved Galangale.*
Kæmpferia Galanga. *Official Galangale.* June and July.
Kæmpferia latifolia. *Broad-leaved Galangale.*
Kæmpferia rotunda. *Round-rooted Galangale.* E. Indies. April. S. P.
Kiggelaria africana. *African Kiggelaria.* Cape. May and June. G. h.
Kyllingia monocephala. *One-headed Kyllingia.* Both Indies. June and July. S. P.
Kyllingia triceps. *Three-headed Kyllingia.* Both Indies. May—Sept. S. P.
Kyllingia umbellata. *Umbelled Kyllingia.* E. Indies. July and Aug. S. P.
Lachenalia angustifolia. *Narrow-leaved Lachenalia.* April and May.
Lachenalia contaminata. *Mixed coloured Lachenalia.* March and April.
Lachenalia fragrans. *Sweet-scented Lachenalia.* March.
Lachenalia lanceæfolia. *Lance-leaved Lachenalia.*
Lachenalia orchioides. *Spotted-leaved Lachenalia.* May.

- Lachenalia pallida*. *Pale-flowered Lachenalia*. April.
Lachenalia pendula. *Pendulous Lachenalia*. March and april.
Lachenalia purpureo-cærulea. *Purple-flowered Lachenalia*. March and april.
Lachenalia pustulata. *Blistered Lachenalia*. March and april.
Lachenalia quadricolor. *Four-coloured Lachenalia*. March and april.
Lachenalia reflexa. *Reflexed-flowered Lachenalia*. May and june.
Lachenalia rosea. *Rose-coloured Lachenalia*. April and may.
Lachenalia serotina. *Late-flowered Lachenalia*. August.
Lachenalia tricolor. *Three-coloured Lachenalia*. March and april.
Lachenalia viridis. *Green-flowered Lachenalia*. August.
 All natives of the Cape of Good Hope, except *serotina*, which is found in Spain. G. P.
Lachnæa conglomerata. *Cluster-headed Lachnæa*.
Lachnæa erioccephala. *Woolly-headed Lachnæa*.
Lachnæa purpurea. *Purple-flowered Lachnæa*. Cape. June and july. G. h.
Lagerstroemia indica. *Indian Lagerstroemia*.
Lagerstroemia Regina. *Oblong-leaved Lagerstroemia*. E. Indies. Aug. and Sept. S. h.
Lambertia formosa. *Red-flowered Lambertia*. New Holland. July. G. h.
Lanaria plumosa. *Woolly Lanaria*. Cape. G. P.
Lantana aculeata. *Prickly Lantana*. April—Nov.
Lantana africana. *Flax-leaved Lantana*. Feb.—Nov.
Lantana annua. *Annual Lantana*. S. Amer. July.
Lantana Camara. *Various-flowered Lantana*. April—Sept.
Lantana involucrata. *Round-leaved Lantana*. May—july.
Lantana melissifolia. *Balm-leaved Lantana*. July—Sept.
Lantana odorata. *Sweet-scented Lantana*. May—Nov.
Lantana recta. *Upright Lantana*. June—Aug.
Lantana scabrida. *Rough Lantana*. September.
Lantana trifolia. *Three-leaved Lantana*. June—Sept.
 Natives of the West Indies, except *africana*, which is from the Cape. S. h. except *africana* G. and *annua* A.
Lasiopetalum ferrugineum. *Rusty Lasiopetalum*. New Holland. May—Aug. G. h.
Lavandula Abrotanoides. *Wormwood-leaved Lavender*. Canary Islands. June—Sept. G. h.
Lavandula carnosa. *Thick-leaved Lavender*. E. Indies. June. S. B.
Lavandula dentata. *Tooth-leaved Lavender*. Spain and Levant. June—Sept. G. h.
Lavandula multifida. *Cut-leaved Lavender*. Spain and Canary Islands. June—Sept. G. B.
Lavandula pinnata. *Wing-leaved Lavender*. Madeira. April—Oct. G. h.
Lavandula Stoechas. *French Lavender*. S. Europe. May—july. G. h.
Lavandula viridis. *Green Lavender*. Madeira. May—july. G. h.
Lavatera lusitanica. *Portugal Lavatera*. Aug. and Sept. G. h.
Lavatera micans. *Glistening Lavatera*. Spain. June and july. G. h.
Lavatera olbia. *Downy-leaved Lavatera*. S. Europe. June—Oct. G. h.
Lavatera triloba. *Three-lobed Lavatera*. Spain. June and july. G. h.
Laurus æstivalis. *Willow-leaved Bay*. N. Amer. G. h.
Laurus Borbonia. *Broad-leaved Carolina Bay*. Carolina. April and may. G. h.
Laurus Camphora. *Camphor-tree*. Japan. G. h.
Laurus Cassia. *Bastard Cinnamon*. E. Indies. July. S. h.
Laurus Chloroxylon. *Jamaica Laurel*. S. h.
Laurus Cinnamomum. *True Cinnamon*. Ceylon. S. h.
Laurus foetens. *Madagascar Bay or Tili*. Madeira, and Canary Islands. G. h.
Laurus indica. *Royal Bay or Indian Laurel*. Madeira. Oct. and Nov. G. h.
Laurus Persea. *Alligator Pear*. W. Indies. S. h.
Lawsonia inermis. *Smooth Lawsonia*. Egypt. S. h.
Lawsonia spinosa. *Prickly Lawsonia*. E. Indies. S. h.
Leea æquata. *Shrubby Leea*. E. Indies. S. h.
Leea crispata. *Curled-leaved Leea*. Cape. October. G. P.
Leea sambucina. *Elder-leaved Leea*. E. Indies. S. P.
Leontice Leontopetalum. *Lion's-leaf*. Levant. G. P.
Lepidium subulatum. *Awl-leaved Pepperwort*. Spain. July and Aug. G. h.
Leptospermum ambiguum. *Small-flowered Leptospermum*.
Leptospermum arachnoideum. *Cobweb Leptospermum*.
Leptospermum attenuatum. *Slender Leptospermum*.
Leptospermum baccatum. *Berry-bearing Leptospermum*.
Leptospermum flavescens. *Yellow Leptospermum*.
Leptospermum juniperinum. *Juniper-leaved Leptospermum*.
Leptospermum lanigerum. *Woolly Leptospermum*.
Leptospermum parvifolium. *Small-leaved Leptospermum*.
Leptospermum pubescens. *Downy Leptospermum*.
Leptospermum scoparium. *Myrtle-leaved Leptospermum*.
Leptospermum Tliea. *Botany-bay Tea*.
 Natives of New Holland; flowering from may and june to july and august. G. h.
Leucoium frumofum. *Strumose Leucoium*. Cape. November. G. P.
Leyfera gnaphaloides. *Woolly Leyfera*. Cape. July—Sept. G. h.
Lightfootia oxycoccoides. *Lance-leaved Lightfootia*. Cape. July. G. h.
Lightfootia subulata. *Awl-leaved Lightfootia*. Cape. August. G. P.
Limeum africanum. *African Limeum*. Cape. G. P.
Limodorum altum. *Tall Limodorum*. W. Indies. May—july. S. P.
Limodorum Tankervilleæ. *Chinese Limodorum*. China. March—may. S. P.
Limonia monophylla. *Simple-leaved Limonia*. E. Indies. S. h.
Limonia pentaphylla. *Five-leaved Limonia*. E. Indies. S. h.
Limonia trifoliata. *Three-leaved Limonia*. E. Indies. June and july. S. h.
Linum africanum. *African Flax*. Cape. July and Aug. G. h.
Linum arboreum. *Tree Flax*. Candia. May—Aug. G. h.
Linum quadrifolium. *Four-leaved Flax*. Cape. June—Aug. G. h.
Linum suffruticosum. *Upright Flax*. Spain. August. G. h.
Liparia tomentosa. *Woolly Liparia*. Cape. July. G. h.
Liparia villosa. *Villous Liparia*. Cape. June and july. G. h.
Lithospermum orientale. *Yellow Gromwell*. Levant. May and june. G. P.
Lobelia affurges. *Tree Lobelia*. W. Indies. S. h.
Lobelia bicolor. *Two-coloured Lobelia*. Cape. June—Sept. G. P.
Lobelia coronopifolia. *Buck's-horn Lobelia*. Cape. July and Aug. G. P.
Lobelia debilis. *Slender Lobelia*. Cape. July. G. A.
Lobelia Erinoides. *Trailing Lobelia*. Cape. July and August. G. A.
Lobelia Erinus. *Small spreading Lobelia*. Cape. June—Sept. G. P.
Lobelia Laurentia. *Italian Lobelia*. July. G. A.
Lobelia longiflora. *Long-flowered Lobelia*. Jamaica. June—Aug. S. P.
Lobelia latea. *Yellow Lobelia*. Cape. June and july. G. A.
Lobelia minuta. *Least Lobelia*. Cape. June—Sept. G. P.
Lobelia pinifolia. *Pine-leaved Lobelia*. Cape. June and july. G. h.
Lobelia pubescens. *Downy Lobelia*. Cape. May—Aug. G. P.
Lobelia surinamensis. *Surinam Lobelia*. May—july. S. h.
Lobelia triquetra. *Tooth-leaved Lobelia*. May—Sept. G. B.
Lobelia unidentata. *One-toothed Lobelia*. Cape. June—Sept. G. P.
Lopezia hirsuta. *Hairy Lopezia*. S. B.
Lopezia racemosa. *Cluster Lopezia*. Mexico. October. S. A.
Lotus arabicus. *Red-flowered Lotus*. Arabia. July—Nov. G. A.
Lotus creticus. *Silver-leaved Lotus*. Spain. June—Oct. G. h.
Lotus Dorycnium. *Shrubby Lotus*. S. Europe. June—Sept. G. h.
Lotus glaucus. *Glaucous Lotus*. Madeira. June—Aug. G. B.
Lotus hirsutus. *Hairy Lotus*. S. Europe. June—Aug. G. h.
Lotus jacobæus. *Dark-flowered Lotus*. Cape Verd Islands. June—Aug. G. h.
Lychnis coronata. *Chinese Lychnis*. China and Japan. June and july. G. P.
Lycium afrum. *African Box-thorn*. Cape. June and july. G. h.
Lycium boerhaviaefolium. *Glaucous-leaved Box-thorn*. Peru. April. S. h.
Lycium japonicum. *Japan Box-thorn*. June and july. G. h.
Lythrum ciliatum. *Shrubby Loosestrife*. Jamaica. June. S. h.
Madia viscosa. *Clammy Madia*. S. Amer. June and july. G. A.
Magnolia fuscata. *Rusty-leaved Magnolia*. China. July—Sept. G. h.
Magnolia pumila. *Dwarf Magnolia*. China. July—Sept. G. h.
Magnolia purpurea. *Purple Magnolia*. China. April and may. G. h.
Magnolia tomentosa. *Downy-leaved Magnolia*. China. March and april. G. h.
Mahernia diffusa. *Diffuse Mahernia*. June—Aug.
Mahernia incisa. *Cut-leaved Mahernia*. July—Sept.
Mahernia odorata. *Sweet-scented Mahernia*. July.
Mahernia pinnata. *Pinnate-leaved Mahernia*. June—Aug. Cape. G. h.
Malachra capitata. *Heart-leaved Malachra*. W. Indies. Aug. and Sept. S. A.

- Malpighia angustifolia*. *Narrow-leaved Barbadoes Cherry*. July and Aug.
Malpighia canescens. *Downy-leaved Barbadoes Cherry*.
Malpighia coccifera. *Holly-leaved Barbadoes Cherry*.
Malpighia crassifolia. *Thick-leaved Barbadoes Cherry*. August.
Malpighia glabra. *Smooth-leaved Barbadoes Cherry*. March.
Malpighia nitida. *Shining-leaved Barbadoes Cherry*. March—August.
Malpighia puniceifolia. *Pomegranate-leaved Barbadoes Cherry*.
Malpighia urens. *Stinging Barbadoes Cherry*. W. Indies. July and Aug. S. h.
Malva ægyptia. *Palmed Mallow*. Egypt. June and July. G. P.
Malva angustifolia. *Narrow-leaved Mallow*. Mexico. August. G. h.
Malva bryonifolia. *Bryony-leaved Mallow*. Cape. July and August. G. h.
Malva capensis. *Cape Mallow*. May—Sept. G. h.
Malva divaricata. *Divaricated Mallow*. Cape. July and August. G. h.
Malva grossularifolia. *Gooseberry-leaved Mallow*. Cape. May—Sept. G. h.
Malva lactea. *Panitled Mallow*. Jan. and Feb. S. h.
Malva operculata. *Red-flowered Mallow*. Peru. June and July. G. h.
Malva reflexa. *Reflex-flowered Malva*. Cape. May—Sept. G. h.
Malva scoparia. *Small yellow upright Mallow*. Peru. Aug. and Sept. S. h.
Malva spicata. *Spiked Mallow*. Jamaica. Sept. and Oct. S. B.
Mammea americana. *American Mammea*. Jamaica and Hispaniola. S. h.
Mangifera indica. *Indian Mango-tree*. E. Indies. June—Sept. S. h.
Manulea argentea. *Silvery Manulea*. G. A.
Manulea tomentosa. *Woolly Manulea*. Cape. May—Nov. G. h.
Maranta arundinacea. *Indian Arrow-root*. S. Amer. August. S. P.
Maranta sylvatica. *Wood Arrow-root*. W. Indies. S. P.
Marrubium acutabulosum. *Saucer-leaved White Horehound*. Candia. June—Aug. G. P.
Marrubium africanum. *African White Horehound*. Cape. July—Sept. G. P.
Marrubium Pseudo-Dittamnus. *Shrubby White Horehound*. Candia. June—Aug. G. h.
Martynia longiflora. *Long-flowered Martynia*. Cape. July and Aug. G. A.
Martynia Probofcidea. *Hairy Martynia*. America. May—Sept. S. A.
Maffonia angustifolia. *Narrow-leaved Maffonia*. March and April.
Maffonia latifolia. *Broad-leaved Maffonia*. March and April.
Maffonia scabra. *Rough-leaved Maffonia*. March and April.
Maffonia violacea. *Violet-flowered Maffonia*. September. Cape. G. P.
Maurandia semperflorens. *Climbing Maurandia*. Mexico. May—Sept. G. P.
Medeola angustifolia. *Narrow-leaved Medeola*.
Medeola Alparagoides. *Broad-leaved Medeola*. Cape. Oct.—March. G. P.
Medicago arborea. *Tree Medick*. Italy. May—Nov. G. h.
Melaleuca armillaris. *White-flowered Melaleuca*.
Melaleuca ericifolia. *Heath-leaved Melaleuca*.
Melaleuca hypericifolia. *Hypericum-leaved Melaleuca*.
Melaleuca linarifolia. *Toadflax-leaved Melaleuca*.
Melaleuca nodosa. *Naked-flowered Melaleuca*.
Melaleuca squarrosa. *Rough Melaleuca*.
Melaleuca Stypheloides. *Twisted-leaved Melaleuca*.
Melaleuca thymifolia. *Thyme-leaved Melaleuca*. New Holland. May—Aug. G. h.
Melanpodium humile. *Dwarf Melanpodium*. Jamaica. June—Oct. S. A.
Melanthium junceum. *Rush-leaved Melanthium*.
Melanthium spicatum. *Spiked Melanthium*.
Melanthium triquetrum. *Three-sided Melanthium*.
Melanthium viride. *Green-flowered Melanthium*. Cape. June. G. P.
Melastroma cymosa. *Cyme-flowered Melastroma*. W. Indies. July. S. h.
Melastroma malabathrica. *Bristly Melastroma*. E. Indies. June and July. S. h.
Melia Azedarach. *Common Bead-tree*. Syria. June—Aug. G. h.
Melianthus major. *Great Honey-flower*. May and June.
Melianthus minor. *Small Honey-flower*. August. Cape. G. h.
Melicocca bijuga. *Wing-leaved Melicocca*. Jamaica. S. h.
Melissa fruticosa. *Shrubby Balm*. Spain. July—Sept. G. h.
Melochia corchorifolia. *Red Melochia*. E. Indies. July and August. S. A.
Melochia pyramidata. *Pyramidal Melochia*. Brazil. July. S. h.
Melodynus scandens. *Climbing Melodynus*. New Holland. G. h.
Menyanthes indica. *Indian Buck-bean*. Both Indies. June—Sept. G. P.
Menyanthes ovata. *Ovate-leaved Buck-bean*. Cape. May and June. G. P.
Mesembryanthemum. *Fig-Marygold*.
 Of this singular and beautiful genus, there are 70 species, besides many varieties, in Aiton's Catalogue of the Royal Botanic Garden at Kew. Mr. Donn's Hortus Cantabrigiæ has 127 species.
Mespilus japonica. *Japan Mespilus*. G. h.
Messerschmidia fruticosa. *Shrubby Messerschmidia*. Canary Islands. June—Oct. G. h.
Metrosideros floribunda. *Laurel-leaved Metrosideros*.
Metrosideros hispida. *Rough Metrosideros*.
Metrosideros lanceolata. *Spear-leaved Metrosideros*.
Metrosideros linearis. *Linear-leaved Metrosideros*.
Metrosideros saligna. *Willow-leaved Metrosideros*. New Holland. May—Aug. G. h.
Michauxia campanuloides. *Rough-leaved Michauxia*. Levant. June—Aug. G. B.
Micropus erectus. *Upright Micropus*. S. Europe. June—Sept. G. A.
Micropus supinus. *Trailing Micropus*. S. Europe. June—Sept. G. A.
Milleria quinqueflora. *Five-flowered Milleria*. Vera Cruz. Aug.—Oct. S. A.
Mimosa asperata. *Hairy-podded Mimosa*. Vera Cruz. S. h.
Mimosa cæsia. *Gray Mimosa*. E. Indies. S. h.
Mimosa Catechu. *Medicinal Mimosa*. E. Indies. S. h.
Mimosa circinalis. *Spiral Mimosa*. W. Indies. S. h.
Mimosa cornigera. *Horned Mimosa or Cuckold-tree*. S. America. S. h.
Mimosa discolor. *Two-coloured Mimosa*. New Holland. March—May. G. h.
Mimosa ensifolia. *Sword-leaved Mimosa*. New Holland. March—May. G. h.
Mimosa falcata. *Sickle-leaved Mimosa*. New Holland. G. h.
Mimosa farnesiana. *Sweet-scented Mimosa or Sponge-tree*. W. Indies. June—Aug. S. h.
Mimosa glauca. *Glaucous Mimosa*. Vera Cruz. June and July. S. h.
Mimosa grandiflora. *Great-flowered Mimosa*. E. Indies. June—Sept. S. h.
Mimosa Intia. *Angular-stalked Mimosa*. E. Indies. S. h.
Mimosa Julibrissin. *Smooth Tree Mimosa*. Levant. August. G. h.
Mimosa latifolia. *Broad-podded Mimosa*. W. Indies. June and July. S. h.
Mimosa longifolia. *Long-leaved Mimosa*. New Holland. March—May. G. h.
Mimosa myrtifolia. *Myrtle-leaved Mimosa*. New Holland. March—May. G. h.
Mimosa natans. *Floating Mimosa*. E. Indies. S. A.
Mimosa nilotica. *Egyptian Mimosa or Gum Arabic tree*. Arabia. July. S. h.
Mimosa pinnata. *Small-leaved Mimosa*. E. Indies. S. h.
Mimosa pernambucana. *Slothful Mimosa*. W. Indies. July and Aug. S. h.
Mimosa pudica. *Humble plant*. W. Indies. June—Sept. S. h.
Mimosa purpurea. *Purple Mimosa or Soldier-wood*. W. Indies. S. h.
Mimosa scandens. *Climbing Mimosa*. Both Indies. S. h.
Mimosa sensitiva. *Sensitive plant*. Brazil. June—Sept. S. B.
Mimosa simplicifolia. *Simple-leaved Mimosa*. Tanna I. S. h.
Mimosa speciosa. *Bladder Senna-leaved Mimosa*. E. Indies. August. S. h.
Mimosa stricta. *Upright Mimosa*. New Holland. March—May. G. h.
Mimosa suaveolens. *Sweet-smelling Mimosa*. New Holland. June. G. h.
Mimosa verticillata. *Whorl-leaved Mimosa*. New Holland. March—May. G. h.
Mimosa virgata. *Long-twigged Mimosa*. W. Indies. July and Aug. S. h.
Mimosa ulicina. *Furze-leaved Mimosa*. New Holland. March—May. G. h.
Mimosa Unguis-cati. *Four-leaved Mimosa*. W. Ind. S. h.
Mimulus glutinosus. *Orange Monkey-flower*. Peru. June—Aug. G. h.
Mimulus Elengi. *Oval-leaved Mimulus*. E. Indies. S. h.
Mirabilis dichotoma. *Forked Marvel of Peru*. Mexico. July. S. P.
Mirabilis Jalapa. *Common Marvel of Peru*. Both Indies. July and Aug. S. P.
Mirabilis longiflora. *Long-flowered or Sweet Marvel of Peru*. Mexico. July and Aug. S. P.
Momordica Balsamina. *Common Momordica, or Male Balsam Apple*.
Momordica Charantia. *Hairy Momordica*.
Momordica Luffa. *Egyptian Momordica*. E. Indies. June—Aug. S. A.

- Monetia Barleroides*. *Four-spined Monetia*. E. Indies. July. G. h.
- Monsonia Filia*. *Hairy-leaved Monsonia*. July and Aug.
- Monsonia lobata*. *Lobe-leaved Monsonia*. March—May.
- Monsonia ovata*. *Ovate-leaved Monsonia*. July and Aug.
- Monsonia speciosa*. *Fine-leaved Monsonia*. March—May. Cape. G. P. except ovata which is B.
- Montinia caryophyllacea*. *Glaucous Montinia*. Cape. July. G. h.
- Moræa chinensis*. *Chinese Moræa*. China. July. G. P.
- Moræa iridioides*. *Iris-like Moræa*. Cape. June and July. G. P.
- Moræa lugens*. *Dark-flowered Moræa*. Cape. G. P.
- Moræa northiana*. *Broad-leaved Moræa*. Brazil. June—Aug. S. P.
- Moræa plicata*. *Plated-leaved Moræa*. W. Indies. June—Aug. S. P.
- Moræa spiralis*. *Spiral Moræa*. Cape. June and July. G. P.
- Morus tinctoria*. *Dyer's Mulberry-tree* or *Fustick-wood*. W. Indies. S. h.
- Moræa vegeta*. *Grass-leaved Moræa*. Cape. May. G. P.
- Murraya exotica*. *Ash-leaved Murraya*. E. Indies. Aug. and Sept. S. h.
- Musa coccinea*. *Scarlet Musa*. E. Indies. Jan.—April.
- Musa paradisiaca*. *Plantain Tree*. Both Indies. July—Nov.
- Musa sapientum*. *Banana Tree*. W. Indies. July—Nov. S. P.
- Myginda Rhacoma*. *Indian Myginda*. W. Indies. S. h.
- Myrica cordifolia*. *Heart-leaved Myrica*. Cape. August. G. h.
- Myrica Faya*. *Azoran Myrica*. Azores. June and July. G. h.
- Myrica incisa*. *Cut-leaved Myrica*. Cape. August. G. h.
- Myrica quercifolia*. *Oak-leaved Myrica*. Cape. August. G. h.
- Myrsine africana*. *African Myrsine*. Cape. March—June. G. h.
- Myrsine retusa*. *Blunt-leaved Myrsine*. Azores. May and June. G. h.
- Myrtus Chytrulia*. *Forked Myrtle*. Jamaica. S. h.
- Myrtus communis*. *Common Myrtle*. Asia, Africa, and S. Europe. July and Aug. G. h.—Varieties, Broad-leaved, Box-leaved, Italian or Upright, Orange-leaved, Portugal, Broad-leaved Dutch, Rosemary-leaved, Nutmeg, Broad and Narrow curled, Striped, Blotched, Double-flowered.
- Myrtus Gregii*. *Round-leaved Myrtle*. Dominica. S. h.
- Myrtus Pimenta*. *Pimento, Jamaica Pepper* or *All-spice*. W. Indies. July. S. h.—Varieties, Long-leaved and short-leaved.
- Myrtus tomentosa*. *Woolly Myrtle*. China. June and July. G. h.
- Myrtus Zuzygium*. *Ovate-leaved Myrtle*. W. Indies. S. h.
- Nelumbium speciosum*. *Red-flowered Nelumbium*. China. June and July. S. P.
- Neottia speciosa*. *Red-flowered Neottia*. Jamaica. May. S. P.
- Nepeta reticulata*. *Net-leaved Catmint*. Morocco. August. G. P.
- Nepeta virginica*. *American Catmint*. N. America. August. G. P.
- Nerium antidysentericum*. *Ovate-leaved Rosebay*. E. Indies. S. h.
- Nerium coronarium*. *Broad-leaved Rosebay*. E. Indies. July—Oct. S. h.
- Nerium odorum*. *Sweet-scented Rosebay*. E. Indies. June—Aug. S. h.
- Nerium Oleander*. *Common Rosebay*. Spain, Portugal, and Levant. June—Oct. G. h.—Varieties, Red, White and Double-flowered.
- Nicotiana fruticosa*. *Shrubby Tobacco*. China. July and Aug. G. h.
- The other species are annual, and require to be raised on a gentle hot-bed; but then are hardy enough.
- Nyctanthes Arbor tristis*. *Square-stalked Nyctanthes*. E. Indies. S. h.
- Nymphaea cærulea*. *Blue-flowered Water Lily*. Cape. May—Sept. S. P.
- Nymphaea Nelumbo*. *Peltated Water Lily*. Both Indies. S. P.
- Nymphaea rubra*. *Red-flowered Water Lily*. E. Indies. S. P.
- Nymphaea stellata*. *Star-flowered Water Lily*. E. Indies. August. S. P.
- Ocimum Basilicum*. *Common Sweet Basil*. India and Persia. July and Aug. G. A.
- Ocimum gratissimum*. *Shrubby Basil*. E. Indies. July. S. h.
- Ocimum menthoides*. *Mint-leaved Basil*. E. Indies. July. S. A.
- Ocimum minimum*. *Bush Basil*. E. Indies. July and August. S. A.
- Ocimum molle*. *Heart-leaved Basil*. E. Indies. Sept. and Oct. S. A.
- Ocimum polytachyon*. *Many-spiked Basil*. E. Indies. July and Aug. S. A.
- Ocimum sanctum*. *Purple-stalked Basil*. E. Indies. September. S. A.
- Ocimum tenuiflorum*. *Slender-spiked Basil*. E. Indies. July and Aug. S. A.
- Oedera prolifera*. *Stiff-leaved Oedera*. Cape. May and June. G. h.
- Oedera trinervia*. *Thres-nerved Oedera*. Cape. July and Aug. G. B.
- Oenothera nocturna*. *Night-smelling Oenothera*. Cape. June—Oct. G. h.
- Oenothera rosea*. *Rose-flowered Oenothera*. Peru. May—August. G. P.
- Oldenlandia corymbosa*. *Hyssop-leaved Oldenlandia*. Jamaica. June—Oct. S. A.
- Olea americana*. *American Olive*. Carolina and Florida. June.
- Olea apetala*. *Botany-bay Olive*. New Holland. Feb. and March.
- Olea capensis*. *Cape Olive*. Cape. July.
- Olea europæa*. *European Olive*. June—Aug. S. Europe.—Varieties, Long-leaved, Broad-leaved, Iron-coloured, Twisted-leaved, Box-leaved.
- Olea excelsa*. *Laurel-leaved Olive*. Madeira.
- Olea fragrans*. *Sweet-scented Olive*. China. June and July. G. h.
- Olyra latifolia*. *Broad-leaved Olyra*. W. Indies. S. P.
- Omphalea triandra*. *Oblong-leaved Omphalea*. Jamaica. June and July. S. h.
- Ononis cernua*. *Hanging podded Rest-harrow*. Cape. July—Sept.
- Ononis crispa*. *Curled leaved Rest-harrow*. Spain. June—Aug.
- Ononis geminata*. *Two-flowered Rest-harrow*. Cape. July.
- Ononis hispanica*. *Spanish Rest-harrow*. May—Sept.
- Ononis Natix*. *Yellow-flowered Rest-harrow*. S. Europe. May—Sept.
- Ononis pinguis*. *Greasy Rest-harrow*. S. Europe. July and Aug. G. h.
- Opercularia aspera*. *Rough-seeded Opercularia*. New Holland. June and July. G. h.
- Ophioxylum serpentinum*. *Red-flowered Ophioxylum*. Both Indies. May and June. S. h.
- Orchis bicornis*. *Yellow-flowered Orchis*.
- Orchis carnea*. *Great-flowered Orchis*. Cape. September. G. P.
- Origanum ægyptiacum*. *Egyptian Marjoram*. June—Aug.
- Origanum Dictamnus*. *Dittany of Crete*. Candia. June—Aug.
- Origanum Majorana*. *Sweet or knotted Marjoram*. Portugal. July and Aug. A.
- Origanum Onites*. *Pot Marjoram*. Sicily. July.
- Origanum sipyleum*. *Dittany of Mount of Sipylus*. Levant. June—Sept.
- Origanum Tournefortii*. *Dittany of Amorgos*. August. G. h.
- Ornithogalum altissimum*. *Tall Star of Bethlehem*. Cape.
- Ornithogalum arabicum*. *Arabian Star of Bethlehem*. Egypt. March and April.
- Ornithogalum aureum*. *Golden Star of Bethlehem*. Cape. June and July.
- Ornithogalum caudatum*. *Long-spiked Star of Bethlehem*. Cape. March—Aug.
- Ornithogalum lacteum*. *White-flowered Star of Bethlehem*. Cape. June and July.
- Ornithogalum latifolium*. *Broad-leaved Star of Bethlehem*. Egypt. June.
- Ornithogalum niveum*. *Snowy Star of Bethlehem*. Cape. August.
- Ornithogalum odoratum*. *Sweet-smelling Star of Bethlehem*. Cape. May and June.
- Ornithogalum rupestre*. *Rock Star of Bethlehem*. Cape. May and June.
- Ornithogalum thyrsoides*. *Thyrs-flowered Star of Bethlehem*. Cape. June.—Varieties, with yellow and white flowers.
- Oryza sativa*. *Rice*. Ethiopia. July. S. A.
- Osteospermum cæruleum*. *Blue-flowered Osteospermum*. June—Sept.
- Osteospermum moniliferum*. *Poplar-leaved Osteospermum*. July and Aug.
- Osteospermum pisiferum*. *Shining-leaved Osteospermum*. March—May.
- Osteospermum rigidum*. *Rigid Osteospermum*. April—July.
- Osteospermum spinosum*. *Prickly Osteospermum*. May—Oct. Cape. G. h.
- Osyris alba*. *Poets' Cassia*. S. Europe. G. h.
- Othonna abrotanifolia*. *Southernwood-leaved Othonna* or *African Ragwort*. March—May.
- Othonna arborecens*. *Tree African Ragwort*.
- Othonna bulbosa*. *Bulbous African Ragwort*. May and June.
- Othonna Cacalioides*. *Tuberous African Ragwort*. May—Nov.
- Othonna cheirifolia*. *Stock-leaved African Ragwort*. April—June.
- Othonna coronopifolia*. *Buck's-horn African Ragwort*. July—Sept.
- Othonna

- Othonna denticulata*. *Tooth-leaved African Ragwort*. April—July.
- Othonna pectinata*. *Wormwood-leaved African Ragwort*. May and June.
- Othonna tenuissima*. *Fine-leaved African Ragwort*. July. Cape. G. h.
- Oxalis asinina*. *Two-leaved Wood Sorrel*. Nov.—April.
- Oxalis caprina*. *Goat's-foot Wood Sorrel*. March—June.
- Oxalis cernua*. *Drooping Wood Sorrel*. March—June.
- Oxalis convexula*. *Convex-leaved Wood Sorrel*. March—June.
- Oxalis dentata*. *Toothed Wood Sorrel*. March—June.
- Oxalis elongata*. *Long-leaved Wood Sorrel*. Feb. and March.
- Oxalis flabellifolia*. *Fan-leaved Wood Sorrel*. March and April.
- Oxalis flava*. *Yellow Wood Sorrel*. March and April.
- Oxalis grandiflora*. *Large-flowered Wood Sorrel*. Nov.—April.
- Oxalis hirta*. *Hairy-leaved Wood Sorrel*. Feb. and March.
- Oxalis incarnata*. *Flesh-coloured Wood Sorrel*. April—June.
- Oxalis lanata*. *Woolly-leaved Wood Sorrel*. March—May.
- Oxalis macrostylata*. *Long-styled Wood Sorrel*. Feb. and March.
- Oxalis multiflora*. *Many-flowered Wood Sorrel*. Feb. and March.
- Oxalis purpurea*. *Purple Wood Sorrel*. Nov.—April.
- Oxalis reclinata*. *Reclining Wood Sorrel*. Feb. and March.
- Oxalis repens*. *Creeping Wood Sorrel*. March—July.
- Oxalis reptatrix*. *Bell-shaped Wood Sorrel*. March and April.
- Oxalis rofacea*. *Rose-coloured Wood Sorrel*. Feb. and March.
- Oxalis rubella*. *Red Wood Sorrel*. Feb. and March.
- Oxalis secunda*. *Seffile-leaved Wood Sorrel*. Feb. and March.
- Oxalis tenella*. *Dwarf Wood Sorrel*. March—May.
- Oxalis tenuifolia*. *Slender-leaved Wood Sorrel*. Feb. and March.
- Oxalis tetraphylla*. *Four-leaved Wood Sorrel*. Mexico. June.
- Oxalis versicolor*. *Various-coloured Wood Sorrel*. Feb. and March. Cape. G. P.
- Oxybaphus viscosus*. *Clammy Oxybaphus*. Peru. June—Sept. S. P.
- Pæonia arborea*. *Tree Peony*. China. May and June. G. h.
- Palavia malvifolia*. *Mallow-leaved Palavia*. Peru. July and Aug. S. A.
- Pallasia halimifolia*. *Downy Pallasia*. Peru. July. S. h.
- Panax aculeatum*. *Prickly Panax*. China. November. S. h.
- Pancratium amboinense*. *Broad-leaved Pancratium*. Amboina. April. S. P.
- Pancratium caribæum*. *Caribbean Pancratium*. W. Indies. May—Aug. S. P.
- Pancratium carolinianum*. *Carolina Pancratium*. Jamaica and Carolina. July and Aug. S. P.
- Pancratium fragrans*. *Fragrant Pancratium*. Barbadoes. June and July. S. P.
- Pancratium illyricum*. *Illyrian Pancratium*. S. Europe. May and June. G. P.
- Pancratium litorale*. *Tall Pancratium*. W. Indies. May—Aug. S. P.
- Pancratium mexicanum*. *Mexican Pancratium*. August. S. P.
- Pancratium speciosum*. *Broad-leaved Pancratium*. E. Indies. June—Aug. S. P.
- Pancratium verecundum*. *Narcissus-leaved Pancratium*. E. Indies. June—Aug. S. P.
- Pancratium zeylanicum*. *Ceylon Pancratium*. E. Indies. June and July. S. P.
- Pandanus odoratissimus*. *Sweet-scented Screw Pine*. E. Indies and South Sea Islands. S. h.
- Parietaria arborea*. *Tree Pellitory*. Canary Islands. March—May. G. h.
- Parietaria parvifolia*. *Small-flowered Pellitory*. July. S. A.
- Parietaria urticæfolia*. *Nettle-leaved Pellitory*. Bourbon. June—Sept. S. A.
- Parkinsonia aculeata*. *Prickly Parkinsonia*. W. Indies. S. h.
- Parthenium Hysserophorus*. *Cut-leaved Parthenium*, or *Baslard Feverfew*. Jamaica. July and Aug. S. A.
- Passerina capitata*. *Headed African Sparrow-wort*.
- Passerina filiformis*. *Heath-leaved African Sparrow-wort*.
- Passerina grandiflora*. *Large-flowered African Sparrow-wort*.
- Passerina hirsuta*. *Hairy African Sparrow-wort*.
- Passerina spicata*. *Spiked African Sparrow-wort*.
- Passerina tetragona*. *Four-sided African Sparrow-wort*. Cape. June and July. G. h.
- Passiflora alata*. *Wing-stalked Passion-flower*. W. Indies. April—Aug.
- Passiflora angustifolia*. *Narrow-leaved Passion-flower*. W. Indies. June—Sept.
- Passiflora aurantia*. *Orange-flowered Passion-flower*. Norfolk Island. July and Aug.
- Passiflora ciliata*. *Ciliated Passion-flower*. Jamaica. July and Aug.
- Passiflora foetida*. *Stinking Passion-flower*. W. Indies. July and Aug. B.
- Passiflora glauca*. *Glaucous Passion-flower*. Cayenne. Aug. and Sept.
- Passiflora heterophylla*. *Narrow-leaved Passion-flower*. W. Indies. June—Sept.
- Passiflora hirsuta*. *Hairy Passion-flower*. W. Indies. Sept.
- Passiflora holosericea*. *Silky-leaved Passion-flower*. Vera Cruz. June—Aug.
- Passiflora incarnata*. *Three-leaved or flesh-coloured Passion-flower*. Virginia. July and Aug.
- Passiflora laurifolia*. *Laurel-leaved Passion-flower*, or *Water Lemon*. W. Indies. June and July.
- Passiflora lunata*. *Crescent-leaved Passion-flower*. W. Indies. June and July.
- Passiflora lutea*. *Yellow Passion-flower*. Jamaica and Virginia. May and June.
- Passiflora maliformis*. *Apple-fruited Passion-flower*. Dominica. July—Nov.
- Passiflora minima*. *Dwarf Passion-flower*. Curassao. July.
- Passiflora pedata*. *Curled-flowered Passion-flower*. W. Indies.
- Passiflora punctata*. *Dotted-leaved Passion-flower*. Peru. May and June.
- Passiflora quadrangularis*. *Square-stalked Passion-flower*. Jamaica. Aug. and Sept.
- Passiflora rotundifolia*. *Round-leaved Passion-flower*. W. Indies.
- Passiflora rubra*. *Red-fruited Passion-flower*. W. Indies. April—June.
- Passiflora serratifolia*. *Notch-leaved Passion-flower*. W. Indies. July—Oct.
- Passiflora suberosa*. *Cork-barked Passion-flower*. W. Indies. Aug. and Sept.
- Passiflora Vespertilio*. *Bat-winged Passion-flower*. W. Indies. May and June. S. h.
- Paullinia barbadensis*. *Barbadoes Paullinia*. W. Indies. S. h.
- Paullinia curassavica*. *Shining-leaved Paullinia*. S. Amer. S. h.
- Paullinia pinnata*. *Winged-leaved Paullinia*. W. Indies. S. h.
- Paullinia polyphylla*. *Parsley-leaved Paullinia*, or *Supple Jack*. W. Indies. S. h.
- Pavonia præmorsa*. *Wedge-leaved Pavonia*. Cape. June—Aug. G. h.
- Pavonia spinifex*. *Prickly Pavonia*. W. Indies. July. S. h.
- Pedaliu Murex*. *Prickly-fruited Pedaliu*. E. Indies. Aug. and Sept. S. A.
- Pelargonium*. *Crane's-bill* or *Stork's-bill*. Above 100 species of this handsome genus are to be found in our green-houses. They are chiefly natives of the Cape of Good Hope; and flower from March or April to September.
- Penæa mucronata*. *Heart-leaved Penæa*. Cape. July. G. h.
- Penæa squamosa*. *Scaly Penæa*. Cape. July. G. h.
- Pentapetes Erythroxylon*. *St. Helena Redwood*. S. h.
- Pentapetes phoenicea*. *Scarlet-flowered Pentapetes*. E. Indies. June and July. S. B.
- Pergularia minor*. *Small Pergularia*.
- Pergularia odoratissima*. *Sweet-smelling Pergularia*. E. Indies. May—Aug. S. h.
- Perilla ocymoides*. *Balm-leaved Perilla*. E. Indies. July and Aug. S. A.
- Periploca africana*. *African Periploca*. Cape. June—Sept. G. h.
- Periploca lævigata*. *Smooth Periploca*. Canary Islands. July. G. h.
- Periploca Secamone*. *Green Periploca*. Egypt. July. G. h.
- Perotis latifolia*. *Spiked Perotis*. E. Indies. Aug. and Sept. S. A.
- Perfoonia lanceolata*. *Spear-leaved Perfoonia*.
- Perfoonia linearis*. *Linear-leaved Perfoonia*. New Holland. July and Aug. G. h.
- Petiveria alliacea*. *Common Guinea-hen weed*. Jamaica. June and July. S. h.
- Petiveria octandra*. *Dwarf Guinea-hen weed*. W. Indies. June and July. S. h.
- Petrea volubilis*. *Climbing Petrea*. W. Indies. July. S. h.
- Peucedanum aureum*. *Golden Sulphur-wort*. Canary Islands. June. G. B.
- Pharnaceum dichotomum*. *Forked Pharnaceum*. Cape. July. S. A.
- Pharnaceum incarnum*. *Hoary-leaved Pharnaceum*. Cape. June—Sept. G. P.
- Pharnaceum lineare*. *Linear-leaved Pharnaceum*. Cape. June—Sept. G. P.
- Phaseolus Caracalla*. *Twisted-flowered Kidney-bean*, or *Snail-flower*. E. Indies. Aug. and Sept. S. P.
- Phaseolus lunatus*. *Scymitar-podded Kidney-bean*. E. Indies. June and July. S. A.
- Phaseolus Max.* *Hairy-podded Kidney-bean*. E. Indies. June and July. S. A.
- Phaseolus Mungo*. *Small-fruited Kidney-bean*. E. Indies. June and July. S. A.
- Phaseolus radiatus*. *Rayed Kidney-bean*. Ceylon. July. S. A.
- Phaseolus semierectus*. *Upright Kidney-bean*. S. Amer. July. S. A.
- Phaseolus trilobus*. *Three-lobed Kidney-bean*. E. Indies. July. S. A.
- Phaseolus vexillatus*. *Sweet-scented Kidney-bean*. W. Indies. July. S. A.

- Philadelphus aromaticus*. Sweet-scented *Philadelphus*. New Zealand. July and Aug. G. h.
- Philadelphus laniger*. Hoary or hairy *Philadelphus*. New South Wales. June and July. G. h.
- Philadelphus scoparius*. New Zealand Tea-plant. June and July. G. h.—Varieties, Narrow-leaved and Myrtle-leaved.
- Phlomis caribæa*. West Indian *Phlomis*. July—Sept. S. A.
- Phlomis Leonitis*. Balm-leaved *Phlomis*. Cape. June and July. G. h.
- Phlomis Leonurus*. Lion's-tail *Phlomis*. Cape. Oct. G. h.
- Phlomis Lychnitis*. Sage-leaved *Phlomis*. S. Europe. June—Aug. G. h.
- Phlomis nepetifolia*. Catmint-leaved *Phlomis*. E. Indies. Sept. and Oct. S. A.
- Phlomis zeylanica*. White *Phlomis*. E. Indies. June—Oct. S. A. or B.
- Phoenix dactylifera*. Date Palm-tree. Levant. S. h.
- Phormium tenax*. Iris-leaved Flax Lily. New Holland. G. P.
- Phylica buxifolia*. Box-leaved *Phylica*. May—Sept. G. P.
- Phylica callosa*. Callous or heart-leaved *Phylica*. March—May.
- Phylica cricoides*. Heath-leaved *Phylica*. Nov.—March.
- Phylica eriophoros*. Woolly *Phylica*. Aug.—Nov.
- Phylica plumosa*. Feathered *Phylica*. March—May.
- Phylica pubescens*. Downy *Phylica*. March and April.
- Phylica racemosa*. Cluster-flowered *Phylica*. May—Sept.
- Phylica spicata*. Spiked *Phylica*. Nov. and Dec.
- Phylica stipularis*. Stipulated *Phylica*. May—Sept. Cape. G. h.
- Phylidrum lanuginosum*. Woolly *Phylidrum*. China. G. P.
- Phyllanthus Emblica*. Shrubby *Phyllanthus*. E. Indies. S. h.
- Phyllanthus Niruri*. Annual *Phyllanthus*. E. Indies. June—Sept. S. A.
- Phyllis Nobla*. Bastard Hare's-ear. Canary Islands. June and July. G. h.
- Phyfalid aristata*. Bearded Winter Cherry. Canary Islands. G. h.
- Phyfalid barbatenfis*. Barbadoes Winter Cherry. W. Indies. July and Aug. S. A.
- Phyfalid chenopodiifolia*. Goosefoot-leaved Winter Cherry. S. A.
- Phyfalid curassavica*. Curassavian Winter Cherry. June—Aug. S. P.
- Phyfalid minima*. Small Winter Cherry. E. Indies. July and Aug. S. A.
- Phyfalid peruviana*. Peruvian Winter Cherry. S. Amer. April—Oct. S. h.
- Phyfalid prostrata*. Trailing Winter Cherry. Peru. July and Aug. S. A.
- Phyfalid pubescens*. Woolly Winter Cherry. Both Indies. July and Aug. S. A.
- Phyfalid somnifera*. Cluster-flowered Winter Cherry. Spain and Mexico. July and Aug. G. h.
- Phyfalid viscosa*. Clammy Winter Cherry. America. July. S. P.
- Phyteuma pinnata*. Winged-leaved *Rampion*. Candia. G. P.
- Phytolacca decandra*. Branching *Phytolacca*, or *Virginian Pokc*. Virginia. Aug. and Sept. S. P.
- Phytolacca dioica*. Tree *Phytolacca*. S. Amer. S. h.
- Phytolacca dodecandra*. African *Phytolacca*. May and June. S. h.
- Phytolacca icofandra*. Red *Phytolacca*. E. Indies. July—Nov. S. P.
- Phytolacca octandra*. White-flowered *Phytolacca*. Mexico. July—Nov. S. P.
- Piper Amalago*. Rough-leaved *Pepper*. West Indies. S. h.
- Piper blandum*. Villous *Pepper*. Caraccas. May—July. S. P.
- Piper clusiafolium*. Clusia-leaved *Pepper*. W. Indies. S. h.
- Piper distachyon*. Two-rowed *Pepper*. W. Indies. S. P.
- Piper laurifolium*. Laurel-leaved *Pepper*. W. Indies. S. h.
- Piper maculifolium*. Spotted-stalked *Pepper*. St. Domingo. S. h.
- Piper magnolifolium*. Magnolia-leaved *Pepper*. W. Indies. July—Sept. S. h.
- Piper nigrum*. Black *Pepper*. Both Indies. S. h.
- Piper obtusifolium*. Blunt-leaved *Pepper*. W. Indies. June and July. S. h.
- Piper pellucidum*. Pellucid-leaved *Pepper*. S. Amer. April—Sept. S. B.
- Piper peltatum*. Peltate-leaved *Pepper*. Jamaica. S. h.
- Piper polytachyon*. Many-spiked *Pepper*. W. Indies. June and July. S. P.
- Piper pulchellum*. Small-leaved *Pepper*. Jamaica. July and Aug. S. P.
- Piper stellatum*. Starry *Pepper*. Jamaica. S. P.
- Piper trifolium*. Three-leaved *Pepper*. S. Amer. S. P.
- Piscidia Erythrina*. Jamaica Dogwood. W. Indies. S. h.
- Pisonia aculeata*. Prickly *Pisonia*. Jamaica. March and April. S. h.
- Pistacia atlantica*. Atlantic *Pistacia* tree. Barbary.
- Pistacia Lentiscus*. Narrow-leaved *Mastick tree*. S. Europe and Levant. May.
- Pistacia officinarum*. Official *Pistacia* tree. Levant. April and May. G. h.
- Pitcairnia angustifolia*. Narrow-leaved *Pitcairnia*. Santa Cruz. June—Aug.
- Pitcairnia bromeliæfolia*. Scarlet *Pitcairnia*. Jamaica. June.
- Pitcairnia latifolia*. Broad-leaved *Pitcairnia*. W. Indies. June—Aug.
- Pitcairnia sulphurea*. Yellow *Pitcairnia*. W. Indies. June—Aug. S. h.
- Pittosporum coriaceum*. Leather-leaved *Pittosporum*. Madeira.
- Pittosporum hirtum*. Hairy-leaved *Pittosporum*.
- Pittosporum undulatum*. Waved-leaved *Pittosporum*. New Holland. May and June. G. H.
- Platylobium formosum*. Great-flowered Flat Pea.
- Platylobium lanceolatum*. Spear-leaved Flat Pea.
- Platylobium ovatum*. Ovate-leaved Flat Pea.
- Platylobium Scolopendrum*. Plank-plant. New Holland. May—July. G. h.
- Plectranthus fruticosus*. Shrubby *Plectranthus*. Cape. June—Sept. G. h.
- Plectranthus punctatus*. Dotted *Plectranthus*. Africa. Jan.—May. G. B.
- Plinia pedunculata*. Myrtle-leaved *Plinia*. Brazil. Feb. and March. S. h.
- Plocama pendula*. Pendulous *Plocama*. Canary Islands. S. h.
- Plumbago rosea*. Rose-coloured Leadwort. E. Indies. July. S. h.
- Plumbago scandens*. Climbing Leadwort. S. Amer. July and Aug. S. h.
- Plumbago zeylanica*. Ceylon Leadwort. E. Indies. April—Sept. S. h.
- Plumeria alba*. White *Plumeria*.
- Plumeria obtusa*. Blunt-leaved *Plumeria*.
- Plumeria rubra*. Red *Plumeria*. Jamaica. July and Aug. S. h.
- Podalyria biflora*. Two-flowered *Podalyria*. Feb.—May.
- Podalyria buxifolia*. Box-leaved *Podalyria*. May and June.
- Podalyria capensis*. Cape *Podalyria*. July.
- Podalyria hirsuta*. Hairy *Podalyria*. May and June. Cape. G. h.
- Pogonia debilis*. Slender *Pogonia*. April—Sept.
- Pogonia glabra*. Smooth *Pogonia*. Jan. and Feb. New Holland. G. h.
- Poinciana elata*. Smooth Flower-fence. E. Indies. S. h.
- Poinciana pulcherrima*. Barbadoes Flower-fence. Both Indies. June—Sept. S. h.
- Polianthes tuberosa*. Common *Tuberose*. E. Indies. Aug. and Sept. G. P.
- Pollichia campestris*. Whorl-leaved *Pollichia*. Cape. June—Sept. G. h.
- Polygala bracteolata*. Linear-leaved *Milkwort*. May and June. B.
- Polygala Heisteria*. Heath-leaved *Milkwort*. April—Sept.
- Polygala mixta*. Small-flowered *Milkwort*. April—Sept.
- Polygala myrtifolia*. Myrtle-leaved *Milkwort*. May—Sept.
- Polygala oppositifolia*. Opposite-leaved *Milkwort*. June—Aug.
- Polygala spinosa*. Prickly *Milkwort*. Feb. and March.—Varieties, Ovate-leaved and Linear-leaved. Cape. G. h.
- Polygonum flaccidum*. Slender *Periscaria*. E. Indies. July and Aug. S. h.
- Polygonum tinctorium*. Dyer's *Polygonum*. China. July and Aug. G. B.
- Polyminia abyssinica*. Upright *Polyminia*. Africa. April and May. S. B.
- Portlandia grandiflora*. Great-flowered *Portlandia*. Jamaica. July and Aug. S. h.
- Portulaca Anacampseros*. Round-leaved *Purslane*. Cape. July. G. h.
- Portulaca arachnoides*. Cobweb *Purslane*. Cape. June and July. G. h.
- Portulaca filamentosa*. Thready *Purslane*. Cape. July and Aug. G. h.
- Portulaca lanceolata*. Spear-leaved *Purslane*. July and Aug. G. h.
- Portulaca patens*. Panicked *Purslane*. W. Indies. July. S. h.
- Portulaca pilosa*. Hairy *Purslane*. W. Indies. June and July. G. A.
- Portulaca quadrifida*. Creeping Annual *Purslane*. E. Indies. Aug. and Sept. S. A.
- Portulaca rubens*. Red *Purslane*. W. Indies. July and Aug. S. B.
- Portulaca setacea*. Bristly *Purslane*. Cape. June and July. G. h.
- Portulacaria afra*. *Purslane-tree*. Africa. G. h.
- Poterium caudatum*. Smooth Shrubby *Burnet*. Canary Islands. March and April. G. h.
- Poterium spinosum*. Prickly Shrubby *Burnet*. Levant. April—Aug. G. h.
- Pothos acaulis*. Stemless *Pothos*. April—Aug.
- Pothos cannaefolia*. Canna-leaved *Pothos*. July and Aug.
- Pothos cordata*. Heart-leaved *Pothos*. April—Aug.
- Pothos coriacea*. Leather-leaved *Pothos*. June—Sept.

- Pothos lanceolata*. *Spear-leaved Pothos*. April—Aug. W. Indies. S. P.
Prafrum majus. *Great Spanish Hedge-nettle*.
Prafrum minus. *Small Spanish Hedge-nettle*. Spain. June—Aug. G. h.
Prinos lucidus. *Shining Winter-berry*. June and July. G. h.
Protea acaulis. *Stemless Protea*.
Protea alba. *White Protea*.
Protea anemonefolia. *Anemone-leaved Protea*. New Holland. July and Aug.
Protea argentea. *Silvery Protea*. August.
Protea aulacea. *Widowwail-leaved Protea*.
Protea caudata. *Scotch-Fir Protea*.
Protea cinerea. *Gray Protea*. July and Aug.
Protea conifera. *Cone-bearing Protea*. April—July.
Protea conocarpa. *Tooth-leaved Protea*.
Protea cordata. *Heart-leaved Protea*. March—May.
Protea cynaroides. *Artichoke-flowered Protea*. Jan.—June.
Protea formosa. *Coronet Protea*. August.
Protea glabra. *Smooth-leaved Protea*.
Protea globosa. *Globe-flowered Protea*. April—July.
Protea glomerata. *Woolly-headed Protea*. July and Aug.
Protea grandiflora. *Great-flowered Protea*. May and June.
Protea hirta. *Hairy Protea*.
Protea hypophylla. *Trifid-leaved Protea*.
Protea incurva. *Incurved Protea*.
Protea Lagopus. *Woolly-leaved Protea*. June and July.
Protea latifolia. *Broad-leaved Protea*. August.
Protea Levifanus. *Branching Protea*. April—July.
Protea linearis. *Linear Protea*. August.
Protea longifolia. *Long-leaved Protea*. Jan.—April.
Protea mellifera. *Honey-bearing Protea*. March—May.
Protea nana. *Dwarf Protea*.
Protea obliqua. *Oblique Protea*.
Protea pallens. *Pale Protea*. June.
Protea parviflora. *Small-flowered Protea*. August.
Protea pinifolia. *Pine-leaved Protea*. Aug. and Sept.
Protea plumosa. *Feathered Protea*. June—Aug.
Protea pubera. *Downy-leaved Protea*.
Protea pulchella. *Fennel-leaved Protea*. New Holland. July and Aug.
Protea purpurea. *Purple Protea*.
Protea racemosa. *Downy-flowered Protea*.
Protea repens. *Creeping Protea*.
Protea saligna. *Willow-leaved Protea*. April—July.
Protea Scopulorum. *Various-leaved Protea*.
Protea Scolumus. *Pale-flowered Protea*. May—July.
Protea sericea. *Silky Protea*. April—July.
Protea serraria. *Cut-leaved Protea*. May and June.
Protea spatulata. *Spatula-leaved Protea*. July and Aug.
Protea speciosa. *Dark-flowered Protea*. June and July.
Protea sphærocephala. *Round-headed Protea*. May and June.
Protea spicata. *Spike-flowered Protea*. May and June.
Protea strobilina. *Obtuse-leaved Protea*. April—July.
Protea tomentosa. *Hairy-leaved Protea*. Aug. and Sept.
Protea torta. *Twisted-leaved Protea*.
Protea totta. *Upright smooth Protea*.
Protea umbellata. *Umbelled Protea*. August. Cape. G. h.
Prunus occidentalis. *West-India Laurel*. Jamaica. S. h.
Psidium pomiferum. *Apple-fruited Guava*.
Psidium pyrifera. *Pear-fruited Guava*. W. Indies. June and July. S. h.
Pforalea aculeata. *Prickly Pforalea*.
Pforalea americana. *American Pforalea*. Madeira. July and Aug.
Pforalea angustifolia. *Narrow-leaved Pforalea*.
Pforalea aphylla. *Leafless Pforalea*.
Pforalea bituminosa. *Bituminous Pforalea*. Italy and S. France.
Pforalea bracteata. *Ovate-spiked Pforalea*.
Pforalea corylifolia. *Nut-leaved Pforalea*. E. Indies. S. B.
Pforalea decumbens. *Trailing Pforalea*.
Pforalea enneaphylla. *Nine-leaved Pforalea*. W. Indies. S. A.
Pforalea foliolosa. *Leafy Pforalea*. Oct. and Nov. S. A.
Pforalea glandulosa. *Stripe-flowered Pforalea*. Peru.
Pforalea hirta. *Hairy Pforalea*.
Pforalea leporina. *Downy-spiked Pforalea*. Oct. and Nov. S. A.
Pforalea palestina. *Palestine or herbaceous Pforalea*. Levant.
Pforalea pinnata. *Winged-leaved Pforalea*.
Pforalea repens. *Creeping Pforalea*.
Pforalea spicata. *Long-spiked Pforalea*. Cape. May—July and Aug. G. h.
Pterocarpus buxifolius. *Box-leaved Pterocarpus*. W. Indies. July and Aug. S. h.
Pteronia camphorata. *Aromatic Pteronia*. June—Sept.
Pteronia oppositifolia. *Forked Pteronia*.
Pteronia stricta. *Cluster-flowered Pteronia*. April—June. Cape. G. h.
Pterospermum acerifolium. *Maple-leaved Pterospermum*. Sept. E. Indies. S. h.
Pterospermum suberifolium. *Angular-leaved Pterospermum*. E. Indies. S. h.
Pultenæa Daphnoides. *Daphne-leaved Pultenæa*.
Pultenæa hirsuta. *Hairy Pultenæa*.
Pultenæa ilicifolia. *Ilex-leaved Pultenæa*.
Pultenæa juncea. *Rush-leaved Pultenæa*.
Pultenæa linophylla. *Flax-leaved Pultenæa*.
Pultenæa stipularis. *Heath-leaved Pultenæa*.
Pultenæa villosa. *Villous Pultenæa*. New Holland. April—July. G. h.
Punica nana. *Dwarf Pomegranate*. W. Indies. July—Sept. S. h.
Quassia amara. *Bitter Quassia*. Surinam. July. S. h.
Quassia Simaruba. *Winged-leaved Quassia*. W. Indies. S. h.
Rajania cordata. *Heart-leaved Rajania*. W. Indies. July and Aug. S. P.
Rauvolfia nitida. *Shining Rauvolfia*. S. America. June and July. S. h.
Relbania squarrosa. *Cross-leaved Relbania*. Cape. May and June. G. h.
Renealmia nutans. *Nodding Renealmia*. E. Indies. March. S. P.
Refeda dipetala. *Flax-leaved Refeda*. Cape. August. G. B.
Restio Elegia. *Rush-leaved Restio*. Cape. July. G. h.
Rhamnus colubrinus. *Red-wood*. Bahama Islands. June. S. h.
Rhamnus crenulatus. *Crenated Rhamnus*. Teneriffe. March. G. h.
Rhamnus ellipticus. *Oval-leaved Rhamnus*. Jamaica. August. S. h.
Rhamnus glandulosus. *Glandular Rhamnus*. Madeira and Canary Islands. June and July. G. h.
Rhamnus Jujuba. *Blunt-leaved Rhamnus*. E. Indies. S. h.
Rhamnus latifolius. *Broad-leaved Rhamnus*. Azores. July. G. h.
Rhamnus Lotus. *Barbary Rhamnus*. G. h.
Rhamnus mystacinus. *Wiry Rhamnus*. Africa. Nov. S. h.
Rhamnus Oleoides. *Olive-leaved Rhamnus*. Spain. G. h.
Rhamnus Prinoides. *Prinos-leaved Rhamnus*. Cape. Aug. and Sept. G. h.
Rhapis arundinacea. *Simple-leaved Rhapis*. Carolina. Sept. G. h.
Rhapis flabelliformis. *Creeping Rhapis or Ground Ratan*. China and Japan. August. S. h.
Rhus angustifolium. *Narrow-leaved Sumach*. Cape. G. h.
Rhus Cominia. *Jamaica Sumach*. S. h.
Rhus dentatum. *Tooth-leaved Sumach*. Cape. G. h.
Rhus incisum. *Cut-leaved Sumach*. Cape. G. h.
Rhus lævigatum. *Smooth-leaved Sumach*. Cape. G. h.
Rhus lucidum. *Shining-leaved Sumach*. Cape. July and August. G. h.—Varieties, Great and Small.
Rhus pubescens. *Downy Sumach*. Cape. G. h.
Rhus semialatum. *Service-leaved Sumach*. Macao. G. h.
Rhus succedaneum. *Red-Lac Sumach*. China and Japan. June. G. h.
Rhus tomentosum. *Woolly-leaved Sumach*. Cape. G. h.
Rhus villosum. *Villous Sumach*. Cape. July. G. h.
Rhus viminalis. *Willow-leaved Sumach*. Cape. G. h.
Ricinus communis. *Common Palma Christi, or Castor Oil tree*.
Rivina brasiliensis. *Brazilian Rivina*. July. S. h.
Rivina humilis. *Downy Rivina*. W. Indies. May—Aug. S. h.
Rivina lævis. *Smooth Rivina*. W. Indies. May—Aug. S. h.
Rivina octandra. *Climbing Rivina*. W. Indies. S. h.
Robinia violacea. *Ash-leaved Robinia*. W. Indies. S. h.
Roella ciliata. *Ciliated Roella*. July—Sept. h.
Roella decurrens. *Decurrent Roella*. July—Sept. A.
Roella muscosa. *Mossy Roella*. July—Sept. A.
Roella squarrosa. *Trailing Roella*. June. P. Cape. G.
Rondeletia americana. *American Rondeletia*. W. Indies. August. S. h.
Rondeletia hirta. *Hairy Rondeletia*. Jamaica. June—Aug. S. h.
Rosa sinica. *Chinese Rose*. China. G. h.
Royena angustifolia. *Narrow-leaved Royena*.
Royena glabra. *Myrtle-leaved Royena*. September.
Royena hirsuta. *Hairy-leaved Royena*.
Royena lucida. *Shining-leaved Royena*. May and June.
Royena polyandra. *Broad-leaved Royena*.
Royena villosa. *Villous Royena*. Cape. G. h.
Rubia fruticosa. *Prickly-leaved Madder*. Canary Islands. September. G. h.
Ruellia biflora. *Two-flowered Ruellia*. Carolina. July. G. P.
Ruellia Blechum. *Thick-spiked Ruellia*. Jamaica. June. S. P.
Ruellia clandestina. *Hidden-flowered Ruellia*. Barbadoes. August. S. P.
Ruellia lactæa. *White Ruellia*. Mexico. July and August. S. P.
Ruellia paniculata. *Panicled Ruellia*. W. Indies. August. S. P.
Ruellia patula. *Spreading Ruellia*. E. Indies. July and Aug. S. h.
Ruellia strepens. *Whorled Ruellia*. Carolina. July and Aug. G. P.

- Ruizia aurea*. *Golden Ruizia*. Bourbon. S. I.
Rumex arifolius. *Halberd-leaved Dock*. Africa. Dec.—April. G. I.
Rumex Lunaria. *Tree Sorrel*. Canary Islands. June and July. G. I.
Rufcus androgynus. *Climbing Butcher's-broom*. Canary Islands. May—July. G. I.
Ruta chalepensis. *Aleppo Rue*. Africa. Aug. and Sept. G. I.
Ruta pinnata. *Winged-leaved Rue*. Canary Islands. March—July. G. I.
Saccharum officinarum. *Common Sugar-cane*. Both Indies. S. P.
Salisburia adiantifolia. *Maidenhair-leaved Salisburia* or *Ginkgo*. Japan. May. G. or H. I.
Salifolia fericea. *Silky Saltwort*. Cape. Aug. and Sept. G. I.
Salvia abyssinica. *Abyssinian Sage*. June and July. G. P.
Salvia africana. *African Sage*. Cape. May and June. G. P.
Salvia amara. *Bitter Sage*. Mexico. G. B.
Salvia arborea. *Tree Sage*. Greece. June. G. I.
Salvia aurea. *Golden-flowered Sage*. Cape. July and Aug. G. I.
Salvia canariensis. *Canary Sage*. June—Aug. G. I.
Salvia chamædrifolia. *Germander-leaved Sage*. Spain. July and Aug. G. P.
Salvia coccinea. *Scarlet-flowered Sage*. Florida. May—Aug. G. I.
Salvia colorata. *Orange-flowered Sage*. Cape. July and Aug. G. I.
Salvia dentata. *Tooth-leaved Sage*. Cape. March. G. I.
Salvia dominica. *Dominica Sage*. W. Indies. July. S. P.
Salvia formosa. *Shining-leaved Sage*. Peru. May—Aug. G. I.
Salvia hirsuta. *Hairy Sage*. Cape. May. G. B.
Salvia interrupta. *Ash-leaved Sage*. Barbary. June—Aug. G. I.
Salvia linearis. *Linear-leaved Sage*. Mexico. G. P.
Salvia mexicana. *Mexican Sage*. May—July. G. I.
Salvia nubia. *Nubian Sage*. Cape. June and July. G. I.
Salvia paniculata. *Panicled Sage*. Cape. July and Aug. G. I.
Salvia pomifera. *Apple-bearing Sage*. Candia. July and Aug. G. I.
Salvia pseudococcinea. *Hairy-stalked Sage*. S. Amer. May—Aug. G. I.
Salvia rugosa. *Wrinkled Sage*. Cape. June and July. G. I.
Salvia scabra. *Rough Sage*. Cape. June and July. G. P.
Salvia serotina. *Late-flowering Sage*. Chio. June. G. A.
Salvia spinosa. *Thorny Sage*. Egypt. August. G. P.
Salvia syriaca. *Syrian Sage*. Levant. July. G. I.
Salvia tiliaefolia. *Lime-leaved Sage*. S. Amer. July and Aug. G. I.
Salvia tingitana. *Tangier Sage*. Barbary. July. G. I.
Salvia violacea. *Violet-flowered Sage*. W. Indies. April and May. S. I.
Samara pentandra. *Pentandrous Samara*. Cape. Nov.—Feb. G. I.
Samyda pubescens. *Downy Samyda*. May—Aug.
Samyda ferrulata. *Serrate-leaved Samyda*. W. Indies. S. I.
Sansevieria guineensis. *Guinea Sansevieria*.
Sansevieria zeylanica. *Ceylon Sansevieria*. June—Nov. S. P.
Sapindus edulis. *Chinese Lee-chee*. China, Tunquin and Cochinchina. S. I.
Sapindus rigida. *Ash-leaved Soap-berry*. W. Indies. July—Sept. S. I.
Sapindus saponaria. *Common Soap-berry*. W. Indies. S. I.
Satureia juliana. *Linear-leaved Savory*. Italy. May—Sept. G. P.
Satureia Thymbra. *Whorl-flowered Savory*. Candia. May—July. G. I.
Satureia viminea. *Penny royal-tree*. Jamaica. S. I.
Saxifraga hederacea. *Ivy-leaved Saxifrage*. Levant. July. G. A.
Scabiosa africana. *African Scabious*. Cape. July and Aug. G. I.
Scabiosa attenuata. *Narrow-leaved Scabious*. Cape. July—Sept. G. I.
Scabiosa cretica. *Cretan Scabious*. Candia and Sicily. June—Oct. G. I.
Scabiosa graminifolia. *Grass-leaved Scabious*. Switzerland and Italy. July. G. P.
Scabiosa palæstina. *Palestine Scabious*. July and Aug. G. A.
Scabiosa rigida. *Rough leaved Scabious*. Cape. July. G. I.
Schinus dependens. *Entire-leaved Schinus*.
Schinus molle. *Wing-leaved Schinus*. July and Aug. Peru. G. I.
Schotia speciosa. *Lentiscus-leaved Schotia*. Cape. G. I.
Schwenkia americana. *Guinea Schwenkia*. Guinea. Aug. and Sept. S. B.
Scilla hyacinthoides. *Hyacinth Squill*. Madeira. August. G. P.
Scilla maritima. *Officinal Squill*. S. Europe and Syria. April—June. G. P.
Scoparia dulcis. *Sweet Scoparia*. Jamaica. June—Sept. S. B.
Scrophularia arguta. *Slender Upright Figwort*. Madeira and Teneriffe. May and June. G. A.
Scrophularia frutescens. *Shrubby Figwort*. Portugal. June—Aug. G. I.
Scrophularia glabrata. *Spear-leaved Figwort*. Canary Islands. April and May. G. B.
Scrophularia mellifera. *Barbary Figwort*. July and August. G. P.
Securidaca scandens. *Climbing Securidaca*. W. Indies. S. I.
Sedum dioicum. *Dioecious Stone-crop*. G. B.
Sedum divaricatum. *Spreading Stone-crop*. Madeira. June and July. G. I.
Sedum nudum. *Naked Stone-crop*. July and Aug. G. I.
Selago corymbosa. *Fine-leaved Selago*. June and July.
Selago fasciculata. *Cluster-flowered Selago*. June.
Selago ovata. *Ovate-spiked Selago*. June and July.
Selago spuria. *Linear-leaved Selago*. July—Oct. B. Cape. G. I.
Sempervivum arboreum. *Tree Houseleek*. Portugal and Levant. March and April. G. I.
Sempervivum canariense. *Canary Houseleek*. Canary Islands. June and July. G. I.
Sempervivum cuspidatum. *Prickly-leaved Houseleek*. June and July. G. P.
Sempervivum glandulosum. *Glandulous-leaved Houseleek*. Madeira. March—May. G. I.
Sempervivum glutinosum. *Slimy Houseleek*. Madeira. July and Aug. G. I.
Sempervivum monanthos. *Clustered Houseleek*. Canary Islands. July. G. P.
Sempervivum tortuosum. *Gouty-stalked Houseleek*. Canary Islands. July and Aug. G. I.
Sempervivum villosum. *Villous Houseleek*. Madeira. June. G. A.
Senecio asper. *Rough-leaved Groundsel*. Cape. July and Aug. G. I.
Senecio cernuus. *Drooping Groundsel*. E. Indies. July and Aug. S. A.
Senecio cinerascens. *Gray Groundsel*. Cape. May—July. G. I.
Senecio crubescens. *Bluish-coloured Groundsel*. Cape. June—Oct. G. A.
Senecio halimifolius. *Succulent-leaved Groundsel*. Cape. July. G. I.
Senecio hastatus. *Spleenwort-leaved Groundsel*. Cape. June and July. G. P.
Senecio ilicifolius. *Ilex-leaved Groundsel*. Cape. June and July. G. I.
Senecio lanceus. *Spear-leaved Groundsel*. Cape. July—Oct. G. I.
Senecio longifolius. *Long-leaved Groundsel*. Cape. Aug.—Nov. G. I.
Senecio Pseudo-China. *Chinese Groundsel*. E. Indies. July and Aug. S. P.
Senecio purpureus. *Purple Groundsel*. Cape. July—Sept. G. P.
Senecio reclinatus. *Grass-leaved Groundsel*. Cape. June—Aug. G. B.
Senecio rigidus. *Stiff-leaved Groundsel*. Cape. June—Sept. G. I.
Senecio rosmarinifolius. *Rosemary-leaved Groundsel*. Cape. July and Aug. G. I.
Senecio venustus. *Wing-leaved Groundsel*. Cape. July—Sept. G. B.
Septas capensis. *Round-leaved Septas*. Cape. Aug. and Sept. G. P.
Seriphium cinereum. *Heath-leaved Seriphium*. Cape. July—Sept. G. I.
Serissa foetida. *Sinking Serissa*. Japan. April—July. G. I.
Serratula heterophylla. *Various-leaved Saw-wort*. July. G. P.
Serratula speciosa. *Hairy-cupped Saw-wort*. Carolina and Georgia. October. G. I.
Sesamum indicum. *Indian Sesamum* or *Oily-grain*. E. Indies. July. S. A.
Sesamum orientale. *Oriental Sesamum* or *Oily-grain*. E. Indies. July. S. A.
Sesuvium Portulacastrum. *Purslane-leaved Sesuvium*. W. Indies. July. S. B.
Sida Abutilon. *Round-leaved Sida*. Both Indies. July and Aug. S. A.
Sida alnifolia. *Alder-leaved Sida*. E. Indies. July—Sept. S. B.
Sida americana. *Woolly Sida*. Jamaica. July and Aug. S. A.
Sida angustifolia. *Narrow-leaved Sida*. E. Indies. July—Sept. S. A.
Sida arborea. *Great-flowered Sida*. Peru. July and Aug. S. I.
Sida asiatica. *Small-flowered Sida*. E. Indies. July and Aug. S. A.
Sida carpinifolia. *Hornbeam-leaved Sida*. July—Sept. S. B.

- Sida cordifolia*. *Heart-leaved Sida*. India and Cape. July—Sept. S. A.
- Sida crispa*. *Curled Sida*. Carolina and Bahama Islands. July and Aug. S. A.
- Sida cristata*. *Crested Sida*. Mexico. June—Oct. S. A.
- Sida humilis*. *Dwarf Sida*. E. Indies. July—Sept. S. A.
- Sida Jatrophioides*. *Palmated Sida*. S. America. August. S. A.
- Sida indica*. *Indian or Rough-capsuled Sida*. E. Indies. July and Aug. S. A.
- Sida mauritiana*. *Hairy-capsuled Sida*. Mauritius. July—Sept. S. A.
- Sida mollissima*. *Soft Sida*. Peru. July and Aug. S. B.
- Sida occidentalis*. *Downy-leaved Sida*. America. July—Sept. S. A.
- Sida paniculata*. *Panieled Sida*. Jamaica. July—Sept. S. A.
- Sida periplocifolia*. *Great Bindweed-leaved Sida*. Both Indies. July and Aug. S. B.
- Sida pilosa*. *Hairy Sida*. St. Domingo. July—Sept. S. A.
- Sida rhombifolia*. *Betony-leaved Sida*. Both Indies. June—Aug. S. h.
- Sida spinosa*. *Prickly-seeded Sida*. Both Indies. July—Sept. S. A.
- Sida triloba*. *Three-lobed Sida*. E. Indies. July—Sept. S. A.
- Sida triquetra*. *Triangular-stalked Sida*. W. Indies. July—Sept. S. B.
- Sida velicaria*. *Bladdered Sida*. Both Indies. July—Sept. S. B.
- Sida umbellata*. *Umbelled Sida*. Jamaica. July—Sept. S. A.
- Sida urens*. *Bristly-leaved Sida*. Jamaica. July—Sept. S. B.
- Sideritis canariensis*. *Canary Iron-wort*. Canary Islands and Madeira. May—Aug. G. h.
- Sideritis candicans*. *Hoary or Mullein-leaved Iron-wort*. Madeira. April—July. G. h.
- Sideritis lyriaca*. *Syrian or Sage-leaved Iron-wort*. Levant. June—Sept. G. h.
- Sideroxylon inerme*. *Smooth Iron-wort*. Cape. July. G. h.
- Sideroxylon melanophlebos*. *Laurel-leaved Iron-wood*. Cape. G. h.
- Sideroxylon fericeum*. *Silky Iron-wood*. New South Wales. S. h.
- Sideroxylon spinosum*. *Thorny Iron-wood, or Argan*. Morocco. July. S. h.
- Sideroxylon tenax*. *Silvery-leaved Iron-wood*. Carolina. July and Aug. G. h.
- Sigesbeckia orientalis*. *Oriental Sigesbeckia*. India and China. July and Aug. S. A.
- Silene crassifolia*. *Thick-leaved Catchfly*. Cape. July and Aug. G. B.
- Silene gigantea*. *Gigantic Catchfly*. Africa. June and July. G. B.
- Silene ornata*. *Dark-flowered Catchfly*. Cape. May—Sept. G. B.
- Silene undulata*. *Waved-leaved Catchfly*. Cape. August. G. B.
- Sinapis frutescens*. *Shrubby Mustard*. Madeira. Dec.—June. G. h.
- Sisymbrium millefolium*. *Milfoil-leaved Sisymbrium*. Canary Islands. May—Sept. G. h.
- Sisyrinchium Bermudiana*. *Bermudian Sisyrinchium*. Bermudas. May and June. G. P.
- Sisyrinchium latifolium*. *Broad-leaved Sisyrinchium*. W. Indies. June—Aug. S. P.
- Smilax China*. *Chinese Smilax*. China and Japan. G. h.
- Smilax zeylanica*. *Ceylon Smilax*. E. Indies. S. h.
- Smithia fenestrata*. *Annual Smithia*. E. Indies. Oct. S. A.
- Solandra grandiflora*. *Great-flowered Solandra*. Jamaica. March. S. h.
- Solanum æthiopicum*. *Ethiopian Nightshade*. China. July. G. A.
- Solanum auriculatum*. *Ear-leaved Nightshade*. Madagascar, Mauritius and Bourbon. June and July. S. h.
- Solanum bahamense*. *Bahama Nightshade*. S. h.
- Solanum bonariense*. *Buenos Ayres Nightshade*. June—Sept. G. h.
- Solanum campechiense*. *Purple-spined Nightshade*. America. July. G. h.
- Solanum carolinense*. *Carolina Nightshade*. July—Sept. G. P.
- Solanum coagulans*. *Scolloped Nightshade*. Arabia Felix. S. h.
- Solanum corymbosum*. *Ovate-leaved Nightshade*. Peru. July. S. P.
- Solanum crassifolium*. *Thick-leaved Nightshade*. Africa. G. h.
- Solanum diphyllum*. *Two-leaved Nightshade*. W. Indies. July. S. h.
- Solanum giganteum*. *Giant Nightshade*. Cape. June and July. G. h.
- Solanum guineense*. *Black-fruited Nightshade*. Guinea. Aug. S. A.
- Solanum hirtum*. *Hairy Nightshade*. Trinidad. S. h.
- Solanum igneum*. *Red-spined Nightshade*. S. Amer. March—Nov. S. h.
- Solanum indicum*. *Indian Nightshade*. Both Indies. July. S. h.
- Solanum laciniatum*. *Jagged-leaved Nightshade*. New Holland. June and July. G. h.
- Solanum macrocarpon*. *Smooth fleshy-leaved Nightshade*. Peru. May—Aug. S. h.
- Solanum marginatum*. *White Nightshade*. Africa. June—Aug. G. h.
- Solanum Melongena*. *Large-fruited Nightshade, or Egg-plant*. Asia, Africa, and America. June and July. S. A.
- Solanum muricatum*. *Warted Nightshade*. Peru. S. h.
- Solanum patulum*. *Spreading Nightshade*. E. Indies. August. S. A.
- Solanum Pseudo-capsicum*. *Shrubby Winter Cherry*. Madeira. June—Sept. G. h.
- Solanum racemosum*. *Clustered Nightshade*. W. Indies. June and July. G. P.
- Solanum radicans*. *Rooting or Climbing Nightshade*. Peru. June and July. G. P.
- Solanum fodomeum*. *Black-spined Nightshade*. Cape. June and July. G. h.
- Solanum flamonifolium*. *Broad-leaved Nightshade*. W. Indies. June—Sept. S. h.
- Solanum subinerme*. *Spear-leaved Nightshade*. W. Indies. July and Aug. S. h.
- Solanum tomentosum*. *Woolly Nightshade*. Cape. June and July. G. h.
- Solanum Vespertilio*. *Canary Nightshade*. March and April. G. h.
- Solanum villosum*. *Yellow-berried Nightshade*. Barbadoes. August. S. A.
- Sonchus fruticosus*. *Shrubby Sow-thistle*. Madeira. April—July. G. h.
- Sonchus pinnatus*. *Wing-leaved Sow-thistle*. Madeira. G. h.
- Sonchus radicans*. *Long-rooted Sow-thistle*. Canary Islands. July. G. h.
- Sophora aurea*. *Golden-flowered Sophora*. Africa. July. G. h.
- Sophora biflora*. *Two-flowered Sophora*. Cape. Nov.—Jan. G. h.
- Sophora capensis*. *Vetch-leaved Sophora*. Cape. G. h.
- Sophora Genistoides*. *Broom-leaved Sophora*. Cape. G. h.
- Sophora hirsuta*. *Hairy Sophora*. Cape. July and August. G. h.
- Sophora microphylla*. *Small-leaved Sophora*. New Zealand. May and June. G. h.
- Sophora occidentalis*. *Occidental Sophora*. West Indies. S. h.
- Sophora tetraptera*. *Wing-podded Sophora*. New Zealand. May and June. G. h.
- Sophora tomentosa*. *Downy Sophora*. Ceylon. S. h.
- Sowerbia juncea*. *Rush-leaved Sowerbia*. New Holland. May—July. G. P.
- Sparrmannia africana*. *Maple-leaved Sparrmannia*. Cape. April—June. G. h.
- Spartium contaminatum*. *Narrow-leaved Broom*. Cape. G. h.
- Spartium cytoides*. *Cytisus-leaved Broom*. Cape. April. G. h.
- Spartium monospermum*. *White-flowered single-seeded Broom*. Spain and Portugal. June and July. G. h.
- Spartium nubigenum*. *Cluster-flowered Broom*. Sic of Tenerife. July. G. h.
- Spartium fericeum*. *Silky Broom*. Cape. April. G. h.
- Spartium sphaerocarpum*. *Yellow-flowered single-seeded Broom*. S. Europe. June and July. G. h.
- Spartium spinosum*. *Prickly Broom*. S. Europe. June and July. G. h.
- Spartium virgatum*. *Slender Broom*. Madeira. March—June. G. h.
- Spathelia simplex*. *Sumach-leaved Spathelia*. Jamaica. S. h.
- Spermacoce hispida*. *Bristly procumbent Button-weed*. E. Indies. Aug. and Sept. S. A.
- Spermacoce verticillata*. *Whorl-flowered Button-weed*. Africa. June—Aug. S. B.
- Sphæranthus indicus*. *Indian Sphæranthus*. E. Indies. Aug.—Dec. S. P.
- Spielmannia africana*. *Ilex-leaved Spielmannia*. Cape. March—Nov. G. h.
- Spigelia Anthelmia*. *Annual Worm-grass*. West Indies. July. S. A.
- Spilanthus Acnella*. *Balm-leaved Spilanthus*. Ceylon. July and Aug. S. A.
- Spilanthus alba*. *White-flowered Spilanthus*. Peru. June and July. S. A.
- Spilanthus oleracea*. *Eatable Spilanthus*. E. Indies. July—Nov. S. A.
- Spilanthus Pseudo-Acnella*. *Spear-leaved Spilanthus*. Ceylon. July. S. A.
- Spondias Myrobalanus*. *Yellow Hog Plum*. W. Indies. S. h.
- Sprengelia incarnata*. *Flesh-coloured Sprengelia*. New Holland. April—July. G. h.
- Staavia glutinosa*. *Clammy Staavia*.
- Staavia radiata*. *Rayed Staavia*. Cape. May—July. G. h.

- Stachys æthiopica*. *Ethiopian Stachys*. Cape. April—July. G. P.
Stachys canariensis. *Canary Stachys*. Canary Islands. June—Aug. G. P.
Stachys coccinea. *Scarlet Stachys*. S. Amer. July and Aug. G. P.
Stachys rugosa. *Rough Stachys*. Cape. July. G. h.
Stapelia hirsuta. *Hairy Stapelia*.
Stapelia variegata. *Variegated Stapelia*.
 These two species have been long known in Europe: but near 50 species are now cultivated in our dry Stoves. These singular plants are all natives of the Cape of Good Hope, and flower here from April to November.
Statice echioides. *Rough-leaved Thrift*. S. Europe. July and Aug. G. B.
Statice graminifolia. *Grass-leaved Thrift*. Portugal. April and May. G. h.
Statice monopetala. *Thick-leaved Thrift*. Sicily. July and Aug. G. h.
Statice mucronata. *Curled Thrift*. Barbary. May—Sept. G. P.
Statice pectinata. *Triangular-stalked Thrift*. Canary Islands. June and July. G. P.
Statice purpurata. *Purple Thrift*. Cape. June and July. G. P.
Statice scabra. *Rugged Thrift*. Cape. May—July. G. P.
Statice sinuata. *Scollop-leaved Thrift*. Sicily and Levant. May—Sept. G. P.
Statice suffruticosa. *Narrow-leaved Shrubby Thrift*. Siberia. June and July. G. h.
Sterculia Balanhas. *Laurel-leaved Sterculia*. E. Indies. June and July. S. h.
Sterculia foetida. *Fetid Sterculia*. E. Indies. S. h.
Sterculia platanifolia. *Plane-tree-leaved Sterculia*. Japan and China. G. h.
Stilago Buniis. *Chinese Laurel*. E. Indies. August. S. h.
Stillingia sylvatica. *Wood Stillingia*. Carolina. G. h.
Stokesia cyanea. *Blue-flowered Stokesia*. S. Carolina. August. G. P.
Strelitzia augusta. *Plantain-leaved Strelitzia*.
Strelitzia Reginae. *Ovate or Canna-leaved Strelitzia*. Cape. Jan.—July. G. P.
Strumaria filifolia. *Thread-leaved Strumaria*. Cape. November. G. P.
Struthiola ciliata. *Ciliated Struthiola*. May and June.
Struthiola erecta. *Upright Struthiola*. June—Aug.
Struthiola ovata. *Ovate-leaved Struthiola*. May and June.
Struthiola virgata. *Slender Struthiola*. July—Oct. Cape. G. h.
Strychnos Nux vomica. *Poison-nut*. E. Indies. S. h.
Styphelia parviflora. *Small-flowered Styphelia*. New Holland. June and July. G. h.
Styphelia viridis. *Green-flowered Styphelia*. New Holland. April. G. h.
Swietenia Mahagoni. *Mahogany Tree*. W. Indies. S. h.
Tabernæmontana citrifolia. *Citron-leaved Tabernæmontana*. Jamaica. S. h.
Tabernæmontana laurifolia. W. Indies. S. h.
Tamarindus indica. *Tamarind-tree*. Egypt and both Indies. June and July. S. h.
Tamus elephantipes. *Tuberous Tamus*. Cape. July. G. P.
Tanacetum flabellifolium. *Fan-leaved Tanfy*. Cape. May—Aug. G. h.
Tanacetum suffruticosum. *Shrubby Tanfy*. Cape. May—Sept. G. h.
Tarchonanthus camphoratus. *Shrubby African Fleabane*. Cape. June—Oct. G. h.
Taxus elongata. *Long-leaved Yew-tree*. Cape. July. G. h.
Tectona grandis. *Teakwood or Indian Oak*. E. Indies. S. h.
Terminalia angustifolia. *Narrow-leaved Terminalia*.
Terminalia Catappa. *Broad-leaved Terminalia*. East Indies. S. h.
Tetragonia crystallina. *Diamond Tetragonia*. Peru. June. G. A.
Tetragonia decumbens. *Trailing Tetragonia*. Cape. July—Sept. G. h.
Tetragonia echinata. *Hedgehog Tetragonia*. Cape. May—Aug. G. A.
Tetragonia expansa. *Horned Tetragonia*. New Holland. Aug. and Sept. G. B.
Tetragonia fruticosa. *Shrubby Tetragonia*. Cape. July—Sept. G. h.
Tetragonia herbacea. *Herbaceous Tetragonia*. Cape. June and July. G. P.
Teucrium Abutiloides. *Mulberry-leaved Germander*. Madeira. April and May. G. h.
Teucrium asiaticum. *Asiatic Germander*. June—Oct. G. h.
Teucrium betonicum. *Betony-leaved Germander*. Madeira. May—Aug. G. h.
Teucrium flavum. *Yellow-flowered Germander*. S. Europe. July—Sept. G. h.
Teucrium fruticans. *Shrubby Germander*. Spain and Sicily. June—Sept. G. h.
Teucrium heterophyllum. *Various-leaved Germander*. Madeira. June. G. h.
Teucrium inflatum. *Thick-spiked Germander*. Jamaica. Aug.—Oct. S. P.
Teucrium latifolium. *Broad-leaved Germander*. Spain. June—Sept. G. h.
Teucrium Marum. *Cat-thyme*. Spain. June—Sept. G. h.
Teucrium nassiliense. *Sweet-scented Germander*. S. France. June and July. G. h.
Teucrium nissolianum. *Nissolle's Germander*. Spain and Portugal. June and July. G. P.
Teucrium regium. *Box-leaved Germander*. Spain. May—Oct. G. h.
Teucrium trifidum. *Trifid-leaved Germander*. Cape. July. G. h.
Thalia dealbata. *White Thalia*. S. Carolina. G. P.
Thea Bohea & viridis. *Bohea and Green Tea*. China. Aug. and Sept. G. h.
Theobroma Cacao. *Chocolate-nut tree*. S. Amer. S. h.
Theobroma Guazuma. *Elm-leaved Theobroma or Bastard Cedar*. Jamaica. Aug. and Sept. S. h.
Thesium amplexicaule. *Heart-leaved Thesium*. Cape. G. h.
Thrinax parviflora. *Small-flowered Thrinax*. Jamaica. S. h.
Thunbergia fragrans. *Climbing Thunbergia*. E. Indies. June and July. S. h.
Thymbra spicata. *Spiked Thymbra*. Levant. June and July. G. h.
Thymbra verticillata. *Whorled Thymbra*. Spain and Italy. June and July. G. h.
Thymus filiformis. *Small-leaved Thyme*. Majorca and Minorca. June and July. G. h.
Thymus Mastichina. *Mastick Thyme*. Spain. July—Sept. G. h.
Tillandsia lingulata. *Tongue-leaved Tillandsia*. Jamaica. July and Aug. S. h.
Tournefortia cymosa. *Broad-leaved Tournefortia*. Jamaica. July. S. h.
Tournefortia humilis. *Dwarf Tournefortia*. S. Amer. May and June. S. h.
Tournefortia suffruticosa. *Hoary-leaved Tournefortia*. Jamaica. S. h.
Tournefortia volubilis. *Climbing Tournefortia*. Jamaica. July and Aug. S. h.
Trachelium diffusum. *Shrubby Throatwort*. Cape. August. G. h.
Tradescantia crassifolia. *Thick-leaved Spiderwort*. Mexico. July. S. P.
Tradescantia cristata. *Crested Spiderwort*. Ceylon. July—Sept. S. A.
Tradescantia discolor. *Purple-leaved Spiderwort*. S. Amer. May—July. S. P.
Tradescantia geniculata. *Jointed Spiderwort*. W. Indies. June—Aug. S. P.
Tradescantia malabarica. *Grass-leaved Spiderwort*. E. Indies. July and Aug. S. P.
Tradescantia Zanonina. *Gentian-leaved Spiderwort*. W. Indies. July—Sept. S. P.
Tragia urens. *Stinging Tragia*. Virginia. Aug. G. A.
Trianthema decandra. *Trailing Trianthema*. E. Indies. July and Aug. S. A.
Trianthema monogyna. *Purslane-leaved Trianthema*. Jamaica. July and Aug. S. A.
Tribulus maximus. *Great Caltrop*. Jamaica. June and July. S. A.
Trichilia glabra. *Smooth Trichilia*. W. Indies. S. h.
Trichosanthes Anguina. *Snake Gourd*. China. May and June. S. A.
Triplacum hermaphroditicum. *Hermaphrodite Triplacum*. Jamaica. Aug. and Sept. S. A.
Triumfetta Bartramia. *Currant-leaved Triumfetta*. E. Indies. S. h.
Triumfetta Lappula. *Prickly-seeded Triumfetta*. Jamaica and Brasil. July and Aug. S. h.
Triumfetta semitriloba. *Mallow-leaved Triumfetta*. W. Indies. July. S. h.
Tropæolum majus flore pleno. *Double-flowered Indian Cress*. Peru. June—Oct. G. P.
Tropæolum peregrinum. Peru. Sept. and Oct. S. A.
Tulbagia alliacea. *Narcissus-leaved Tulbagia*. Cape. June—Aug. G. P.
Tulipa breyniana. *Cape Tulip*. Cape. July. G. P.
Turnera cilioides. *Betony-leaved Turnera*. Jamaica. June—Oct. S. A.
Turnera racemosa. *Clustered Turnera*. Aug. S. A.
Turnera ulmifolia. *Elm-leaved Turnera*. Jamaica. June—Sept. S. h.
Vaccinium Arctostaphylos. *Madeira Whortle-berry*. Madeira and Levant. June and July. G. h.
Vaccinium meridionale. *Jamaica Whortle-berry*. Jamaica. S. h.
Valantia filiformis. *Least Cross-wort*. Canary Islands. July. S. A.
Varronia curassavica. *Long-spiked Varronia*. S. Amer. S. h.
Verbascum hæmorrhoidale. *Madeira Mullein*. Madeira. June—Aug. G. B.
Verbena Aubletia. *Rose Vervain*. America. May—Aug. G. B.

<i>Verbena bonariensis</i> . <i>Cluster-flowered Vervain</i> . July and Aug. G. B.	<i>Waltheria americana</i> . <i>American Waltheria</i> . S. Amer. Most of the year. S. B.
<i>Verbena jamaicensis</i> . <i>Jamaica Vervain</i> . W. Indies. August. S. h.	<i>Westringia rosmarinifolia</i> . <i>Rosemary-leaved Westringia</i> . New Holland. May—Aug. G. h.
<i>Verbena indica</i> . <i>Indian Vervain</i> . E. Indies. August. S. A.	<i>Witheringia foliacea</i> . <i>Yellow-flowered Witheringia</i> . S. Amer. June—Aug. S. h.
<i>Verbena mexicana</i> . <i>Mexican Vervain</i> . Mexico. May—Aug. S. P.	<i>Xanthium fruticosum</i> . <i>Shrubby Xanthium</i> . Peru. July. G. h.
<i>Verbena nodiflora</i> . <i>Creeping Vervain</i> . Jamaica. May—Aug. S. P.	<i>Xanthium orientale</i> . <i>Oriental Xanthium</i> . China, Japan and Ceylon. July and Aug. S. A.
<i>Verbena orubica</i> . <i>Betony-leaved Vervain</i> . S. Amer. June and July. S. B.	<i>Xanthium spinosum</i> . <i>Spiny Xanthium</i> . S. Europe. July and Aug. S. A.
<i>Verbena prismatica</i> . <i>Germander-leaved Vervain</i> . W. Indies. May and June. S. B.	<i>Xeranthemum argenteum</i> . <i>Silvery Xeranthemum</i> . April—July.
<i>Verbena prostrata</i> . <i>Spreading Vervain</i> . S. Amer. June and July. S. A.	<i>Xeranthemum canescens</i> . <i>Hairy Xeranthemum</i> . Aug.—Nov.
<i>Verbena triphylla</i> . <i>Three-leaved Vervain</i> . Chili. July and Aug. G. h.	<i>Xeranthemum fasciculatum</i> . <i>Bundle-leaved Xeranthemum</i> . March—Sept.
<i>Verbesina alata</i> . <i>Wing-stalked Verbesina</i> . S. Amer. May—Sept. S. P.	<i>Xeranthemum filiforme</i> . <i>White-flowered Xeranthemum</i> . April—June.
<i>Verbesina gigantea</i> . <i>Tree Verbesina</i> . W. Indies. S. h.	<i>Xeranthemum fulgidum</i> . <i>Yellow-flowered Xeranthemum</i> . March—Sept.
<i>Verbesina nodiflora</i> . <i>Sessile-flowered Verbesina</i> . W. Indies. June and July. S. A.	<i>Xeranthemum proliferum</i> . <i>Proliferous Xeranthemum</i> . June—Oct.
<i>Verea crenata</i> . <i>Crenated Verea</i> . Sierra Leona. July and Aug. S. h.	<i>Xeranthemum retortum</i> . <i>Reflex-leaved Xeranthemum</i> . July and Aug.
<i>Veronica decussata</i> . <i>Cross-leaved Speedwell</i> . Falkland Islands. May—July. G. h.	<i>Xeranthemum sesamoides</i> . <i>Purple-flowered Xeranthemum</i> . April—June.
<i>Viburgia acmella</i> . <i>Small-flowered Viburgia</i> .	<i>Xeranthemum speciosissimum</i> . <i>Large-flowered Xeranthemum</i> . Aug. and Sept.
<i>Viburgia triloba</i> . <i>Three-lobed Viburgia</i> . Mexico. June and July. S. A.	<i>Xeranthemum spirale</i> . <i>Spiral-leaved Xeranthemum</i> . April—July.
<i>Vinca parviflora</i> . <i>Small-flowered Periwinkle</i> . E. Indies. August. S. A.	<i>Xeranthemum truncatum</i> . <i>Truncated Xeranthemum</i> . March—Sept.
<i>Vinca rosea</i> . <i>Madagascar Periwinkle</i> . E. Indies. June—Oct. S. h. Flowers red or white.	<i>Xeranthemum vestitum</i> . <i>Upright Xeranthemum</i> . July and Aug. Cape. G. P.
<i>Viola arborecens</i> . <i>Shrubby Violet</i> . Spain. May and June. G. h.	<i>Ximenia americana</i> . <i>American Ximenia</i> . W. Indies. S. h.
<i>Viola verticillata</i> . <i>Whorl-leaved Violet</i> . S. Amer. June. G. P.	<i>Xylomelum pyriforme</i> . <i>Pear-fruited Xylomelum</i> . New Holland. G. h.
<i>Vitex Negundo</i> . <i>Ash-leaved Chaste-tree</i> . June and July.	<i>Xylophylla angustifolia</i> . <i>Narrow-leaved Xylophylla</i> . Jamaica.
<i>Vitex trifolia</i> . <i>Three-leaved Chaste-tree</i> . E. Indies. S. h.	<i>Xylophylla falcata</i> . <i>Sickle-leaved Xylophylla</i> . Bahama Islands. July and Aug. S. h.
<i>Volkameria aculeata</i> . <i>Prickly Volkameria</i> . W. Indies. Aug.—Oct. S. h.	<i>Xylophylla latifolia</i> . <i>Broad-leaved Xylophylla</i> . Jamaica. Aug.—Oct. S. h.
<i>Volkameria inermis</i> . <i>Smooth Volkameria</i> . E. Indies. July and Aug. S. h.	<i>Yucca aloifolia</i> . <i>Aloe-leaved Adam's Needle</i> . S. Amer. Aug. and Sept. G. h.
<i>Volkameria kœmpferiana</i> . <i>Scarlet-flowered Volkameria</i> . E. Indies. July and Aug. S. h.	<i>Zamia Cycadis</i> . <i>Narrow-leaved Zamia</i> . Cape. S. h.
<i>Volkameria ligustrina</i> . <i>Privet-leaved Volkameria</i> . Bourbon. July and Aug. S. h.	<i>Zamia debilis</i> . <i>Long-leaved Zamia</i> . W. Indies. July—Sept. S. h.
<i>Urena lobata</i> . <i>Lobe-leaved Urena</i> . China. July and Aug. S. h.	<i>Zamia furfuracea</i> . <i>Broad-leaved Zamia</i> . W. Indies. June and July. S. h.
<i>Urena sinuata</i> . <i>Cut-leaved Urena</i> . E. Indies. July and Aug. S. h.	<i>Zamia integrifolia</i> . <i>Dwarf Zamia</i> . E. Florida. July—Sept. S. h.
<i>Urtica horrida</i> . <i>Prickly Nettle</i> . S. h.	<i>Zamia pungens</i> . <i>Dagger-leaved Zamia</i> . Cape. S. h.
<i>Urtica nivea</i> . <i>White-leaved Nettle</i> . China and India. Aug. and Sept. G. h.	<i>Zygophyllum albuin</i> . <i>White Bean-Caper</i> . Canary Islands. D. S. h.
<i>Urtica reticulata</i> . <i>Net-leaved Nettle</i> . Jamaica. June and July. S. h.	<i>Zygophyllum cordifolium</i> . <i>Heart-leaved Bean-Caper</i> . Cape. October. G. h.
<i>Urtica rufa</i> . <i>Rusty-leaved Nettle</i> . Jamaica. June—Sept. S. P.	<i>Zygophyllum foetidum</i> . <i>Stinking Bean-Caper</i> . Cape. July and Aug. G. h.
<i>Urtica rugosa</i> . <i>Rough-leaved Nettle</i> . W. Indies. June and July. S. h.	<i>Zygophyllum maculatum</i> . <i>Spotted-flowered Bean-Caper</i> . Cape. November. G. h.
<i>Wachendorfia graminea</i> . <i>Grass-leaved Wachendorfia</i> .	<i>Zygophyllum Morgfana</i> . <i>Four-leaved Bean-Caper</i> . Cape. Aug. and Sept. G. h.
<i>Wachendorfia hirsuta</i> . <i>Hairy Wachendorfia</i> .	<i>Zygophyllum sessilifolium</i> . <i>Sessile-leaved Bean-Caper</i> . Cape. July and Aug. G. h.
<i>Wachendorfia paniculata</i> . <i>Panicled Wachendorfia</i> . March.	
<i>Wachendorfia thyrsiflora</i> . <i>Thyrse-flowered Wachendorfia</i> . May and June. Cape. G. P.	

AN EXPLANATION OF THE TECHNICAL TERMS IN BOTANY.

- ACAULIS.** *Stemless.* Without stem or stalk.
- Acerose Leaf.** *Acerosum Folium.* Linear and permanent; as in *Pine, Fir, Juniper, Yew.*
- Acicular.** Shaped like a needle; as in *Scirpus.*
- Acinaciform Sabre or Scymetar-shaped Leaf.** *Folium Acinaciforme.* Flethy, compressed, with one edge convex and sharp, the other straighter and thicker, resembling a sabre, faulchion, or scymetar. As in *Mesembryanthemum acinaciforme.*
- Acini.** The *Granulations*, or distinct component parts of the fruit, each containing a seed, in *Mulberry, Blackberry* and *Raspberry.* See *Berry.*
- Acotyledonous Plants.** *Plantæ Acotyledones.* Without cotyledons or lobes to the seed; and consequently producing no feminal leaves when they vegetate; as in the Class *Cryptogamia.*
- The distinction of Vegetables into *Acotyledones, Monocotyledones, Dicotyledones* and *Polycotyledones*; or into such as have no lobes, one lobe, two lobes, or several in a seed, has been long made, and is the basis of Jussieu's natural arrangement.
- Aculeatus and Aculeus.** See *Prickly* and *Prickle.*
- Acuminate or Sharp-pointed.** *Acuminatus.* Ending in a subulate or awl-shaped point. *t. 2. f. 7, 8.* Frequent in leaves: in the calyx, as in *Itea, &c.*
- Acute, sharp.** *Acutus.* Ending in an acute angle. Applied to leaves: and to the perianth, as in *Primula, &c.*
- Adnatus.** *Adnate, Adjoined, Adhering,* fastened, fixed or growing to, or connected with. As the offsets or small bulbs, produced from the main bulb, in *Narcissus, &c.*—The leaf, when it adheres to the stem or branch by the surface or disk itself.—The petiole.—The stipule, when it is fixed to the petiole; it is then opposed to *solutus*, loose, detached; as in *Rose, Bramble, Potentilla, &c.*—The Anther. The Style, when it adheres to the corolla, as in *Canna.*
- Adpressus.** *Pressed to, Laid to, Squeezed close, Contiguous.* Applied to the leaf, when the disk approaches so near to the stem or branch as to seem pressed to it by violence—also to the calyx and peduncle.
- Ascendens.** *Ascending.* From a horizontal direction gradually curved or bowed upwards. As the stems of many plants; the leaves; the peduncles; the banner of papilionaceous flowers; the stamens and styles.
- Adversum folium.** An *Adverse* leaf. When the upper side is turned to the south.
- Æqualis Polygamia.** *Equal Polygamy.* The name of the first order in the class *Syngenesia* of Linneus's system, containing those compound flowers, which have all the florets hermaphrodite and alike. *t. 8. f. 15.* See *Equal.*
- Æquinoctiales Vigiliæ.** See *Vigiliæ.*
- Æstivatio.** The disposition of the petals within the floral gem or bud. This is 1. *Convolute*, when the petals are rolled up like a scroll. 2. *Imbricate*, when they lie over each other like tiles on a roof. 3. *Conduplicate*, when they are doubled together at the midrib. 4. *Valvate* or *Valved*, when as they are about to expand they are placed like the glumes in grasses. 5. *Unequally-valved*, when they differ in size.
- Aggregate flower.** *Aggregatus flos.* That which has some part of the fructification common to several florets. Or, when several florets are so combined by the intervention of some part of the fructification, that taking away one of them destroys the uniformity of the whole. This common bond is either the Receptacle or the Calyx.
- There are seven kinds of Aggregate flowers. 1. *Umbellate* or *Umbelled.* *t. 4. f. 2, 3.* 2. *Cymose* or *Cymed.* 3. *Compound.* *t. 7. f. 19. t. 8. f. 15—19.* 4. Aggregate properly so called, having a dilated receptacle, and the florets on peduncles: as *Scabious, Knautia, Teasel, Cephalanthus, Globularia, Leucadendron, Protea, Statice, &c.* 5. *Amentaceous,* *t. 7. f. 21, 22.* 6. *Glumose*, as the grasses. 7. *Spadiceous,* as *Palms, &c.*
- Aggregate* is the name of the 48th order of plants, in Linneus's fragments of a natural arrangement.
- Air-bag.** See *Folliculus.*
- Ala.** See *Wings* and *Axil.*
- Alatus.** See *Winged.*
- Alburnum.** The soft white substance in trees, between the *liber* or inner bark and the wood, gradually acquiring solidity, and becoming genuine wood. Popularly the *Sap.*
- Algæ.** *Flags.* The second of the seven Families, and the eighth of the nine Tribes or Nations into which Linneus has divided all vegetables. Comprehending such as have the root leaves and stem all in one: as the *Lichens* or *Liverworts, Fuci* or *Sea-weeds, &c.*—In the fragments of a natural arrangement at the end of *Genera Plantarum* the Algæ make the 57th section, and in *Philosophia Botanica* the 66th.
- In Linneus's artificial system the *Algæ* occupy the third order of the class *Cryptogamia.* *t. 8. f. 25.*
- Alternate.** *Alternus.* Springing out one after or above another, in a regular succession or gradation. Applied to branches, leaves, peduncles and flowers. Contrasted with opposite.
- Alveolate.** *Alveolatum f. favosum.* Honey-combed. Applied to a Receptacle, which is divided into open cells, like a honey-comb, with a seed lodged in each: as in *Onopordum.*
- Ament.** *Amentum.* Called by some *Julus, Nucamentum* or *Catulus.* In English *Catkin*, from the French *Châton*: so called from its resemblance to a cat's tail.—A species of calyx, or rather of inflorescence, from a common, chaffy, gemmaceous receptacle: or, consisting of many chaffy scales, ranged along a stalk slender as a thread, which is the common receptacle.—As the male flowers in *hazle, birch, oak, walnut, willow, poplar, &c.* *t. 7. f. 21, 22.*
- Amentaceæ.** The 16th order in Linneus's fragments of a natural method in *Philosophia Botanica*, and the 50th at the end of *Genera Plantarum.* Also a class in Tournefort's, Boerhaave's, and Royen's systems.
- Amentaceous flowers;** borne or growing on an ament or catkin: One species of the *Aggregate.*
- Amplexicaule folium.** A *stem-clasping* or *embracing leaf*; surrounding the stem by its base. Applied also to the leaf-stalk: *Amplexicaulis petiolus.*
- Anceps caulis.** An *ancipital, two-edged*; or *double-edged stem*: Flatted, and rather sharp, with two opposite angles. This is the common form of the ancipital stem, but it may have more angles than two, for Linneus gives not only *digonus* (*caulis*), but *trigonus, tetragonus, pentagonus, and polygonus*, as species of the *anceps.*
- This term is applied also to a leaf, having two prominent longitudinal angles, with a convex disk; as in *Sisyrinchium.*
- Androgynous plant.** *Planta androgyna.* Bearing male and female flowers, or some with stamens only, and others with pistils only, from the same root. Such plants are to be found chiefly in the class *Monœcia.* *t. 7. f. 21.*
- Angiospermia.** The second order in the class *Didynamia* of the Linnean system. *t. 8. f. 12.* So named because the seeds are inclosed in a capsule; in opposition to the first order *Gymnospermia* wherein the seeds are naked.
- Angular stem.** *Angulatus caulis.* Having edges or prominencies; in opposition to cylindrical.—Called *triangular, &c.* according to the number of prominencies.
- Leaves also, running out into angles are named *triangular, quadrangular, &c.* from the number of angles in the disk.
- Capsules** are triangular, &c. *Triquetra, Tetragona, Pentagona.* As in *Iris, Avernhoæ, Zygophyllum, &c.*
- Annual plant** or root. *Annus.* Perishing within the compass of a year: opposed to biennial or perennial.
- Anomalous.** *Anomalous.* Irregular. Applied to plant, calyx, corolla, gem or bud, &c.—In most of the old systems we find an *anomalous* or *miscellaneous* class.
- Anther.** *Anthera.* Apex of Ray. *Capsula staminis* of Malpighi. *Summit, Semet, Pendent* or *Tip* of Grew, &c. *Tip* of Withering.—A part of the flower, big with farina or pollen, which it emits or explodes when ripe.—Or, a vessel destined to produce and emit a substance for the impregnation of the germ. It forms a part of the stamen, and is placed on the top of the filament. *t. 7. f. 1, &c.*
- Apetalous flower.** *Apetalus flos.* Having no corolla.—Called by some authors *Stamineous, Incomplete, Imperfect.*—Of such, a class is formed in several systems.
- Apex.** The tip or end of any thing. When applied to leaves, it is the upper extremity, farthest from the base or insertion.
- Aphyllus.** See *Leafless.*
- Apophysis.** A process or excrescence from the receptacle of mosses.
- Appendiculate, Appendicled.** or *Appendaged, Appendiculatus.* Applied to a petiole, when it has a small leaf or leaves at the base.
- Appressus.** See *Adpressus.*
- Approximating leaves.** Growing very near each other. Opposed to *remote.*
- Arachnoidens.** *Cobwebbed.* Covered with a thick interwoven pubescence, resembling a cobweb. Applied to leaf, peduncle and calyx.
- Arboreous stem.** *Arboreous.* Tree-like. Having a single, permanent, woody stem.
- Arborescent stem.** *Arborescens.* From herbaceous becoming woody.
- Arbustiva.** The 39th order in Linneus's fragments of a natural arrangement, in *Philos. Bot.* The same with *Hesperidea* in *Gen. plant. n. 19.*

Arched. See *Vaulted*.

Arcuatus. *Bowed*. Bent like a bow.

Arillus. *Aril*. Seed-coat. The outer coat of a seed, that falls off spontaneously, or incloses the seed partially. *t. 5. f. 5.* As in *Coffea*, *Jasminum*, *Cynoglossum*, *Cucumis*, *Dictamnus*, *Diosma*, *Celastrus*, *Euonymus*. Scopoli distinguished such fruits by the name of *Thera*.

Arista and Aristatus. See *Awn* and *Awned*.

Arms. *Arma*. Weapons of defence; as Thorns, Prickles, and Stings. See *Fulcrum*, *Prickle*, *Stimuli* or *Stings*, and *Thorn*.

Arrow-headed and Arrow-shaped. See *Sagittatum*.

Articulatus. See *Jointed*, and *Knotted*.

Articulus. *A Joint*. Explained by Linneus to be the part of a culm between two knots. See *Internodium*.

Ascendens. See *Ascendens*.

Asper. See *Rough*.

Asperifoliae. Rough-leaved Plants. The name of a class in Ray's and Herman's systems; and of the 43rd order in Linneus's fragments of a natural method.

Affurgens petiolus. Affurgentia folia. Rising up in a curve, declining at the base, but upright at the tip.

Attenuatus. *Attenuated* or *Tapering*. Applied to the peduncle or scape, when it becomes gradually smaller towards the flower: opposed to *incrassated* or *thickening*. *Attenuatum folium*, a leaf tapering towards one or both extremities.

Austus. See *Calyculate*.

Avenium folium. A veinless leaf, without perceptible veins.

Auriculatus and auritus. See *Eared*.

Awl-shaped. See *Subulatus*.

Awn. *Arista*. A process issuing from the glume or chaff, in some species of corn and grasses. Commonly called in English the Beard; but this term is otherwise applied. See *Beard*.

Leaves, Anthers, &c. sometimes terminate in a sharp point or awn.

Awned. *Aristatus*. Having an awn.

Awnless. *Muticus*. Having no awn; as the glume of some species of grass; the calyx of *Serratula*; the seeds of *Adonis*, &c.—An awn however is said to be *mutica*, when it is not sharp-pointed.

Axe-form. See *Dolabriforme*.

Axil or Axilla. The angle formed by a branch with the stem, or by a leaf with the branch. So named by the similarity of its structure to the armpit.

Some old writers call it *Ala*, but this term is otherwise appropriated.

Axillary leaves. Growing at the angles formed by the branches with the stem; or, inserted at the base of the branch.—Applied to the peduncle, scape, cirrus or tendril, and thorn.

Bacca. See *Berry*.

Bacciferous. *Berry-bearing*.

Banner. See *Standard*.

Barb. (*Γλῶχis*). A straight process, armed with several teeth pointing backwards, like the sting of a bee. One sort of pubescence; distinguished from the hook (*hamus*) by the point not being bent. See *Glochis*.

Barba. See *Beard*.

Barbatus. See *Bearded*.

Barbed. Having a straight process, &c.

Bark. The skin or outer covering of a plant.—Threefold.—1. The Cuticle, *Epidermis*. 2. The outer bark, *Cortex*. 3. The inner bark, *Liber*.

Barren (*Sterilis*) flower or floret. Not bearing seed.

Battledore-shaped. See *Spatulatum*.

Bay colour. From the Greek *Βαῖος*, which signifies the spadix of the Palm; whence it is called *Spadiceus* in Latin.

Beak, *Rostrum*. Beaked, *Rostratus*. Terminated by a process shaped like the beak of a bird. Applied to fruits, as in *Geranium*, *Scandix*, *Peelen*, &c.

Beard. *Barba*. A set of parallel hairs; or a tuft of stiff hairs terminating leaves, as in *Mesembryanthemum barbatum*.—The lower lip of a ringent corolla.—In common language the *Awn* is called the *Beard*.

Bearded. *Barbatus*. Having parallel hairs, or tufts of hairs. Applied to leaves—to the corolla, as in *Dianthus barbatus*, *Gentiana campestris*—and to the nectary, as in *Iris*.

Beardless. *Imberbis*. Void of parallel hairs or tufts. As the corolla in some species of *Iris*, *Gentiana filiformis*, &c.

Bell-shaped, Bell-form or Campanulate corolla. *Campanulata*. Swelling or bellying out, without any tube, as in *Campanula*, *Convolvulus*, *t. 4. f. 6.* *Atropa*, *Gentiana*, &c.—Applied properly to monopetalous corollas only, but sometimes extended to such as are polypetalous.—Calyxes, as in *Chironia*; and Nectariums, as in *Narcissus*, *t. 4. f. 4.* are also bell-shaped. Tournefort has a class of *Campanulate* or Bell-shaped flowers.

Bellying, Bellied, or Ventricose. *Ventricosus*. Distended or swelling out in the middle.—Applied to the spike—to the perianth, as in *Aesculus*—to the corolla, as in *Digitalis*.

Bent inwards or upwards. See *Inflexus*.

Berry. *Bacca*. A succulent or pulpy fruit, without valves, containing naked seeds; sometimes dispersed loose among the

pulp (*nidulantia*), as in *Nymphaea*, but generally on receptacles, as in *Currant*, *Gooseberry*, &c. *t. 5. f. 12.*

Many fruits, having the appearance of berries, but not corresponding with the definition, are improperly so called—as in *Xanthium*, *Capsicum*, *Rhus* or *Sumach*, *Cyclamen*, *Mespilus*, *Citrus* or *Orange* and *Lemon*, *Taxus* or *Yew*, *Bromelia* or *Pine-apple*.

Such also as are formed by any part except the pericarp are improperly called Berries—as a large succulent calyx, in *Mulberry*, *Rose*, *Blite*, *Myrtle-leaved Sumach*—the receptacle, in *Strawberry*. *t. 6. f. 14.* and *Cashew-nut*—the nectary, in *Marvel of Peru*—the tube of the corolla, in *Poterium* and *Sanguisorba*.

Such fruits as *Mulberry*, *Raspberry* and *Blackberry*, being usually regarded as berries, might be called *Compound Berries*, each of the component parts (*Acini*) being a small berry, containing one seed immersed in the pulp. *t. 5. f. 13.*

Bicapsular pericarp. Having two capsules to each flower, as in *Pæonia*.

Bicornes. *Two-horned*. Plants with anthers having two horns.—The name of the 24th order, in Linneus's fragments of a natural arrangement.

Biennial. *Biennis*. Root or plant. Enduring two years, and then perishing.—In biennial plants a root and lower leaves are formed during the first year, and the fructification is completed in the second.

Bifarious leaves. *Bifaria folia*. Pointing different ways; or coming out only on opposite sides of a branch.

Bifariouly hairy stem or branch. When the hairs between any two joints come out on the front and back; and in the adjoining internodes, on the right and left sides.

Bifid. Two-cleft, or Cloven. Leaf, Perianth, as in *Utricularia*—Stigma. See *Cloven*.

Biflorous peduncle. Two-flowered, or bearing two flowers.

Bigeminate leaf. *Folium bigeminum*. Twin-fork, *Withering*.—A decomposed leaf, having a dichotomous or forked petiole, with several leaflets at the end of each division.

Bijugous leaf. *Folium bijugum*. A pinnate leaf having two pairs of leaflets.

Bilabiate or Two-lipped corolla. *Bilabiata corolla*. As in *Perigula*, and the class *Didynamia*. *t. 4. f. 10, 11.* See *Labiatus*.

Bilamellate stigma. In form of a flattened sphere, longitudinally bifid.

Bilobate leaf. Divided into two lobes. See *Lobus* and *Lobatum*.

Bilocular pericarp. See *Two-celled*.

Bina folia. Two-fold leaves; or rather, coming out two and two together from the same place, or at the same joint of a branch.

Binatum folium. A Binate leaf. Having a simple petiole connecting two leaflets at the top of it. *t. 3. f. 1.* See *Digitate*.—*Binati pedunculi*, Peduncles growing in pairs; as in *Capraria*, and *Oldenlandia zeylanica*.

Bipartite leaf, perianth, corolla. Divided into two parts to the base. See *Partitum*.

Bipinnate or Doubly-winged, leaf or frond. When the common petiole has pinnate leaves on each side of it. *t. 3. f. 13.* as in *Athamanta Libanotis*, *Anemone Pulsatilla*, &c. and many of the Ferns.

Bipinnatifid or Doubly-pinnatifid Leaf. When the common petiole has pinnatifid leaves on each side of it. See *Pinnatifid*.

Biternate or Doubly-ternate leaf. When a petiole has three ternate leaflets. *t. 3. f. 12.* As in *Epimedium*.

Bitten root, leaf, corolla. See *Præmorsum*.

Bivalve or Two-valved pericarp: in which the covering or seed-case splits into two parts, as in *Chelidonium*, all the *Siliques* and *Legumes*. *t. 5. f. 6, 8.* The glume or chaff, which is the calyx and corolla of corn and grasses, is generally bivalve, or consisting of two pieces. *t. 4. f. 5. a.*

Bladders *Vesiculæ*. Air-bags found on some species of *Fucus*.

Blistered. See *Bullate*.

Blossom, in common language the corolla of fruit-trees. Dr. Withering gives it as the English term for corolla.

Blunt. See *Obtusum*.

Boat-shaped. *Navicularis* f. *Cymbiformis*. Hollowed and resembling a little keel-bottomed boat: as the lower petal of papilionaceous flowers. *t. 4. f. 13. e.* and the valves of some pericarps; as *Wood* and *Mithridate*.

Bole. The naked trunk of a tree.

Border or Brim. *Limbus*. The upper spreading part of a monopetalous or one-petalled corolla; as in *Primrose*, *Auricula*, &c. *t. 4. f. 6, 7.* See *Limbus*.—It is sometimes used to signify the thin membranaceous part of a seed or seed-vessel. *t. 6. f. 10.*

Botany. (From *Βότάνη*, an herb or plant). That branch of Natural History which treats of Vegetables.

Bough. A subdivision of the trunk, in a tree. See *Branch*.

Bowed. *Arcuatus*. Bent like a bow. Applied to frond, filament, anther, legume. *Flexus* with its derivatives signifies, bent at an angle. Bowed in. *Incurvus*, *incurvatus* is better expressed by *curved inwards*; and *inflexus* by *bent inwards*.

Brachiate branches. Stretched out like arms, in pairs, decussated, b b

- fated, all nearly horizontal, and each pair at right angles with the next. See *Decussated*.
- Braçtea or Braçte.** One of the seven fulcres or props of plants. A leaf different from the other leaves in shape and colour, generally on the peduncle, and often so near to the corolla as easily to be mistaken for the calyx, as in *Hellebore*, *Nigella*, *Passion-flower*, *Hepatica*, *Peganum*. The calyx withers when the fruit is ripe, if not before, but the braçte is commonly more permanent.
- Remarkable braçtes are observable in *Linne-tree*, *Melampyrum*, *Monarda*, *Salvia*, *Lavandula*, *Bartisia*, *Hæbenstretia*, *Mussaenda*, *Fumaria*. See *Coma*.
- It is better to preserve the Latin term; for Linneus frequently calls leaves which are near the flower, *Floral leaves*, which are not properly braçtes.
- Braçted.** Furnished with braçtes: as the peduncle and whorl.
- Branch.** *Ramus.* A division of the main stem, supporting the leaves and fructification.
- Branched or Branching.** *Ramosus.* Furnished with lateral divisions. Opposed to simple.—Applied to the root, as in *Urtica*—to the stem; and to bristles.
- Branchlet.** *Ramulus.* Diminutive of Branch. A subdivision of a branch—a twig.
- Branch-Peduncle.** *Rameus Pedunculus.* A peduncle springing from a branch.
- Bright.** See *Lucidum*.
- Bristles.** *Setæ.* Strong, stiff, cylindrical hairs—on the stems, branches, leaves, flowers, and fruits: sometimes covering almost the whole surface of plants.
- Bristle-shaped.** *Setaceous.* Leaf, the size and length of a bristle—The culm of the *least Bullrush*—the Stipules of *Asparagus*.
- Bristly.** *Setosum.* Set with bristles: as the receptacles of *Artichoke*, *Centaurea*, *Echinops*.
- Bud.** *Gemma.* The hybernacle or winter receptacle of leaves or flowers or both, on the stem or branches. It consists of stipules, or petioles, or the rudiments of future leaves, or cortical scales.—Scarcely any plants in hot climates have buds.
- Bulb.** *Bulbus.* The hybernacle or winter receptacle of a plant, composed of the bases of past leaves, and placed immediately upon the root. It is a single bud enveloping the whole plant. *t. 1. f. 9, 10.*
- A bulb is scaly in *Lily*—solid in *Tulip*—coated in *Onion*—jointed in *Lathræa*, *Martynia*, &c.
- Some flowers are succeeded by Bulbs instead of seeds; as in *Allium*. The stem in this case is called *Bulbiferous*.
- Bulbous plants.** *Bulbosæ.* Growing from bulbs. The title of a Class in Cæsalpinus, Ray, &c.
- Roots that are solid and roundish, as in *Turnep*, *Ranunculus bulbosus*, &c. are called Bulbous. The term *Bulbous Root* should be confined to such as these: for the true Bulb is not a root.
- Bulging.** See *Gibbous*.
- Bullate leaf.** *Folium bullatum.* When the substance rises high above the veins, so as to appear like blisters. It is only a greater degree of the Wrinkled leaf. *Fol. rugosum.*
- Bunch.** See *Racemus*.
- Bundle or Fascicle.** *Fasciculus.* Several roots, leaves or flowers collected together, or proceeding from the same point.
- A Bundled root. *Radix fascicularis*, is a sort of tuberous root, with the tubers connected without the intervention of threads: as in *Pæonia*.
- Bundled leaves.** *Folia fasciculata.* Many from the same point, and crowded together: as in *Larch*. *t. 3. f. 16.*
- In the fructification, Linneus explains *Fasciculus* to mean, a species of inflorescence, collecting upright, parallel, fastigate—approximating flowers.
- Butterfly-shaped.** See *Papilionacea*.
- Caducous.** *Caducus.* Shedding or falling off quickly.—Applied to stipules and braçtes—to leaves that fall before the end of summer—to calyxes and petals falling before the corolla is well unfolded: as in *Papaver* and *Epimedium*, *Aëtaea* and *Thalictrum*.—This term is different from *Deciduous*, and implies a hastier falling off than that does.
- Calamariæ.** From *Calamus*, a reed. The 13th order in Linneus's fragments of a natural arrangement in *Philos. Bot.*; and the 3d of the Natural Orders, at the end of *Gen. Plant.*—It contains *Carex* and other plants allied to the Grasses.
- Calcar and Calcaratus.** See *Spur*.
- Calycanthemi.** The 40th order in Linneus's fragments of a natural arrangement.
- Calycine.** Of or on the calyx: as calycine scales—calycine thorns.
- Calycle.** *Calyculus.* A row of small leaflets placed at the base of the calyx, on the outside.—Calycle of the seed, a crown or covering adhering to it, in order to facilitate its dispersion.
- Calyculate or Calycle.** *Calyculatus* f. *Austus.* A calyx having a calycle at the base, on the outside: as in *Dianthus*, *Coreopsis*, *Bidens*, *Crepis*, *Chondrilla*, *Prenanthes*, *Hedysmum*, *Lapsana*.
- Calyptra.** A Veil. The calyx of mosses, covering the anther like a hood, according to Linneus. But it is not a calyx; and what he calls the Anther is a Capsule.—Old authors use the term *Calyptra* for what Linneus calls the *Arillus*.
- Calyx** (*καλὺξ*, from *καλύπτω* not from *καλίζω*, a cup.) The outer covering of the flower, or the first of the seven parts of fructification, formed, according to Linneus, of the cortex or outer bark.
- This term includes not only the *Perianth*, which is often exclusively called the calyx; but also the *Involucre*, *Ament*, *Spathe*, *Glume*, *Calyptre*, and *Volva*. See the several terms, especially *Perianth*.
- Campanacæi.** From *Campana*, a bell. The 32nd order in the fragments of a natural arrangement, by Linneus.
- Campanulatus.** See *Bell-shaped*.
- Canaliculatus.** See *Channelled*.
- Cancellatus.** See *Latticed*.
- Candelares.** The 62nd order in Linneus's fragments of a natural arrangement.
- Capillares.** The name for the class for *Ferns*, in the systems of Morison, Ray, and Boerhaave.
- Capillary.** *Capillaceus* f. *Capillaris.* Long and fine like a hair.—Applied to leaves, that are longer than the setaceous or bristle-shaped leaves; as in *Ranunculus aquatilis*, and *Artemisia capillaris*.—To glands, resembling hairs; as in *Ribes*, *Scrophularia*, *Cerastium* and *Silene*.—To the filaments, as in *Dipsacus*, *Grasses*, &c.—To the style; and to the seed-down; as in *Sonchus*, *Lactuca*, &c. This is by some called *pilosus* or *simplex*; and is opposed to *plumosus* or *feathered*. Ray calls the stamens, *capillamenta*.
- Capillus.** A hair; is sometimes put for a measure; the diameter of a hair, or the twelfth part of a line.
- Capitata or Capitati.** The 2nd division of the 21st order in Linneus's fragments: and the first division of the 49th order, in *Gen. Plant.*—Also the second division of the first order, in the class *Syngenesia*, in his artificial system: and the ninth in Ray's method. It contains the thistles, and other plants with compound flowers, growing in a head.
- Capitatus.** *Capitate.* Growing in a head. See *Head*.
- Capitulum.** See *Head*.
- Capreolus.** See *Tendrill*.
- Capsule.** *Capsula*, a little chest, or casket, *t. 5. f. 1, 2, 3.* A membranaceous hollow pericarp, or dry hollow seed-vessel, opening in some determinate manner,—or, differently in different plants; as at the side by a small hole in *Orchis* and *Campanula*; horizontally in *Pimpernel*; longwise in *Convolvulus*; at the bottom in *Arrow-grass*; or at the top, as in most plants.
- The parts of which a Capsule is composed are 1. The Valves, *valvulae*, or pieces that form the outer covering. 2. The Partitions, *dissepimenta*. 3. The central pillar, *columella*. 4. The cells, *loculamenta*.
- Capsules are distinguished from the number of their valves and cells: as five-valved and two-celled, &c.
- Some flowers are succeeded by more capsules than one: such such fruits are called bicapsular or two-capsuled—tricapular or three-capsuled, &c. *t. 5. f. 4.*
- Capsules are twin, *didymæ*—dicoccus or two-grained—*tricoccus* or three-grained. *t. 5. f. 5.*—jointed, *articulatae*.—*Circumscissæ*, opening in the middle transversely into two hemispheres—*elasticæ* or opening by a sudden spring—*inflated* or puffed up like a blown bladder.
- Carina.** See *Keel*.
- Carinated.** Keeled. Leaf, calyx, nectary. Having a longitudinal prominence upon the back, like the keel of a boat: as the style of the *Pea*, and the calyx of *Canary Grass*.
- Carnosus.** See *Fleshy*.
- Cartilaginous or Gristly leaf.** *Cartilagineum folium.* Having the edge strengthened by a tough rim or border, of a substance different from the disk.
- Caryophyllæus flos.** *Caryophyllæa corolla.* Resembling the flower of a single Pink or Carnation, *Caryophyllus*. This is a term used by Tournefort: but hence Linneus has constituted an order of plants, called *Caryophyllææ*, in his fragments and natural orders.
- Castrata stamina** f. *filamenta.* Without anthers; as in some species of *Geranium*.
- Catkin and Catulus.** See *Ament*.
- Cauda.** See *Tail*.
- Caudex.** Stem or Trunk. Applied particularly to trees.—According to Linneus, when a seed germinates, the descending stem (*caudex descendens*) terminates in roots; the ascending stem (*caudex ascendens*) in branches and leaves.
- Caulescent plant.** *Planta caulescens.* Having a stem different from that which produces the fructification.—Opposed also to *Acaulis* or *Stemless*.—Linneus applies the term of *Caulescens* to the root: as in *Cabbage*, *Navew* and *Turnep*.
- Cauline leaf.** *Folium caulinum.* Growing immediately on the stem, without the intervention of branches. *t. 3. f. 18, 20, 21.*—Applied also to the bulb, peduncle, and scape.
- Caulis.** Stem or Stalk. *Καυλός.* The Greek word is more extensive in its signification than the Latin, for it comprehends the trunk of a tree, whereas the Latin term is confined to the stalk of herbs. Our English *Kale* and *Cole* come from *caulis*, as well as *Cauliflower*, but immediately from the Dutch *Kool*. See *Stem*.

Cell. *Loculamentum*. The hollow part of a pericarp, particularly of a capsule, in which the seeds are lodged. *t. 5. f. 2.* Unilocular or one-celled, bilocular or two-celled, &c.—Also the cavity in the anthers which contains the pollen. This is more usually termed *loculus*.

Cernuus. *Drooping*; which see.

Cespitosa planta. *A cespitose or turf plant.* Having many stems from the same root, forming a close thick carpet.

Chaff. *Palea*. The dry calyx of corn and grasses, in common language: by Linneus called *Gluma*, which see. Also,

A dry membranaceous body interposed between two florets, in some of the class *Syngenesia*; also in *Scabious*, *Teasel*, &c.

Chaffy receptacle. *Paleaceum receptaculum*. In which the florets are separated by chaffs or scales. Chaffy seed-down.

Paleaceus pappus. A chaffy crown to the seed: as in *Bidens*, *Silphium*, *Tagetes*, *Corcopsis*, &c.

Channelled. *Canaliculatus*. Hollowed above with a deep longitudinal groove; convex underneath.—Applied to the stem, leaf and petiole.

Character. The peculiar circumstance or circumstances that distinguish a vegetable, or a set of vegetables from all others.—Characters are *Specific*, *General*, or *Classical*.—*Essential*, *Natural*, or *Artificial*. See these terms, and *Class*, *Genus*, *Species*.

Chinked. See *Rimosus*.

Chive. Put by some English writers for *Stamen*.

Cicatrifatus. *Scarred*. Marked with the remains of leaves that have fallen off. Applied to the trunk or stem: as in some of the *Spurges*.

Ciliatum folium. *A ciliate leaf.* Having the edge guarded by parallel bristles longitudinally: as in *Drosera*, *Crassula coccinea* and *cymosa*, *Erica tetralix* and *ciliaris*, &c.—Applied also to the *Stipule*, the *Spike* and the *Corolla*; as in *Rue*, *Menyanthes*, *Tropæolum*.

This term is frequently but improperly translated *Fringed*, which answers to the Latin *Fimbriatus*. See those terms.

Cinereous. The colour of wood ashes.

Circinalis vernatio. A term in foliation or leafing; importing that the leaves are rolled in spirally downwards, the tip occupying the centre: as in *Ferns* and some *Palms*.—For this we have not any equivalent English term, unless we may use the word *spiral*, which scarcely expresses the idea.

Circular. See *Orbiculatum*.

Circumscissa capsula. *Cut round*. Opening, not longitudinally or vertically, as in most capsules, but transversely or horizontally; usually about the middle, so as to fall nearly in two equal hemispheres. Instances of this we have in *Anagallis* and *Hyoscyamus*.

Cirriferum folium. A tendril-bearing leaf, as in *Fumaria caprolata* and *claviculata*. *Cirriferus pedunculus*; a tendril-bearing peduncle; as in *Cardiospermum* and *Vitis*.

Cirrosolum folium. *A Cirrose leaf.* Terminating in a cirrus or tendril: as in *Gloriosa*, *Flagellaria*, *Lathyrus*, &c. *t. 2. f. 17. t. 3. f. 11.*

Cirrus. (*Cirri*, *capilli intorti*, *frizzled hair*.) See *Tendril*.

Clammy. See *Viscidus*.

Clasper. See *Tendril*.

Clasping, stem-clasping or embracing leaf. *Folium amplexicaule*. Surrounding the stem at the base. *t. 3. f. 20. d.*

Class. *Classis*. The primary division in a system or arrangement.—Or, the agreement of several genera in the parts of fructification, according to the principles of nature and art.

Classes are either *Natural* or *Artificial*.—Natural Classes contain genera which are evidently related to each other. Artificial Classes are adopted instead of such as are natural, for want of complete knowledge of the true characters of the plants, and their relations to each other.

Natural classes have been attempted by Royen, Haller, Linneus, Jussieu, &c.

Linneus's Artificial system has 24 Classes, besides the *Palms*, &c. in a 25th.—These are founded principally on the number, situation, and proportion of the stamens, *t. 7.*

Clavatus. *Club-shaped*. Growing gradually thicker towards the top.—Applied to the leaf, as in *Anabasis foliosa*—to the petiole and peduncle—to the calyx, as in *Silene*—to the style, as in *Leucoium vernum*—to the capsule, as in *Papaver Argemone*.

Clavicula. The same as *Capreolus* or *Cirrus*. See *Tendril*.

Claw. *Unguis*. The lower narrow part of the petal in a polypetalous corolla, and by which it is fastened to the receptacle. *Pink*, *Wallflower*, &c. *t. 4. f. 12. d.*

Cleft. See *Cloven*.

Climbing plant. *Scandens*. Ascending by means of tendrils; or sometimes by the stem or branches (as *Ivy*); but without twining.

Cloven leaf. *Folium Fissum*. Divided about half way by linear sinuses, with straight margins. According to the number of those divisions, such a leaf is called bifid, trifid, quadrifid, quinquefid, multifid.—The term is also applied to the *Perianth*, *Petals*, *Anthers*, and *Stipules*.

Club-shaped. See *Clavatus*.

Cluster. Put by Dr. Withering for *Thyrus*; but it rather

answers to *Racemus*, which is put for a bunch of grapes, ivy-berries, and the like, by *Columella* and *Pliny*. See *Racemus*.

Clustered or Crouded. See *Confertus*.

Coadunata folia. *Coadunate leaves*. Several united at the base.

Coadunatae. The 52nd of Linneus's natural orders.

Coadunati lobi. Several lobes of a leaf united at the base.

Coarctatus. Condensed, close, squeezed or pressed together.

—**Coarctati rami:** condensed branches. Opposed to *divergentes*. See *Condensed*.—**Coarctati pedunculi:** condensed peduncles. Opposed to *patuli*.—**Coarctata panicula:** a close or contracted panicle. Opposed to *diffusa*. See *Contracta*.

Coated. See *Tunicatus*.

Cobwebbed. See *Arachnoideus*.

Cocum. *Κοκκον*. A Grain or Seed. Linneus calls some fruits of a particular structure, having two or more cells, with a single seed in each, dicoccous, tricoccous, &c. Thus *Euphorbia* and *Thea* have a tricoccous fruit. *t. 5. f. 5*; *Geranium* has a pentacoccous or five-grained fruit.

Cochleatum legumen. A screw-shaped legume or pod. Turned like a screw or the shell of a snail: as in *Medicago*.

Coiled. See *Tortilis* and *Twisted*.

Collum. The neck or upper part of the tube in a monopetalous corolla. *t. 4. f. 7. a.*

Coloured leaf—calyx, as in *Bartsia*. Of any other colour than green.

Columella. The little central column in a capsule, springing from the receptacle, and having the seeds fastened to it all round.

Columnar. *Teres*. Like the shaft of a column. See *Teres*.

Columniferae plantae. *Columniferi flores*. The name of the 34th order, in Linneus's fragments of a natural method; and the 37th of his natural orders. The 14th order of Royen's system. It includes the *Malvaceous* plants; which are to be found in the class *Monadelphia* of Linneus's artificial system.

Coma (*Κομα*, a head of hair.) A species of bracte, terminating the stem in a tuft or bush: as in *Crown Imperial*, and several species of *Sage*—or the fruit, as in *Ananas* or *Pineapple*.—A spike of flowers terminated by a coma is named *Comose*: and plants with such flowers are ranged in the 36th of Linneus's fragments of a natural method.

Comb-like leaf. See *Pectinatum*.

Common bud. *Communis gemma*. Containing both leaves and flowers.—**Common peduncle:** *Communis pedunculus*. Bearing several flowers or fruits.—**Common perianth;** inclosing several distinct fructifications, as in the class *Syngenesia*.—**Common receptacle;** connecting several distinct fructifications, as in the same class.

Compact leaf. Having the pulp (in succulent leaves) of a close firm texture.

Complete flower. Furnished both with calyx and corolla. This is one of *Vaillant's* terms. See *Flower*.

Complicate. *Complicatus*. Doubled or folded; as the valves of the glume or chaff in some grasses.

Compositae. The name of the 21st order in Linneus's fragments; and the 49th of his natural orders—in Royen's system and others. It comprises the plants with Compound flowers.

Compound. *Compositus*. Stem, dividing into branches.—*Leaf*, connecting several leaflets on one petiole; which in this case is called a common petiole. *t. 3.*—*Flower*, a species of aggregate flower, containing several florets, inclosed in a common perianth, and on a common receptacle, with the anthers connected in a cylinder: as in the class *Syngenesia*: *t. 7. f. 19. t. 8. f. 15—19.*—*Raceme*, composed of several racemelets or small racemes.—*Spike*, composed of several spikelets.—*Corymb*, formed of several small corymbs.—*Umbel*, having all the rays or peduncles bearing umbellets or small umbels at the top. *t. 4. f. 2.*—*Fructification*, consisting of several confluent florets: opposed to simple.—*Berry*, composed of several small berries, as in *Mulberry*, &c. *t. 5. f. 18.*

Compound terms. Two terms forming one idea, much and successfully used by Linneus. These should properly be formed from figures, &c. of the same division only. Thus *lanceolate-ovate* and *ovate-lanceolate* are proper; but not *lanceolate-acute*, or *ovate-mucronate*.—This rule is frequently departed from, even by Linneus himself.

Compressed or flattened. *Compressus*. Applied to a stem, which has the two opposite sides plane, as when a straw is pressed between the thumb and finger—to a leaf, which is succulent, with the sides more flattened than the disk. Opposed to *depressed* in *Delin. plant.*—to a calyx, as in *Stock* and *Wallflower*—to a corolla, as in *Yellow Rattle*—to a siliqua, as in *Cardamine*.

Concave leaf. When the edge stands above the disk: or, as Linneus expresses it, when the margin of the leaf being too tight to circumscribe the disk, the disk is depressed.—Applied also to the corolla; as in the class *Icсандria*—and to the valves of the glume in grasses.

Conceptacle or Follicle. *Conceptaculum*, *Folliculus*. A Pericarp of one valve, opening longitudinally on one side, and having

- having the seeds loose in it. *t. 5. f. 9.* As in *Apocynum*, *Aselepias*, *Stapelia*. See *Folliculus*.
- Condensed branches. *Coarctati rami*. Pressed or squeezed together, so close, as almost to be incumbent, or lie over each other, at their ends.
- Conduplicate. Doubled together. *Conduplicata vernatio f. foliatio*. A term in veneration or leafing; signifying, that in the bud, the two sides of the leaf are doubled or folded over each other at the midrib. As in *Rose*, *Asb*, *Walnut*, *Almond*, *Cherry*, *Oak*, *Beech*, &c.—It is used also in the sleep of plants, (*conduplicans somnus*) in the same sense: when the leaves, during the night, fold together, like the leaves of a book.
- Cone. *Conus*. A fruit, in shape of a cone, composed of woody scales, having a seed at the base of each scale: as in *Fir*, *Pine*, *Cedar*, *Cypress*. *t. 6. f. 2.*
- Linneus has discarded this term, and has adopted that of *Strobilus*, which see. He has however retained an order of cone-bearing plants. See *Coniferae*.
- Confertus. Crowded or Clustered. *Conferta folia*. Leaves so copious, as to occupy the whole of the branches, scarcely leaving any space between; as in *Antirrhinum monospermum* and *Linaria*.—*Conferti rami*. Branches so close as scarcely to leave any space between them: opposed to *remoti*.—*Confertus verticillus*, a close or crowded whorl, in which the peduncles or flowers are as it were squeezed together: opposed to *distans*.
- Confluent leaves. *Folia confluentia*. Running one into another at the base: growing in tufts, so as to leave the intermediate parts of the stem bare.—*Confluent lobes*; in opposition to *dislinct*.
- Conforme folium. A leaf in all parts the same.—*Conformis torsio*. Twisting of a stem always the same way.
- Congestus. Heaped together. *Congesta panicula*. A panicle which has a great abundance of flowers, but not so closely squeezed together as in the crowded or dense panicle.
- Conglomerate, flowers or peduncles. When a branching peduncle bears flowers on very short peduncles, closely heaped or compacted together. As in *Dactylis glomerata*. Opposed to *diffused*. See *Glomerate*.
- Conical receptacle. Round and broad at the base, drawing to a point at the top. As in *Bellis* or *Daisy*, *Anthemis*, &c.
- Coniferae. The 15th order in Linneus's fragments; and the 51st of his natural orders. Containing the cone-bearing trees; as *Fir*, *Pine*, *Cypress*, *Thuja*, &c.
- Conjugate leaf. *Folium conjugatum*. A pinnate leaf, which has only one pair of leaflets. *t. 3. f. 11.*—*Conjugate raceme*: having two racemes only, united by a common peduncle.
- Connate leaf. *Folium connatum*. When two opposite leaves are so united at their bases as to have the appearance of one leaf: as in the *Garden Honeysuckle*. *t. 3. f. 20. f.*—This term is applied also to the filaments and anthers, united into one body, as in the classes *Monadelphica* and *Syngenesia*. *t. 7. f. 16, 19.*
- Connivens. See *Converging*.
- Contorta corolla. A contorted corolla has the edge of one petal lying over the next, in an oblique direction: as in *Vinca*.—A contorted pericarp has the apex in a different line from the base. This means no more than twisted.
- Contortæ. The 29th order in Linneus's fragments; and the 30th of his natural orders.
- Contortuplicatus. See *Writhe*.
- Contracta panicula. A contracted panicle. Close and narrow, so as very much to resemble a spike. As in *Festuca calycina*.
- Contrarium dissepimentum. See *Partition*.
- Converging. *Connivens*. Applied to the corolla, when the tips of the petals meet so as to close the flower; as in *Trollius*—to filaments, as in *Borage*—to anthers, which approach or incline towards each other; as in the class *Didynamia*—to the sleep of plants, when two opposite leaves are so closely applied to each other by their upper surfaces, as to seem one leaf.
- Convex leaf. *Folium convexum*. Rising towards the centre; or, with the edge more contracted than the disk, so that the latter is raised.
- This term, in *Philos. botan.* is opposed to *depressed*, and has reference to the substance of a leaf: whereas in *Delin. plant.* it refers to the mode of its expansion, and is opposed to *concave*.
- The term convex is applied also to the receptacle, which rises in the middle: as in *Tansy*, *Chrysanthemum*, *Matricaria*, *Bupthalmum*.
- Convolutus. *Convolutus*. A term in veneration or foliation, signifying that the sides of the nascent leaves are rolled together like a scroll: as in *Arum*, *Piper*, *Solidago*, *Brassica*, *Prunus*, *Gramina*.—Applied in the same sense to the petals and stigmas, as in *Crocus*—to tendrils, when twisted into rings or spirals.
- Corculum. The Heart or essence of a seed. The rudiment or compendium of the future plant: attached to and involved in the cotyledons. Consisting of the *Plume*, or scaly ascending part; and the *Rostrum* or *Radicle*, the simple descending part. *t. 6. f. 5. a, b, c, d.*
- Cordate or heart-shaped leaf. *Folium cordatum*. Resembling a longitudinal section of the heart.—Ovate or subovate, hollowed at the base, without any angles there. *t. 2. f. 11.*
- Cordate-oblong. A heart-shaped leaf lengthened out.—Cordate-lanceolate, Cordate-orbicular. *t. 2. f. 11. β.*
- Cordate-sagittate, &c. Partaking of the form of both leaves.
- Coriaceus. *Coriaceus*. Stiff like leather or parchment. Applied to the leaf, calyx and capsule.
- Cornu. See *Horn* and *Spur*.
- Corolla. The second of the seven parts of fructification; or, the inner covering of the flower. *t. 4. f. 4, 6—13.* formed, according to Linneus, of the *liber* or inner bark of the plant.
- It may commonly be distinguished from the perianth by the fineness of its texture, and the gaiety of its colours: but there are exceptions.—Linneus makes the distinction to consist, in the corolla having its segments or petals alternate with the stamens; and the perianth having its parts or leaflets opposite to them: but this also has its exceptions.—De Necker calls them both by one name *Perigynanda*, and distinguishes it into inner and outer, when there are two wrappers.
- The Nectarium or Nectary is considered as a part of the corolla.
- The corolla is frequently, but inaccurately called the flower. See *Flower*.
- The diminutive Corollet, *Corollula*, is used in speaking of the Florets in aggregate flowers. *t. 8. f. 16—19.*
- Corona. See *Crown*.
- Coronariæ. The 9th order in Linneus's fragments; and the 10th of his natural orders: containing part of the Liliaceous plants; such as for their beauty are adapted to the making of *Coronæ* or garlands.
- Coronula. A coronet or little crown to the seed.
- Cortex. The outer bark of a vegetable, or the second integument within the epidermis: plated, lax, dry, hard, often in chinks or clefts.
- Cortical Bud. Having its origin from the scales of the bark.
- Corydales. (From *κορυς*, a helmet.) The 28th order in Linneus's fragments; and the 24th of his natural orders.
- Corymb. *Corymbus*. *Κορυμβος*. (From *κορυς*, and that from *καρφα*, the head.) In Pliny it signifies a cluster of Ivy berries: and Columella puts it for the head of the Artichoke.—In modern botany it is a species of inflorescence approaching to the spike, but differing from it in having each flower not sessile, but on its proper pedicle; and instead of the flowers being ranged along a common peduncle alternately; each pedicle is of a length proportioned to its situation, so that all the flowers form nearly a flat surface at top. As in *Spiræa opulifolia*, *Ledum*, and the *Siliquose* plants of the class *Tetradynamia*.—A Corymb is either *simple* or *compound*.
- Corymbiferae. The name of one of Ray's classes; and the third subdivision in the order of Compound flowers, in Linneus's natural arrangement.
- Costatum folium. A ribbed leaf: as in *Echites siphilitica*.
- Cotton and Cottony. See *Tomentosus*.
- Cotyledon. (From *κοτυλη*, a cavity). The lobe or placenta of the seed, destined to nourish the heart, and then to perish. Or, as Linneus expresses it—the lateral body of the seed, bibulous or imbibing moisture, and caducous or falling off quickly. *t. 6. f. 5. c.* In English we commonly call this part the *seed-lobe*, when we speak of it as a portion of the seed in a quiescent state; and the *seed-leaf*, when the seed is in a growing state.—Most seeds have two lobes; some however have more, others only one, and others none.—Hence a distinction of all plants into *Acotyledones*, *Monocotyledones*, *Dicotyledones*, and *Polycotyledones*; which forms the basis of Jussieu's natural arrangement.
- Cowl or Cucullate (*Cucullatum*) leaf. Wide at top, drawn to a point below; as in *Geranium cucullatum*: in shape of the paper rolled up conically by grocers, for small parcels of spices, comfits, &c.—“Vel thuris piperisque sis cucullus.” Martial.
- Creeping root. *Radix repens*. Extending itself horizontally, and putting forth fibres; as in *Mint*, *Quich*, &c. *t. 1. f. 3. a, a.*
- Creeping stem. *Caulis repens*. Running along the ground, or up trees and other bodies, putting forth roots; as *Ivy*, *Bignonia*, &c.
- Crenatum folium. A crenate or notched leaf. Having the edge cut with angular or circular incisures, not inclining towards either extremity; as in *Primula farinosa*.
- Acutely crenate, with angular teeth.
- Obtusely crenate, the edge cut into segments of small circles.
- Doubly crenate, with smaller segments upon the larger ones.
- The same term is applied to the corolla in *Linum*, *Dianthus chinensis*, &c.—and to the nectary in *Narcissus triandrus*.
- Crenulate. Having the edge, in a leaf, cut into very small notches.—This term is also applied to the nectary in *Narcissus poeticus*.
- Crescent-shaped. (*Lunatus* f. *lunulatus*) leaf. Roundish, hollowed at the base, with posterior angles. *t. 2. f. 12.* Resembling the moon in any period of her first quarter.—Applied

- Applied to spikes, as in *Acrostichum pedunculatum*.—In *Strawberry* the anthers are styled *lunulares*.—In *Polygala myrtifolia*, the diminutive *lunulata* is applied to the keel of the corolla.
- Crested.** *Cristatus*. Having an appendage like a crest or tuft: as the flower of *Polygala* and some anthers.
- Crinitus.** Having much or long hair. As in *Phleum crinitum*. Applied also to *Ferns*.
- Crispum.** See *Curled*.
- Cristatus.** See *Crested*.
- Cross-armed.** See *Brachiate* and *Decussated*.
- Cross-shaped.** See *Cruciform*.
- Cross-wife.** *Cruciatum*. This term is applied to leaflets in a whorl, when there are four of them forming a cross. *t. 3. f. 21. c.*—also to anthers, as in *Glecoma* and *Hippomane*.
- Crowded.** See *Confertus*.
- Crown of the seed.** *Corona seminis*. An appendage to the top of many seeds, enabling them to disperse. *t. 6. f. 7, 8, 9, 10.* This is either the calycle, as in *Scabiosa*, *Knautia*, *Ageratum*, *Arctotis*—or a Down (*Pappus*), as in *Hieracium*, *Sonchus*, *Crepis*, *Scorzonera*, *Tragopogon*, &c.
- Cruciform or Cross-shaped corolla.** *Cruciformis* f. *Cruciata*. Consisting of four equal petals, spreading out in form of a cross. *t. 4. f. 12.*—These flowers constitute the fifth class in Tournefort's system; and are a principal character in Linneus's class *Tetradynamia*. In the natural orders he has preferred the title of *Siliqueae*.
- Cryptogamia.** The name of the 24th class in Linneus's system, comprehending the vegetables whose fructification is concealed, or at least too minute to be observed by the naked eye. *t. 8. f. 23—26.* It is divided into four orders: 1. *Filices* or Ferns. *t. 7. f. 24.* and *t. 3. f. 23.* 2. *Musci* or Mosses. *t. 8. f. 24.* 3. *Algæ* or Flags. *t. 8. f. 25.* 4. *Fungi* or Mushrooms. *t. 8. f. 26.* Two orders have been added, viz. *Miscellaneæ*, containing some genera separated from the Ferns—and *Hepaticæ*, divided from the Algæ.
- Cubit.** A measure from the elbow to the extremity of the middle finger, or about half a yard.
- Cucullatum.** See *Cowled*.
- Cucurbitaceæ.** The 45th order in Linneus's fragments of a natural method; and the 34th of his natural orders.
- Culm.** *Culmus*. The stalk or stem of Corn and Grasses; usually jointed and hollow; supporting both the leaves and fructification.
- Culminæ.** The 26th order in Linneus's fragments of a natural method.
- Cuneiforme folium.** See *Wedge-shaped*.
- Curled leaf.** *Folium crispum*. When the periphery is larger than the disk admits, and so becomes waved—or, is so luxuriant, that the disk is longer than the rib of the leaf: as in *Curled Parsley*.—*Curled Nectary*, in *Narcissus Pseudonarcissus* and *minor*.
- Curved, bowed or bent inwards.** *Incurvus*. Applied to legumes and prickles—also to a stem curved or nodding inwards.—*Curved or bowed outwards, backwards or downwards.* *Recurvus, recurvatus*. Applied to leaves and prickles.
- Cuspidatum folium.** A *cuspidate* leaf. Having the end sharp, like the point of a sword or spear—or, terminating in a bristly point.
- Cyathiformis.** *Cyathiform*, *Cup-shaped* or *Glass-shaped*. Cylindrical at bottom but widening a little at the top.—Applied to the calyx in *Mauritia*—to the corolla—and to the figures of *Peziza Acetabulum* and *cyathoides*.
- Cylindrical.** Applied to stems and some leaves, which are round (*teretes*), that is, without angles; but many times longer than they are thick. This is more properly expressed by *columnar*, because they are not of the same diameter from top to bottom.—The same term is applied to the calyx, in *Euphrasia*, *Dianthus chinensis*, &c.—to the style—the spike—and the ament or catkin, in *Reedmace* and *Hazle*.
- Cymbiformis.** See *Boat-shaped*.
- Cyma.** *Cyme*. From *Κύμα*, *foetus*. It signifies properly a sprout or tender shoot, particularly of the cabbage.—Linneus explains it to be, an aggregate flower composed of several florets sitting on a receptacle, producing all the primary peduncles from the same point, but having the partial peduncles scattered or irregular; all fastigate, or forming a flat surface at top: as in *Opulus*, *Cornus sanguinea*, *Ophiorhiza*, *Sambucus*.
- The Cyme is either *naked* or *bracted*.
- Flowers disposed in a Cyme are called *Cymose* flowers—Hence *Cymosæ* the 63d of Linneus's natural orders.
- Dagger-pointed or Mucronate, leaf.** *Folium mucronatum*. Ending in a point like a dagger. Or, as Dr. Withering explains it more fully, not gradually tapering to a point, but ending suddenly in a sharp pointed substance, like the blade of a dagger from its handle: as in *Bromelia Ananas*.—Applied to the calyx: as in *Phleum*.
- Decagynia.** *Ten-styled* or *Ten-Pistilled*. The name of one of the Orders in Linneus's system; occurring only in the class *Decandria*.
- Decandria.** *Ten-stamened*. The name of the 10th Class in Linneus's system; comprehending all hermaphrodite flowers with ten stamens.—The name also of an Order in the Classes *Monadelphia*, *Diadelphia*, *Gynandria*, and *Dioccia*.
- Decaphyllus.** *Ten-leaved*. As the calyx of *Hibiscus*.
- Decemfidus.** *Ten-cleft*. As the calyx of *Potentilla* and *Fragaria*.
- Decemloculare.** *Ten-celled*. As the pericarp or seed-vessel in *Linum*.
- Deciduous.** *Deciduus*. Leaf, that falls in autumn.—Calyx, that falls after the corolla opens: as in *Berberis* and the class *Tetradynamia*.—Corolla or Petals, falling with the rest of the flower.—Applied also to stipules; as in *Padus*, *Cerasus*, *Populus*, *Tilia*, *Ulmus*, *Quercus*, &c.—To bractes and seed-vessels. See *Caducous*.
- Declinatus caulis.** A *declined* or *declining* stem. Descending archwise: or, bent like a bow with the curvature downwards. Opposed to *ascending*.—Applied also to the peduncle—filaments, as in *Bugloss*—style—and seed-vessel, as in *Water-Cresses*.—A *declining leaf* is bent downwards; like the keel of a boat.
- Decomound or Doubly Compound leaf.** *Folium decompositum*. When the primary petiole is so divided, that each part forms a compound leaf. See *Biginimate*, *Biterminate* and *Bipinnate*, *t. 3. f. 12, 13.*
- This term is applied sometimes to an umbel, which is otherwise called *Proliferous*—and to a flower which is compounded of compound flowers, or contains within a common calyx smaller calyxes common to several florets; as in *Sphæranthus*, &c. contained in the order *Segregata* of the class *Syngenesia*.
- Decumbens caulis.** *Decumbent stem*. Lying on the ground; with the base higher than the other part.—*Decumbens flos*. Decumbent flower: having the stamens and pistils declining or bending down to the lower side of it: as in *Cassia*.
- Decurrent leaf.** *Folium decurrens*. A sessile leaf having its base extending downwards along the stem: as in *Symphytum*, *Verbena*, *Carduus*, *Sphæranthus*. *t. 3. f. 20. c.*—Applied also to the petiole, and the stipule.
- Decursively-pinnate leaf.** See *Pinnate*.
- Decussated leaves and branches.** *Decussata folia. Decussati rami*. Growing in pairs, which alternately cross each other at right angles; so that if the stem be viewed vertically, or the eye be directed right down it, the leaves or branches will appear to be in fours.—This term might be confined to leaves; and *brachiate* appropriated to branches.
- Deflexus ramus.** A *deflected* branch. Bowed, or bending down archwise.—Bending outwards in a small degree. *Withering*.
- Deflorata anthera.** Which has shed its pollen.
- Defoliatio.** Shedding leaves, or the fall of the leaf. Put not only for the action, but for the season of leaves falling.—So
- Dehiscencia**, is put for the season, when capsules usually gape or open.
- Deltoid leaf.** *Folium deltoides* or *deltoidium*. Shaped like a rhomb, having four angles, of which the lateral ones are less distant from the base than the others—or rather, are nearer to each other than the base and apex are; so that the length is greater than the breadth: as in *Populus nigra*. *t. 2. f. 9.* *Chenopodium*, *Atriplex*, *Cochlearia danica*, *Alyssum sinuatum* and *deltoidium*.
- Dr.** Withering names the deltoid leaf *Triangular spear-shaped* or *trowel-shaped*.
- The figure of the deltoid leaf in *Philosophia Botanica* is one of the succulent kind, such as those of *Aloe*, *Mesembryanthemum*, &c. In *deltoides* of the latter genus, each side of the leaf is in form of a triangle.
- Demersum folium.** A leaf growing under water. The same with *submersum*.
- Dense panicle.** *Densa panícula*. Having abundance of flowers very close.—A greater degree of *congesta*, heaped.
- Dentata radix.** A *toothed* root. Consisting of a concatenation of joints, resembling a necklace. *t. 1. f. 3.*
- Dentatum folium.** A *toothed* leaf. Having horizontal points, of the same consistence with the leaf, with a space between each.—Dr. Berkenhout observes, that if, instead of horizontal, Linneus had written, in the *plane of the disk*, it would have been more intelligible.—In *Delin. plant.* it is—having spreading points, remote from each other, about the edge.—Exemplified in *Leontodon hastile*, *autumnale*, *alpinum*, *hispidum*, *hirtum*; *Primula veris* and *minima*; *Epilobium montanum*.
- Dentato-ferratum.** *Tooth-ferrate*.
- Dentato-sinuatum.** *Tooth-sinuate*. Toothed, and, at the same time having sinuses, bays or large hollows about the edge. This term is also applied to the stipule.
- Dentato-spinosum.** *Tooth-spined*: as in *Agave*.
- Denticulatum folium.** *Toothletted*. Having small teeth or notches; as in *Hesperis matronalis*, *Leontodon Taraxacum*, *Epilobium tetragenum*.—Applied also to the calyx—and to the seed, as in *Bidens*.
- Denudatæ.** The 7th order in Linneus's fragments, comprehending a few genera which have flowers appearing at a different time from the leaves, and therefore having a naked appearance; as *Colechicum*.
- Dependens folium.** A leaf hanging down, or pointing directly to the ground.—Applied also to the sleep of plants (*dependens somnus*), when the leaves which are erect in the day hang down at night.

- Depressum folium.** A depressed leaf, hollow in the middle, or having the disk more depressed than the sides. This term has reference to succulent leaves only.—Applied also to seeds; as in *Cynoglossum*.
- Diadelphia.** The 17th class in Linneus's system; comprehending those plants which bear hermaphrodite flowers, with two sets of stamens; or nine united in one, the lower broad part of the filament sheathing the gerin, and the tenth single: but the ten stamens are frequently connected into one at the bottom. This is a natural class, with papilionaceous flowers, and leguminous fruits. The orders are founded on the number of stamens, and ten is the predominating number. *t. 7. f. 17.*
- Diagnosis of a plant,** consists in the affinity of the genus, and the difference or distinction of the species. The specific characters in Linneus's works are true diagnoses.
- Diandria.** The second class of Linneus's artificial system, comprehending all hermaphrodite flowers which have two stamens.—Also the name of an order, in classes *Gynandria*, *Monoechia*, *Diocchia*.
- Dichotomous stem.** *Caulis dichotomus.* Continually and regularly dividing in pairs: as in *Viscum* or *Mistletoe*, and *Valeriana Lecusla*.—Applied also to the peduncle.—Forked is a translation of *furcatus*.
- Dicoccus or two-grained capsule.** *Capsula dicocca.* Consisting of two cohering grains or cells, with one seed in each: as in *Mercurialis*.
- Dicotyledones.** Those plants which have seeds that split into two lobes in germinating.
- Didyma.** See *Twin*.
- Didynamia.** The 14th class in Linneus's system, comprehending those plants which have hermaphrodite flowers, with four stamens in two pairs of different lengths. These flowers have one pistil; and the corolla is irregular, *ringent* or *perfonate*. It is a natural class, and is divided into two orders.—1. *Gymnospermia*, having naked seeds. 2. *Angiospermia*, having the seeds inclosed in a vessel. *t. 7. f. 14.* and *t. 8. f. 11, 12.*
- Difformis.** A *difform* flower. The parts of which do not correspond either in size or proportion.
- Difformis tortio.** The twisting of a stem one way and then another.
- Difformia folia.** Leaves of different shapes on the same plant, as in *Ranunculus aquatilis*, &c.
- Diffused stem.** *Caulis diffusus.* Having spreading branches: as in *Teucrium Scordium*.—Diffused panicle. Hanging loose; opposed to *coarctata* close or compact: when the pedicels are spread about loosely, at right or obtuse angles with the main peduncle.
- Digitate leaf.** *Folium digitatum.* When a simple petiole connects several distinct leaflets at the end. *t. 3. f. 3.* Properly it should have five leaflets; but Linneus makes *binate*, and *ternate*, as well as *quinate* leaves to be species of the digitate: and the leaves of *Horse-chestnut* have more leaflets than five. The *Palmate* leaf, which in some measure resembles this, is a simple leaf. See *t. 2. f. 17.*
- Digynia.** The second order in the first thirteen classes of Linneus's system, except the 9th, comprehending those plants which have two pistils to a flower.
- Dimidiatus.** See *Halved*.
- Dioica planta.** A *dioecous* plant. Having male and female flowers on distinct individuals. Hence
- Diocchia.** The 22nd class in Linneus's system, comprehending those plants which have no hermaphrodite flowers, but male flowers only on one individual, and female flowers only on another individual of the same species. *t. 7. f. 22.*
- Dipetala corolla.** A *dipetalous* or *two-petalled* corolla: as *Circæa* and *Commelina*.
- Diphyllus calyx.** A *diphyllous* or *two-leaved* calyx, as in *Papaver* and *Fumaria*—applied also to the tendril, as in *Lathyrus*. *t. 3. f. 11.*—and to the peduncle, as in *Gomphrena*.
- Disk of a leaf.** The whole surface.—*Discus supinus* the upper—*pronus*, the under surface.—*Disk* of a flower, the central part in radiate compound flowers, consisting generally of regular corollets or florets. *t. 8. f. 16, 18.*—It is applied to other aggregate flowers, when the florets towards the middle differ from those of the circumference: as in umbels.
- Dispermus fructus.** A *two-seeded* fruit; containing two seeds only; as in *umbellate* and *stellate* plants.
- Dissectum folium.** A *gashed* leaf. In Philos. Bot. Linneus gives *incisum* f. *dissectum* as a superseded term, and refers to *Lacinatum*. See *Gashed* and *Lacinatum*.—In Declin. pl. the *dissectum* or *gashed* is distinguished from the *lacinatum*, by the sections being determinate in the first, and indeterminate in the second.
- Dissepimentum.** See *Partition*.
- Disiliens pericarpium.** A disilient or elastic pericarp or fruit. Bursting open with a spring: as in *Hura*, *Dentaria*, *Cardamine*, *Momordica Elaterium*.
- Distans f. remotus verticillus.** A distant whorl: when the flowers which compose it, being few in number, are remote from each other.
- It is applied also to stamens; as in *Mint*.
- Distichus.** *Two-ranked* or *Two-rowed* stem. Putting forth branches, not decussated, but in a horizontal position. Respecting two sides of the branch only, though inserted on all parts of it: as in *Fir* and *Diervilla*.—Or pointing two ways only, though not in the same plane.
- This term is applied in the same sense to a spike, which has all the flowers pointing two ways: opposed to *Secunda*.—*Spica tetrastricha*, a four-ranked spike—*hexastricha* a six-ranked spike.
- Distinct leaves.** Quite separate from each other. Contrasted with *connate*: as in several of the *Mesembryanthema*.—**Distinct leaflets.** Contrasted with *confluent*: as in *Jasminum officinale* and *grandiflorum*.
- Divaricate.** Straddling, *With.* Standing out wide. Applied to branches, which make an obtuse angle with the stem: opposed to *coarctati*—to panicles, peduncles and petioles.
- Diverging branches;** making nearly a right angle with the stem; or, spreading out almost horizontally. According to Dr. Withering, opposed to compact.—*Divergens somnus*: when the leaflets, in their state of repose, approach each other at the base, but spread out at the tips.
- Divided.** See *Partitum*.
- Dodecandria.** *Twelve-stamened.* The 11th class in Linneus's system; comprehending all those plants which have hermaphrodite flowers with from twelve to nineteen stamens inclusive. *t. 7. f. 11.*
- Dodrans.** The long span or palm or quarter of a yard. See *Measures*.
- Dolabriforme folium.** An *axe* or *hatched-shaped* leaf. Compressed, roundish, obtuse, gibbous on the outside with a sharp edge, roundish below: as in *Mesembryanthemum dolabriforme*.
- Dorsalis arista.** *Dorsal awn.* Fixed into the back of the glume; not springing from the end: as in *Bromus* and *Avena*.
- Dotted leaf.** *Folium punctatum.* Sprinkled with hollow dots or points: as in *Anthemis maritima*. Applied also to the receptacle of many compound flowers. *t. 6. f. 13.*
- Double.** *Geminus.*—*Double leaves*; two connected by one petiole.—*Double stipules*; two and two by pairs.—*Double peduncles*: two from the same point. Different from *Two-flowered*. Which see.
- Dr. Withering translates *Didymus* by *double*. But I apply the term *twin* to that; and *double* to *geminus*.
- Doubled together.** See *Conduplicate*.
- Doubly compound.** See *Decompeund*.
- Doubly crenate.** See *Crenate*.
- Doubly pinnate.** See *Bipinnate*.
- Doubly serrate.** See *Serrate*.
- Doubly ternate.** See *Biternate*.
- Down.** *Pappus.* The fine hair or feather-like substance, crowning the seeds of some plants, and enabling the wind to scatter them abroad, as in *Dandelion*, *Thistle*, &c. *t. 6. f. 6—9.*—The *seed-down* is 1. feathered or plumose. *t. 6. f. 8.* or 2. Capillary, hairy or simple. *t. 6. f. 6, 7.*—It is either stipled. *f. 6.* or sessile. *f. 7.*
- The English word *Down* is also used for some sorts of pubescence. See *Lanugo* and *Tomentosus*. It seems best to appropriate the term *Down* or rather *Seed-down* to the Pappus, and to express the pubescence by *Tomentose* or *Cottony*.
- Drooping.** *Cernuus.* When a peduncle or flower points to the ground: as in *Bidens cernua*. Different from *Nodding*: which see.
- Dr. Withering translates *Cernuus* by *crooked*; and *Nutans* by *drooping*.
- Drupa.** A *Drupe*. A pulpy pericarp or fruit without valves, containing a nut or stone, which incloses a kernel. (*t. 5. f. 10.*) As *Plum*, *Apricot*, *Peach*, *Almond*, *Olive*, &c. Some call it *Prunus* or *Plum*. It is usually moist and succulent, but sometimes dry, as the *Almond*.
- Drupaceæ.** The 38th order in Linneus's fragments.
- Dumosæ.** From *dumus*, a bush. The 19th order in Linneus's fragments; and the 43d of his natural orders.
- Duplicato-crenatum.** *Doubly crenate*.
- Duplicato-pinnatum.** *Doubly pinnate* or *Bipinnate*.
- Duplicato-serratum.** *Doubly serrate*.
- Duplicato-ternatum.** *Doubly ternate* or *Biternate*.
- Eared, Auritus, Auriculatus.** Having an appendage like a little ear: as in leaves, leaflets and fronds. Or, having the corners prominent and rounded, or twisted into the form of a little ear. The latter may more properly be named *Ear-shaped*.
- Instances of *Eared* fronds are *Acrostichum punctatum*, *Polypodium Pica* and *marginale*.
- Ebracteatus racemus, peduncle.** A raceme or peduncle without any bracte: as in *Cistus guttatus*.
- Ecalcarata corolla.** A corolla without any spur or spur-shaped nectary: as in *Wulfenia*.
- Echinatum pericarpium.** An *echinated* pericarp, beset with prickles like a hedgehog: as in *Datura Stramonium*. Prickly answers to *aculeatus*.—*Echinato-uncinata spica*. Hedgehog-hooked. A spike beset with prickles which are hooked at the end.
- Echinus.** A *Burr*. A round prickly set of flowers or seeds, like a hedgehog.
- Egg-shaped.** See *Ovatum*.
- Eglandulosus petiolus.** A petiole without glands.
- Elastic pericarp.** See *Disiliens*.

Elliptic leaf. *Folium ellipticum.* Lanceolate, but with the breadth of an ovate leaf. *Delin. plant. t. 2. f. 3.* In *1 hilos. bo.* it is made synonymous with *ovate*, which see.

Emarginate. *Emarginatum.* End-nicked, or notched at the the end. Applied to the leaf. *t. 2. f. 25.*—to the corolla, as in *Agrostemma coronaria*—and to the stigma, as in the class *Didynamia*.

Embracing or stem-clasping leaf. See *Amplexicaule*.

End-bitten. See *Præmorsus*.

Enervium f. enerve folium. A *nervule*s leaf. Having no apparent nerves. Opposed to *nervosum*.

Enneandria. *Nine-stamened.* The 9th class in Linneus's system. Also an order in the classes *Monadelphia* and *Dioecia*.

Enodis. *Knotless.* Without knots or joints: as in *Schoenus*, *Cyperus*, *Scirpus*.—In opposition to *nodosus*, knotted.

Ensatæ. The 5th order of Linneus's fragments, and the 6th of the natural orders: containing some of the Liliaceous plants, which have sword-shaped leaves.

Ensisforme folium. An *ensiform*, sword-shaped or sword-form leaf. Ancipital or two-edged, and tapering from the base towards the point: as in *Ixia*, *Gladulus*, *Iris*.

Entire. *Integer.* Stem: quite single, with few or no branches. Leaf: undivided, without any sinus or opening in the edge. An entire leaf may be ferrate or crenate, but not gashed or jagged. When it has a uniform linear edge, not cut at all, the superlative is used—*folium integerrimum*, very or absolutely entire.—Perianth; opposed to *fissum*; as in *Genipa*.

Epidermis. The outer dry and very thin coat or covering of a plant, corresponding with the scarf skin.

Equal. *Æqualis.* Put frequently for *Regular*, which see. In *Utricularia* the calyx is equal; in *Primula* and *Limnæa*, the corolla is equal.

Equal Polygamy. See *Æqualis*.

Equinoctial flowers. Opening at a stated regular hour. See *Vigilia*.

Equitans vernatio. When two opposite leaves converge so to each other with their edges, as that one incloses the other: as in *Iris*, *Heimerocallis*, *Acorus*, *Carex*, *Gramina*.

Equitantia folia. *Equitant* leaves. Riding as it were over each other. When the sides of a leaf converge in parallel lines, so that the inner leaves are inclosed by the outer ones.—These terms are used in foliation or leafing.

Erect or Upright. *Erectus.* Stem or branch. Perpendicular to the ground or nearly so. See *Strictus*.—In *Philos. bot.* *Erectus* is opposed to *volubilis*.—Leaf: when it makes so very acute an angle with the stem, as to be close to it. See *Patens*.—Flower: when its aperture is directed upwards; as in *Trillium fissile*. Opposed to *nutans*.—Anther: fixed by one end to the top of the filament; contrasted with *versatilis* and *incumbens*, which are fastened by the side.—Applied also to the petiole, peduncle and stipule.

Erectiuscula is sometimes used for nearly upright; and is applied to the capsule of the *Hellebore*.

Erosum folium. An *Erofe* or *Gnawed* leaf. Seeming as if it had been eaten by insects. It is a sinuate leaf, having other very small obtuse sinuses on its edge. *t. 2. f. 30.*

Essential Character. *Character Essentialis.* A single or peculiar natural mark distinguishing one genus from all others in the same natural order.

Even. See *Lavis*.

Exaratus. See *Scored*.

Exasperatus. See *Roughened*.

Expanfus. *Expanded*, spread out: as the calyx in *Helianthus*. *Patens* and its dimin. *Patulus* are better expressed by *Spreading*, which see.

Explanatus. Unfolded or spread out flat: as the lip of the corolla in *Antirrhinum canadense*.

Exserta stamina. *Exsertæ* antheræ. *Protruded* stamens or anthers. Standing out of the corolla, or appearing above it; as in some species of *Erica*. Opposed to *inclusa*, shut in or inclosed within the corolla.

Exstipulatus. Without stipules. As many sorts of *Cistus*, *Cardamine parvispora*, &c.

Exsuccus. Juiceless, without juice, opposed to succulent. It respects the substance of leaves.

Extrafoliaceæ stipulæ. Stipules growing on the outside of the leaves, or below them: as in *Betula*, *Tilia*, and the class *Diadelphia*.—Opposed to *Intrafoliaceæ*.—Applied also to peduncles and prickles.

Eye of a seed. *Hilum*, which see.

Factitious or Artificial Character. *Character factitius.* A mark or marks distinguishing one genus from another in an artificial arrangement: which is done by Ray and others in synoptical tables.

Families of Vegetables. Linneus divides all Vegetables into seven *Families*. 1. Fungi. 2. Algæ. 3. Musci or Mosses. 4. Filices or Ferns. 5. Gramina or Grasses. 6. Palms. 7. Plantæ; including all that are not in the foregoing families. See *Gentes*.

Farcitus. *Stuffed, crammed, filled full.*—*Farcitum folium*: full of pith or pulp; in opposition to *tubulosum* and *fistulosum*.—Applied also to the stem and pericarp.

Farina. See *Pollen*.

Fasciculus. A *bundle*; which see.

Fastigiatus caulis. A *fastigate* stem, having branches of an equal height. *Fastigiati pedunculi.* *Fastigate* peduncles;

elevating all the fructifications to an equal height; or, so proportioned as to form an even surface at top, like a flat roof; as in *Dianthus* and *Silene*.—This term may be translated *Level-topped*.

Favosum receptaculum. A *honey-combed* receptacle. See *Alveolate*.

Faux. The jaws, chaps, throat, gape, or opening of the tube of the corolla; or, between the segments of the corolla, where the tube ends: as in the class *Didynamia*, and the *Asperifoliæ* in class *Pentandria*. The opening is sometimes termed *Os*, the Mouth.

Feathered. *Plumosus.* See *Down* and *Plumosus*.—Some put this term for *Pinnate*, but improperly.

Female plant. Having female flowers only.—*Female flower*: having pistils or stigmas, without stamens, or at least without anthers. *t. 7. f. 22.*

Ferns. See *Filices*.

Ferruginous colour. The colour of rusty iron.

Fertile flowers. Such as produce seed capable of vegetation; as is generally the case in flowers that have both stamens and pistils. Flowers that have stamens only never produce seeds: and those which have pistils only are barren, if they are out of the reach of the pollen from the anthers of stamiferous flowers—in some instances these will produce seeds to all appearance perfect, but such seeds never vegetate.

Fibra. *Fibre* of a root. A thread or longitudinal canal, imbibing moisture from the earth. *t. 1. f. 2, 3.* Fibres properly constitute the roots of vegetables: the main body from whence they usually proceed is the descending trunk, and will, in many woody plants, become a trunk, if the plant be turned upside down.—A root consisting only of fibres, is termed, in popular language, a fibrous root. A branch or subdivision of a fibre is called a fibril, *fibrilla*.

Fibres of a leaf. See *Nervosum*.

Fiddle-shaped. See *Panduræforme*.

Filamentum. The *Filament*, or thread-like part of the stamen, supporting the anther and connecting it with the flower. *t. 7. f. 1. &c.*

Filices. *Ferns.* The fourth family, and the sixth great tribe or nation, in Linneus's general distribution of vegetables. The first order of the class *Cryptogamia*, in his artificial system. The 64th order in his fragments of a natural method: and the 55th of his natural orders. *t. 7. f. 24.* and *t. 8. f. 22.*

Filiformis. *Thread-shaped.* Of equal thickness from top to bottom, like a thread. Applied to peduncle, filament, style, and receptacle.

Fimbriatus. See *Fringed*.

Fingered leaf. See *Digitate*.

Fissum folium. See *Cloven*.

Fistulosus caulis. A *fistulous* stem. Hollow like a pipe or reed. Opposed to *farcitus*, filled full.—Applied to the leaf; as in *Oenanthe fistulosa*—and to the nectary, as in *Aconitum*.

Five-cleft. *Quinquedidus.* See *Cloven*.

Five-cornered. See *Quinquangulare*.

Five-fold leaves. *Quina folia.* Growing by fives, or, five and five together.

Five-lobed leaf. *Folium quinquelobatum.* See *Lobatum*.

Five-parted leaf. *Folium quinquepartitum.* Five-parted corolla. *Corolla quinquepartita.* See *Partitum*.

Five-toothed. *Quinquedentatus.* Applied to Petal and Capsule. See *Dentatum*.

Five-valved. *Quinquevalvis.* Applied to the Capsule. See *Valva*.

Flaccidus caulis, pedunculus. A *flaccid* stem or peduncle: so feeble as not to support its own weight.—Linneus uses it in the same sense with *laxus*, and in opposition to *strictus*.—The flaccid stem is exemplified in *Galium Mollugo*.

Flagellum. A *Runner*; or long decumbent stem, budding at remote spaces, or at the end only. See *Runner*.—A species of *Cactus* has the name of *flagelliformis*, because the stems resemble the lash of a whip.

Flat leaf. *Folium planum.* Having an even surface; in opposition to channelled, grooved, &c.—Most properly applied to succulent leaves, which have both surfaces parallel, neither convex nor concave, in opposition to gibbous.

Flatted. See *Compressed*.

Flat-topped. See *Fastigiatus*.

Fleshy-leaf. *Folium carnosum.* Full of pulp within: as in *Sedum* and other succulent plants. The substance is more stiff than in the pulpy leaf, *folium pulposum*.—Applied to the capsule in *Mesembryanthemum*—and to the root, in *Valerian*, &c.

Flexible. *Flexilis.* Easily bending without breaking. Applied to the stem and raceme.

Flexuose. *Flexuosus.* Changing its direction in a curve, from joint to joint, or from bud to bud in the stem; as in *Petlea*, *Smilax*, *Solidago flexicaulis*—from flower to flower in the peduncle, as in *Aira flexuosa*, and some other Grasses.—I doubt whether this term may be properly expressed by *Zigzag*.

Floating leaf. See *Natans*.

- Floral bud. *Gemma floralis*. Containing the flowers: in opposition to *foliaris* containing the leaves. See *Bud*.
- Floral leaf. *Folium florale*. Immediately attending the flower, but different from the Bractee, which see.
- Florescentia. Florescence, or the flowering season. The time when vegetables usually expand their flowers.
- Floret. *Flosculus*. The partial or separate little flower of an aggregate flower; chiefly in the class *Syngenesia*, or compound flowers properly so called. *t. 7. f. 19.* but applied also to the umbel, cyme, &c.—Florets are either *tubular* or *ligulate*. See *Tubulosus* and *Ligulatus*.
- Flos. See *Flower*.
- Flosculosus flos. A *floscular* flower. A term of Tournefort's, for which Linneus substitutes *tubulosus*. *t. 8. f. 17, 19.* It is opposed to *semi-flosculosus* or *ligulatus*. (*t. 8. f. 15.*) of Linneus. *t. 7. f. 19.* and *t. 8. f. 16.*
- Flosculus. See *Floret*.
- Flower. *Flos*. The organs of generation in vegetables, with their coverings. See *Fructification*.—A Flower, when complete, consists of a calyx, corolla, stamen and pistil; but the essential parts are the anther and stigma.
- Flower-stalk. See *Pedunculus*.
- Foliacea spica. A leafy spike: having leaves intermixed with the flowers.—*Glandula foliaceae*. Leafy glands, or glands situated on the leaves. See *Glandula*.
- Foliaris cirrus. A tendril placed on the leaf.—*Foliaris gemma*. A leaf-bud: containing leaves, not flowers.
- Foliation f. Vernatio. *Foliation, Vernation* or *Leafing*. The disposition of the nascent leaves within the bud.—The different modes of foliation are by—1. Involution. 2. Revolution. 3. Obvolution. 4. Convolution. 5. Imbrication. 6. Equitation. 7. Conduplication. 8. Plaiting. 9. Reclination. 10. A Circinal or spiral direction. See these terms explained in their proper places.
- Foliosus caulis. A leafy stalk: in opposition to *Aphyllus*, leafless.
- Foliolum. See *Leaflet*.
- Foliosum capitulum. A leafy head. Having leaves intermixed with the flowers.
- Folium. See *Leaf*.
- Folliculus. A *Follicle*. A univalvular pericarp, opening on one side longitudinally, and having the seeds loose in it: as in *Asclepias*, *Apocynum*, *Stapelia*. *t. 5. f. 9.* Called also *Conceptaculum*.
- In Philos. Botan. *Folliculi* are Air-bags, or vessels distended with air. Such are found at the root in *Utricularia*, and on the leaves in *Aldrovanda*.
- Foot. *Pes*. A measure from the bend of the elbow to the base of the thumb.
- Foot-stalk. See *Pedunculus* and *Petiolus*.
- Fork. *Furca*. A divided prickle. Called *bifid* or *trifid*, from the number of divisions. Exemplified in *Berberis*, *Ribes*, *Gleditsia*, &c.
- Forked. *Furcatus*: branched or subdivided, usually into two.—Applied to anthers—to bristles, as in *Leontodon hispidum* and *Arabis italica*—to fronds, as in *Jungermannia furcata*, and sometimes to stems, but in these *dichotomous* is commonly more proper.
- Fornicatus. *Arched* or *Vaulted*: which see.
- Fovilla. A fine substance, imperceptible to the naked eye, exploded by the pollen in the anthers of flowers.
- Four-cleft leaf. *Folium quadrifidum*. See *Cloven*.
- Four-cornered stem or peduncle. *Tetragonus caulis*—*pedunculus*: as in Verticillate plants.—*Siliqua tetragona*, a four-cornered silique, as in *Sinapis nigra*.
- Four-fold leaves. *Folia quaterna*. Four together, or by fours, at each joint or whorl; as in *Sherardia frutescens*, *Asperula taurina*, *cynanchica*, &c. Several of the *Galiums*, *Erica herbacea*, &c. *t. 3. f. 21. c.*
- Four-leaved tendril. *Cirrus tetraphyllus*. Four leaves or leaflets to each tendril: as in *Lathyrus sativus*.
- Four-lobed leaf. *Folium quadrilobatum*. See *Lobatum*.
- Four-parted leaf. *Folium quadripartitum*. See *Partitum*.
- Fringed corolla. *Fimbriata*. When the edge is surrounded by hairs or bristles, not parallel or so regularly disposed as in the *ciliate* corolla. Exemplified in *Menyanthes trifoliata*.
- Frond. *Frons*. Anciently signifying the twig of a tree with its leaves. Linneus applies this term to the peculiar leafing of Palms and Ferns. He defines it to be a kind of trunk or stem, which has the branch united with the leaf, and frequently with the fructification.
- Frondefcentia. The Leafing season. The time of year when plants first unfold their leaves.
- Frondosus caudex. A frondose trunk. Applied to Palms.—*Frondosus proliifer flos*; a leafy proliiferous flower: such as we sometimes see on the *Rose*, *Anemone*, &c.
- Fructescentia. The Fruiting season. The time when vegetables scatter their ripe seeds.
- Fructification, or Fruiting. A temporary part of vegetables, appropriated to generation, terminating the old, and beginning the new vegetable.—The essence of it consists in the Flower and Fruit; and there is no fructification without Anther, Stigma and Seed.—When perfect it consists of seven parts. 1. Calyx. 2. Corolla. 3. Stamen. 4. Pistil. 5. Pericarp. 6. Seed. 7. Receptacle.—Of these, the four first belong to the flower; the two next to the fruit; and the last is common to both.
- Fructus. The Fruit. The Seed with its Pericarp.
- Fruit-stalk. See *Pedunculus*.
- Frustranea Polygamia. The third Order in the class *Syngenesia* of Linneus's system, comprehending such Compound flowers as have perfect florets in the disk, bearing seed; but imperfect florets in the ray, which for want of a stigma, are barren. *t. 8. f. 17.*
- Frutescens caulis. A *Frutescent* stem. From herbaceous becoming shrubby. As in *Chironia baccifera* and *frutescens*.
- Frutex. See *Shrub*.
- Frutescens caulis. A *Shrubby* stem. Perennial, with several woody stems.
- Fulcrum. A fulcrum, prop or support. A help to vegetables for their more commodious sustentation.
- Fuleres are of seven kinds. 1. *Stipula* or *Stipule*. 2. *Bractea* or *Bracte*. 3. *Spina* or *Thorn*. 4. *Aculeus* or *Prickle*. 5. *Cirrus* Clasper or *Tendril*. 6. *Glandula* *Gland*. 7. *Pilus* *Hairs* or *Pubescence*.
- In *Delin. Plant.* these are otherwise enumerated. 1. *Petiolus*, the petiole, leaf-stalk or foot-stalk. 2. *Scipula*. 3. *Cirrus*. 4. *Pubes*. 5. *Arma*, comprehending Thorns, Prickles and Stings. 6. *Bractea*. 7. *Pedunculus*, the peduncle flower-stalk and fruit-stalk.
- Full flower. *Flos plenus*. Where the corolla is so multiplied as to exclude all the stamens. Polypetalous flowers are generally the object of fulness. See *Luxurians*.
- Fungi. *Fungus* or *Mushrooms*. The first of the great Families; and the ninth of the *Nations, Tribes* or *Casts*, into which Linneus has distributed the whole Vegetable world. Also the 67th order in his fragments; the 58th of his natural orders; and the 4th order of the class *Cryptogamia* in his artificial system.
- Funnel-shaped corolla. *Infundibuliformis*. Monopetalous, with a conical border rising from a tube: as in *Lithospermum*, *Anchusa*, and other *Asperifoliae*.
- Furca. See *Fork*.
- Furtuosus. See *Scurfy*.
- Furrowed, fluted or grooved stem, *Sulcatus*. Scored lengthwise with broad deep channels. Applied also to succulent leaves.
- Fusiformis radix. A Fusiform or Spindle-shaped root. Simple or generally so, tapering downwards to a point: as in *Radish*, *Carrot*, *Parashep*.—Applied also to succulent leaves; as in *Craffula rubens*.
- Galca. *Helmet*. The upper lip of a ringent corolla.—Linneus commonly uses the words *Labium superius*.
- Gapc. *Rictus*. The opening between the two lips, in an irregular corolla.
- Gaping corolla. *Hians*. In opposition to closed, *clausa*.
- Gashed leaf. *Folium incisum* f. *dissectum*. Having the sections or divisions usually determinate in their number; or at least more so than in the *Lacinate* leaf.—The *Gashed* differs from the *Cloven* leaf (*fissum*), in having the sections extending but little beyond the edge, though deeper than in the crenate leaf; whereas in the *Cloven* leaf they reach almost to the middle. See *Dissectum* and *Laciniatum*.
- Hence Linneus has formed several compound terms, which see under *Incisum*.
- Dr. Withering applies the term *Gashed* to *lobatum*.
- Geminus. See *Double*.
- Gemma. See *Bud*.
- Gemmatio. *Budding*. The construction of the Bud, from leaves, stipules, petioles or scales.
- Gemmiparus. Producing Gems or Buds.
- Generic Character. The definition of the Genus.—This is fastidious, essential, or natural. See *Genus*.
- Generic Name. *Cognomen gentilitium*. The family surname, as it were, of Vegetables.
- Geniculatus. *Knee-jointed*. Applied to a stem, peduncle or awn, forming a very obtuse angle at the joints, as when the knee is a little bent. See *Knotted*.
- Geniculum. A *Knee-joint*. Sometimes put for a joint in general, and then synonymous with *nodus*. See *Knot* and *Knotted*.
- Gentes. Nations, great Tribes, or Casts of Vegetables. Linneus makes nine of them. 1. *Palmæ*. 2. *Gramina*. 3. *Lilia*. 4. *Herbæ*. 5. *Arbores*. 6. *Filices*. 7. *Musci*. 8. *Algæ*. 9. *Fungi*.
- The only difference between this arrangement and that of *Families* is, that the third, fourth, and fifth divisions of this are included in the seventh of that.
- Genus. The third subdivision in a systematical arrangement of vegetables: containing plants of the same class and order which agree in their parts of fructification; as in Linneus's *Genera Plantarum*.
- Germen. *Germ, Ovary* or *Seed-bud*. The rudiment of the immature fruit in the flower; or, whilst yet in embryo. It is the lower part or base of the *Pistil*, which see.
- A Germ, when it is included within the corolla, is said to be *Superior*; but when placed below the corolla, *Inferior*.—On the contrary, when a corolla is placed above the germ, it is called *Superior* (corolla *supera*, flos *superus*); and when it incloses

closes the germ, so as to have its base below the germ, then it is called *Inferior* (corolla infera, flos inferus.)

When a germ is elevated on a fulcrum, besides the peduncle, it is said to be *pedicelled*, *pedicellatum*.

Germination. The time which seeds, committed to the ground, take to vegetate, or exclude their seed-lobes.

Gibbum folium. A *Gibbous* leaf. Having both surfaces convex, by means of a very abundant pulp. See *Convex*, which refers to the mode of a leaf's expansion; whereas this term belongs to succulent leaves only.

Gibbous, when applied to a perianth, means only swelling out at bottom; as frequently in the classes *Tetradynamia* and *Diadelphia*. Dr. Withering's term of *Bulging* is applicable here.

Gills. See *Lamella*.

Glaber caulis. Glabrum folium. A *smooth* stem or leaf. In *Philos. botan.* opposed to *tomentosum*. See *Lævis* and *smooth*.

Gladiata filiqua. Gladium legumen. A sword-shaped filique, as in *Cleome arabica*—or legume, as in *Dolichos ensiformis*.

Glandula. A *Glandule* or *Gland*. An excretory or secretory duct or vessel; on the leaves, petioles, peduncles, or stipules.

Glandulatio. The situation and structure of glands.

Globosus. *Globular*, *Spherical*. As the root in *Bunium* and *Ranunculus*. A head of flowers, *Capitulum*. A single flower, as *Trollius*, *Receptacle*, *Germ* and *Seeds*.

Globo-depressum pericarpium. A flattened-globular; or more properly an oblate spheroidal pericarp or fruit.

Glochis. A barbed point. See *Barb*.

Glomerata spica. A glomerate spike has the spikelets or compound spike closely congregated; as in *Panicum italicum*. In a glomerate panicle the flowers grow close in a globular or subglobular form; as in *Poa ciliaris* and *Dactylis glomerata*.

Glomerulus. A *Glomerule* or small glome.

Glomus. A *Glome* or roundish head of flowers.

Glossy. See *Nitidum*.

Gluma. *Glume*, husk or chaff. The calyx or corolla of corn and grasses, formed of valves embracing the seed. The valves are commonly two, but sometimes only one, or more than two. *t. 4. f. 5. a.*

Glumofus flos. A *glumose* flower, is a kind of aggregate flower, having a filiform receptacle, with a common glume at the base: as in *Corn* and *Grasses*, *Scirpus*, *Cyperus*, *Carex*.

Glutinosum folium. A *glutinous* leaf: besmeared with slippery adhesive slime.

Gnawed leaf. See *Erosum*.

Gramina. *Grasses*. The fifth Family, and the second Nation, tribe or class, in Linneus's general division of the vegetable kingdom. The 14th order in the fragments of a natural method in *Philos. Bot.*—and the 4th of the natural orders at the end of *Gen. plant.*—In the artificial system most of the Grasses are contained in the second order of the 3rd class.

Granulata radix. A *Granular* root. Consisting of several little tubers or fleshy knobs, resembling grains of corn: as in *Saxifraga granulata*. *t. 1. f. 8.*—The valves of the calyx in some of the Docks are *Graniferous*, having an excrescence in size and shape somewhat like a grain of corn. Dr. Withering calls these excrescences *Beads*. The *Acini*, or small berries which compose the aggregate in *Mulberry*, &c. he names *Granulations*.

Grissly. See *Cartilagineus*.

Grooved. See *Furrowed*.

Gymnosperma planta. A plant bearing naked seeds.

Gymnospermia. The first order of Linneus's class *Didynamia*; comprehending those plants which have four stamens, the two intermediate ones shorter than those on the outside, within a ringent flower, and succeeded by four naked seeds. *t. 8. f. 11.*—These are the same with the *Labiati* of Tournefort; and the *Verticillatæ* of Ray, and of Linneus in his natural orders. See *Didynamia*.

Gynandria. The 20th class in the Linnean system, containing all plants with hermaphrodite flowers, which have the stamens growing upon the style; or else bearing both stamens and styles on an elongated receptacle. *t. 7. f. 20.*

Habitatio plantarum. The native place of growth of plants. Vulgarly, but barbarously, their *Habitat*.

Habitus plantæ. Commonly the *habit* of a plant; but more properly its *air*, *port* or general external appearance.—Linneus defines it to be, a certain conformity which kindred vegetables have in their placentation, rooting, branching, intorsion, budding, leafing, stipulation, pubescence, glandulation, lactescence, florescence, &c.

Many of the natural classes are directly apparent from this general similitude. but Linneus has not employed it in the construction of his genera.

Hair-like. See *Capillary*.

Hairs. Secretory ducts on the surface of plants. A species of pubescence, long, straight and distinct.

Hairy leaf. *Folium pilosum*. Covered with hairs: as in *Cortusa*, *Juncus pilosus*, *sylvaticus* and *campestris*.—Applied also to the style—and to seeds, as in *Centaurea* and *Tragopogon*.

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Hairy Receptacles; having hairs between the florets.

Halbert-shaped. See *Hastate*.

Halved head. *Dimidiatum capitulum*. Hemispherical, round on one side, and flat on the other.—A halved spathe. *Dimidiata spatha*. Investing the fructification on one side only.—A halved involucre. *Dimidiatum involucreum*. Placed wholly on one side: as in *Æthusa*. *t. 4. f. 2.*

Hamofus and Hamus. See *Hook* and *Hooked*.

Hand. See *Measures*.

Handed or Hand-shaped Root and Leaf. See *Palmate*.

Hanging leaf. See *Dependens*.

Hastate leaf. *Folium hastatum*. Resembling the head of a halbert. Triangular, hollowed at the base and sides, with the angles spreading: as in *Rumex* and *Scutellaria hastifolia*. *t. 1. f. 14.*

Hatchet-shaped. See *Dolabriforme*.

Head. *Capitulum*. A species of inflorescence, or a manner of flowering; in which several flowers form a kind of ball: as in *Gomphrena*. *Capitati flores*. Flowers growing in a head. *t. 7. f. 19.* and *t. 8. f. 19.*

Capitulum stigma, round like a ball.

Heaped panicle. See *Congestus*.

Heart of a seed. See *Corculum*.

Heart-shaped leaf. See *Cordate*.

Hedgehogged Pericarp. See *Echinatum*.

Helmet. See *Galea*.

Hemispherical calyx; as in *Tanacetum*—nectary; as in *Narcissus Jonquilla*.

Heptandria. The 7th class in the system of Linneus, comprehending those plants which have seven stamens to the flowers. *t. 7. f. 7.*

Herb. *Herba*. In common language *Herb* is used in opposition to *Tree*. By Linneus the *Herb* is put for that part of a vegetable which arises from the root, is terminated by the fructification, and comprehends the stem, leaves, fulcres, and hybernacle.

Herbaceous plants, are such as perish annually down to the root.

Herbaceous stem, perishing annually, soft not woody.

Herbs constitute the fourth nation, tribe or class, into which Linneus divides vegetables. See *Gentes*.

Hermaphrodite flower. Having both anther and stigma.—Hermaphrodite plant: having hermaphrodite flowers.

Hesperidæ. The 41st order in Linneus's fragments; containing only three genera—*Citrus*, *Styrax* and *Garcinia*.

Hexagonus caulis. A *hexagonal* or six-cornered stem.

Hexagynia. One of the Orders in the 9th and 13th classes of the Linnean system; containing those plants which have six pistils to the flowers.

Hexandria. The name of the 6th class in Linneus's system, comprehending those plants which have hermaphrodite flowers with six equal stamens.—This is a natural class, nearly the same with the *Lilia* or *Liliaceous* plants of other writers; and contains a great part of the sixth, ninth, tenth and eleventh Orders, in Linneus's natural arrangement, with the admixture of some others.

Hexapetala corolla. A corolla consisting of six distinct petals.

Hexaphyllus calyx. A calyx of six leaves or leaflets.

Hians. See *Gaping*.

Hilum. The *Eye* of the seed. The external mark or scar of the umbilical chord, where the seeds adhere to the pericarp: as in *Cardiospermum*, *Staphylæa*, *Dolichos* and others of the class *Diadelphia*. *t. 6. f. 5. d.*

Hirsutus. *Hirsute*, *shaggy*.—Nearly the same with *Hispid*, but having more hairs or bristles, and less stiff.—Applied to the stem—frond—calyx, as in *Serratula alpina*—and legume, as in *Lathyrus odoratus*.

Hirtus. *Rough-haired*. With stiffer hairs than in *pilosus*.

Hispidus. *Hispid*. A *Hispid* stem: beset with stiff bristles; as in *Brassica Erucastrum*.—A *Hispid* leaf: having brittle stiffish bristles scattered over the disk; as in *Turritis hirsuta*.

Hoary leaf. *Folium incanum*. Covered with a white pubescence: as in *Draba incana*, *Cistus incanus*, &c.

Holeraceæ or Holoraceæ, commonly written Oleraceæ, from *Olus* anciently *Holus* a pot-herb. The 12th order in Linneus's natural orders; and the 53rd in his fragments: containing *Spinach*, *Beet* and the like.

Hollow stem. *Cavus truncus* s. *culmus*: as in corn, reeds, &c.

Honey-combed. See *Alveolate*.

Honey-cup. See *Nectarium*.

Hoof-shaped. See *Ungulata*.

Hook. *Hamus*. A crooked pointed process—A *hooked* bristle.

Hamosa seta. A bristle with the end curved. See *Uncinatus*.

Horizontal leaf. Making a right angle with the stem, or having the upper surface turned to the sky.—A *horizontal* flower. Parallel to the surface of the earth.—A *horizontal* root. Running immediately under the surface, and parallel to it.

Horn. See *Spur*.

Husk. See *Gluma*.

Hyaline. The colour of clear water or glass.

Hybernaculum. The *Hybernacle*; or compendium of the whole herb, before it grows up—or, in which the embryo of the future plant is inclosed by a scaly covering, and secured from external injuries during the winter.—It is

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either

- either a *Bulb*, formed from the remains of past leaves: or a *Bud*, from the rudiments of future leaves. See *Bud* and *Bulb*.
- Hybrida planta.** A *Hybrid* or *Mule* plant: produced by the pollen of one species impregnating the germ of another species; and seldom or ever bearing seed.
- Hypocrateriformis corolla.** *Salver-shaped*. Monopetalous, with the border spreading out horizontally or flat from the tube, like an old-fashioned salver: as in some of the *Asperifoliae*, in *Auricula*, *Diapensia*, *Aretia*, *Androsace*, *Hottonia*, *Phlox*, *Samolus*.
- Jag.** *Lacinia*. A division or cleft in a leaf, calyx or corolla. This term relates chiefly to monophyllous calyxes and monopetalous corollas. These are termed bifid, trifid, &c. according to the number of jags.
- Jagged leaf.** *Folium laciniatum*. Divided irregularly, and the parts subdivided indeterminately. *t. 2. f. 21.*
- Jaws of the corolla.** See *Faux*.
- Icosandria.** The 12th class in the Linnean system, comprehending those plants which have hermaphrodite flowers, with twenty or more stamens, fastened on the inside of the calyx, not on the receptacle. *t. 7. f. 12.*—The situation, and not the number of stamens is here to be attended to. The calyx also is monophyllous and concave in this class; and the claws of the petals are fixed into the inside of the calyx.
- Imberbis corolla.** *Beardless*. Applied to some sorts of *Iris*, in opposition to others, which have a bearded corolla. This beard is the nectarium, according to Linneus.
- Imbricate.** *Imbricatus*. Lying over each other, like tiles on a roof. Applied to leaves and their ferratures, in the bud; or, a term in foliation—to the stem, when covered with scales—to the calyx, as in *Hieracium*, *Sonchus*, and other *Syngenesia*—to the spike, having flowers so close as to press over each other.
- Immersed leaf.** *Submersum* f. *Demersum folium*. Growing under water.
- Impari-pinnatum.** See *Pinnatum*.
- Imperfect flower.** Destitute of anther or stigma, or both.—In Rivinus and some other authors it is synonymous with *apetalus* of Tournefort, *staminicus* of Ray, and *incompletus* of Vaillant.
- Inæqualis corolla.** An *unequal* corolla; has the parts corresponding, not in size, but in proportion only: as in *Butomus*.
- Inanis truncus.** A *Pithy* stem. Having a spongy substance within. When quite empty it is termed *fistulosus*.
- Incanus.** *Hoary*; which see.—Linneus makes it synonymous with *tomentosus*.
- Incisum f. dissectum folium.** *Gashed*, which see.—Dr. Withering translates it *Snipt*.
- Linneus has the following compounds—*Inciso-crenatum*, *Gash-crenate*, or deeply notched, as in *Geranium Reichardi*.—*Inciso-denticulatum*, *Gash-toothletted*.—*Inciso-multifidum*, *Gash-multifid*.—*Inciso-ferratum*, *Gash-ferrate*.
- Includens calyx.** An *inclosing* calyx: shutting up and concealing the corolla.—*Includens somnus*. When alternate leaves approximate to the stalk during the night, so that the flower or tender twig is protected between them.
- Inclusa anthera.** *Inclosed* within the corolla: as in some sorts of *Erica*. Opposed to *exserta*.
- Incompletus flos.** An *incomplete* flower: destitute either of the perianth or corolla, or both.
- Incrassatus pedunculus.** A peduncle becoming thicker towards the flower: as in *Cotula*, *Tragopogon*, and most cernuous flowers. Opposed to *attenuatus*.—Applied also to the scape.
- Incumbens.** *Incumbent*. Applied to the stamens in the class *Diadelphia*—to the anthers which rest upon the filament; opposed to upright, *erecta*—to divisions of leaves which lie one over another.
- Incurvatus caulis.** An *incurved* stem. Bowed or curved inwards—applied to the prickly.—*Folium incurvum*. Bowed or curved upwards towards the stem. In Philos. Bot. synonymous with *inflexum*.
- Indistinct.** See *Obsoletus*.
- Individual.** See *Proprium*.
- Indivisum folium.** An *undivided* leaf; in opposition to *fissum*, cloven. See *Integer*.
- Inermis folium.** An *unarmed* leaf; without thorns or prickles. Opposed to *spinesum* and *pungens*.
- Inferum perianthium.** An *inferior* perianth: inclosing the germ; or having the germ above the receptacle: opposed to *superum*.—*Inferum germen.* An *inferior* germ; placed below the corolla or receptacle.
- Inflatus.** *Inflated*. Distended like a blown bladder. Applied to the perianth, in *Physalis* and *Cucubalus*—to the corolla in *Calceolaria*—to the nectary in *Cypripedium*—to the pericarp in *Fumaria cirrhosa* and *Colutea*.
- Inflexus.** *Inflexed*. Bent inwards or upwards at the end, towards the stem. Applied to the leaf; and also to the calyx, when it is bent towards the middle of the flower.
- Inflorescentia.** *Inflorescence* or mode of flowering. The various ways in which flowers are fastened to the plant by means of the peduncle.—These are, 1. *Spadix*. 2.
- Cyme*. 3. *Umbel*. 4. *Spike*. 5. *Ament*. 6. *Strobile*. 7. *Corymb*. 8. *Raceme*. 9. *Panicle*. 10. *Thyrse*. 11. *Fascicle*. 12. *Capitulum* or *Head*. 13. *Verticillus* or *Whorl*. See them explained in their proper places.
- Infundibuliformis.** See *Funnel-shaped*.
- Integer.** See *Entire*.
- Interfoliacei flores f. pedunculi.** Between opposite leaves, but placed alternately: as in *Asclepias*. Contrasted with *oppositifolii*.
- Internodium.** The *Internode* or space between knot and knot, or joint and joint. The joint is properly the articulation itself, from *junctura*.
- Interrupta spica.** An *interrupted* or *broken* spike. Divided by the intervention of leaves or smaller flowers: as in *Betonica* and *Mentha spicata*.
- Interruptè pinnatum.** See *Pinnatum*.
- Intorsio f. Torfio.** The writhing, bending, turning, or twisting of any part in a vegetable towards one side or other; or declining in a curve in any direction from the vertical line. See *Twining*. Applied not only to the stem, but to the Clasper or Tendril, as in *Vine*, *Bryony* and many *Legumcs*.—to the corolla, which twists to the left in *Asclepias*, *Nerium*, *Vinca*, &c. but to the right in *Pedicularis*, *Trientalis*, *Gentiana*—to the Pistil and Germ—to the Spike—to the Awn, as in the *Wild Oat*—to the Beak of the seed, as in *Geranium*, *t. 6. f. 9.*—and to the Peduncle, as in *Mnium hygrometricum*.
- Intrafoliaceæ stipulæ.** *Intrafoliaceous* stipules. Growing above or within the leaves.
- Inversely heart-shaped.** See *Obcordate*.
- Invertens somnus.** When during the night the more tender surface of the leaves is protected by being inverted.
- Inundatæ.** The 45th order in Linneus's fragments; and the 15th of the natural orders in *Gen. plant.*—Containing such plants as grow naturally in the water.
- Involucrum.** An *Involucre*. A calyx remote from the flower, particularly in the umbel; but applied to the whorl and other kinds of inflorescence.—*Universale*. General involucre; placed at the origin of the whole or general umbel.—*Partiale*. Partial involucre; at the origin of the Umbellet or partial umbel.—*Proprium*. Proper or peculiar involucre; placed beneath a single flower.—*Dimidiatum*. See *Halved*.
- Involucellum.** An *Involucet*. A little or partial involucre: as in Umbelled plants and *Euphorbia*.
- Involvens somnus.** When the leaflets of compound leaves, during the night, approach by their tips only, making an arch or hollow underneath.
- Involuta foliatio f. vernatio.** *Involuted* foliation or veneration. When leaves within the bud have their edges rolled spirally inwards on both sides towards the upper surface: as in *Lonicera*, *Euonymus*, *Pyrus*, *Populus*, *Viola*, &c.
- Joint.** See *Articulus* and *Internodium*.
- Jointed.** *Articulatus*. Applied to the root in *Lathræa*, *Oxalis*, *Martynia*, *Dentaria*, *t. 1. f. 3.*—to the stem or culm, in corn and grasses—to the leaves, when one leaflet grows from the top of another—to the spike, peduncle, petiole, capsule, silique and legume.
- Irregularis corolla.** An *irregular* corolla. Different in the figure, size or proportion of parts in the border. This term should be applied to a single flower, and *Difformis* to an aggregate flower.
- Jugum.** A yoke, couple, or pair of leaflets.—Hence *folium conjugatum*, a leaf having one pair of leaflets—*bijugum*, having two: *trijugum*, having three; and so on.
- Julus.** See *Ament*.—Hence Herman and others have a class of trees entitled *Julifera*.
- Keel.** *Carina*. The lower petal of a papilionaceous corolla, inclosing the stamens and pistil; usually shaped like a boat.
- Keeled.** See *Carinated*.
- Kidney-shaped leaf.** *Folium reniforme*. Roundish, and hollowed at the base without any angles there: as in *Convolvulus Solanella*, *Saxifraga granulata*, *Glechoma hederacea*, and the lower leaves of *Campanula rotundifolia*—Applied also to the Anther, as in *Malloz*—and to the Seed, as in *Phaseolus* or Kidney Bean. These being solid bodies have really the form of a kidney; whereas leaves resemble the section of a kidney only.—This distinction is to be observed in several other cases.
- Knee-jointed.** See *Geniculatus*.
- Knob.** *Head*, *Capitulum*. Knobweed. *Centaurea Jacea*.
- Knot.** *Nodus*. A protuberant or swelling joint in the stem of some plants, particularly in Corn and Grasses. An admirable provision to strengthen their otherwise weak hollow culms.
- Knotted or Knotty.** *Nodosus*. Having knots or swelling joints. *Articulatus* signifies jointed in general. *Nodosus*, jointed with a protuberance. *Geniculatus*, jointed, with a bend at the joint. See these terms.
- Knotless.** *Enodis*. An even continued stem without knots or joints.
- Labiatus flos.** A *Labiate* or *Lipped* flower. An irregular one-petalled corolla, (commonly) with two lips—either *Ringent*, that is, with the lips gaping or open. *t. 4. f. 10.*—or *Personate*, having them closed. *t. 4. f. 11.* As in the

- class *Didynamia*. See *Personata* and *Ringens*. Linneus applies the term *Ringens* to both flowers.
- Labium.** The *Lip*, is usually applied by Linneus to both lips of a *Labiata* corolla, with the distinction of *superior* and *inferior*. But it is sometimes used for the lower lip, in opposition to the upper lip, which is then called *Galea*. The lower is sometimes named *Barba*.
- Lacera corolla.** A *lacerated* or ragged corolla. Having the border finely cut.—*Lacerum folium.* A *lacerated* or ragged leaf. Having the edge variously cut into irregular segments—as it were rent or torn.
- Lacinia.** See *Jag*.
- Laciniatum.** See *Jagged*. This term implies an irregularity in the division and subdivision; whereas *Lacinia* is the same with a part, segment or cleft, as Linneus has explained it.
- Lacinula.** A little *Jag*, or subdivision of the larger one.
- Lactescens.** A *Milky* plant.—*Lactescentia.* *Milkiness.* A viscid liquor (commonly white) which flows from a plant, on its being wounded: as in *Euphorbia*, *Papaver*, *Asclepias*, *Campanula*, and many of the plants in the first division of the class *Syngenesia*: which last were hence called by Ray *Lactescentes*.
- Lacunosum folium.** A *Lacunose* or *pitted* leaf. Having the disk depressed between the veins: in opposition to *rugosum* wrinkled, in which it rises.
- Lævis.** Even, Level, very smooth, polished. Applied to the stem, it is opposed to *striatus* and *fulcatus*: exemplified in *Chelidonium hybridum*.—In leaves it is commonly used in opposition to *rugosum*; and therefore means an even level surface.—This term is confounded with *Glaber*. See *Smooth*.—In propriety, *Glaber*, is void of all pubescence; and *Lævis* is the having a perfectly level surface.
- Lameila.** A thin plate. Applied to the *Gills* of which the under part of the *pileus* or cap in some *Funguses* is composed.
- Lamina.** The *Border*; upper broad or spreading part of the petal, in a polypetalous corolla. *t. 4. f. 4, 8, 12. a.*—In a monopetalous corolla it is called *Limbus*.
- Lana.** See *Wool*.
- Lanatus.** See *Woolly*.
- Lanceolatum folium.** A *Lanceolate* leaf. Oblong, and gradually tapering towards each extremity; like the head of a lance or spear. *t. 2. f. 6.* As in *Plantago lanceolata*, and many others.—Applied also to the *Stipule*, *Braete*, and *Perianth*.
- Lanugo.** Down; or soft hairs clothing the parts of plants.
- Lateral branches, leaves or flowers;** opposed to terminating.
- Laterifolius flos f. pedunculus.** By the side of the base of a leaf: as in *Claytonia*, *Solanum*, *Asperifolia*.
- Latticed.** *Canellatus.* Open like lattice-work. Applied to the involucre in *Atractylis cancellata*: and to the capsule of the *Lily*.
- Laxus.** Lax, loose, flaccid, limber or flexible. Easily bent; in opposition to stiff, *strictus*. Synonymous with *flaccidus*, when applied to the stem.—But when applied to a spike or panicle, it means that the flowers are loosely disposed.
- Leaf.** *Folium.* The organ of motion in a vegetable. Transpiring and attracting air and moisture, as the lungs do in animals: and affording shade to the vegetable.—Leaves are either Simple, *t. 2.*—or Compound, *t. 3.*
- Leafless.** *Aphyllus.* Destitute of leaves. Applied to the stem and branches.
- Leaflet.** The small leaf of a Compound leaf. Dr. Withering prefers *Leaflet*.
- Leaf-stalk.** See *Petiolus*.
- Leafy.** *Foliatus*, *Foliaceus*, *Foliosus*. Furnished with leaves; in opposition to *Leafless*.—Or abounding in leaves; contrasted with such stems as have few.—Applied also to the head, spike, raceme and peduncle.
- Leathery.** See *Coriaceous*.
- Legumen.** A *Legume*. A pericarp of two valves, in which the seeds are fixed to one future or seam only.—It is usually of a membranaceous texture, and commonly one-celled.
- Leguminosæ.** *Leguminous* plants. Such as have a *Legume* for the pericarp.—The same with the *Papilionacei* of Tournefort. It is one of Ray's classes.—The order *Decandria* of the class *Diadelphia* in Linneus's system, contains most of these plants.
- Lenticularis scabrities.** A sort of small glandular ruggedness, resembling small lentils, on the surface of some plants.—Applied to the capsule in *Allamanda*—and to seeds in many plants. Then adverting to the shape only, which is orbicular and much flattened.
- Level-topped.** See *Fastigiatus*.
- Liber.** The *inner bark*; or the third integument, membranaceous, juicy and flexible. The wood is gradually formed from this; and, according to Linneus, the corolla is a continuation of it.
- Lid.** See *Operculum*.
- Lignosus caulis.** A *Woody* stem. Opposed to *herbaceous*.
- Ligula.** See *Strap*.
- Ligulatus flos.** *Ligulate* corolla. A *Ligulate* or strap-shaped flower or corolla. A compound flower or floret, in which the corollet is flat, with the base only tubular. Such are the *Semifloscular* flowers of Tournefort; and they are comprised in the first division of the first order of Linneus's 19th class, *Syngenesia Polygamia Aequalis. t. 8. f. 15.*
- Lilia.** The third nation, tribe or cast of vegetables in Linneus's *Regnum Vegetabile*, containing the *Patrician* rank, eminent for their splendid flowers.
- Liliacea corolla.** A *Liliaceous* corolla; having six regular petals.
- Liliacæ.** *Liliaceous* or Lily-like plants. One of Tournefort's classes. Also the 10th order in Linneus's fragments. They are divided into three orders (9—11), in the *Ordines naturales*, Gen. Plant.—This fine natural class is to be found in the class *Hexandria* of Linneus's artificial system.
- Limbus.** The border or upper dilated part of a monopetalous corolla. *t. 4. f. 6. a.* See *Lamina*. Astronomers use the term *Limb* in English for border.
- Linea.** See *Measures*.
- Lineare folium.** A *linear* leaf. Narrow and of the same breadth throughout, except sometimes that it draws to a point at one or both ends. *t. 2. f. 7.*—As in *Graffes*, *Rosemary*, &c. Applied also to the petiole, involucre, perianth, petals, spike, &c.
- Lineatum folium.** A *Lineate* leaf. Having the surface slightly marked longitudinally with depressed parallel lines.—This term is sometimes confounded with *linear*: the two terms being so near in sound, and this occurring seldom, it may perhaps be better to use the periphrasis—a leaf marked with lines.—Dr. Withering uses *streaked*, which corresponds with *striatum*; and that does not seem to differ from *lineatum*.
- Linguiforme f. Lingulatum folium.** A *Tongue-shaped* leaf. Linear and fleshy, blunt at the end, convex underneath, and having usually a cartilaginous border; as in *Mesembryanthemum*, *Aloe*, *Hæmanthus coccineus*. Applied chiefly to succulent leaves.
- Lip.** See *Labium*.
- Lobes.** The divisions of a lobate leaf.—For the seed-lobes see *Cotyledon*.
- Lobatum folium.** A *Lobate* or *Lobed* leaf. Divided to the middle into parts distant from each other, with convex margins. *t. 2. f. 16.*—Such leaves are called *bilobate*, *trilobate*, &c. or *two-lobed*, *three-lobed*, &c. from the number of lobes into which they are divided.
- Loculamentum.** See *Cell*.
- Locus.** The little cell of an anther containing the pollen.
- Lomentacæ.** The 56th order in Linneus's fragments, and the 33rd in his Natural Orders.
- Lucidum.** Bright, shining, as it were illuminated, clear, transparent. See *Nitidum*.
- Lunulatum f. Lunatum.** See *Crescent-shaped*.
- Luridæ.** The 33rd order in Linneus's fragments; and the 28th in his Natural Orders.
- Luxurians flos.** A *Luxuriant* flower. Multiplies the covers (calyx and corolla), so as to destroy, or nearly so, the essential parts. Luxuriancy is *Multiplicate*, *Full*, or *Proliferous*. All Luxuriant flowers are *Monsters*; but Full flowers only (*Pleni*) are absolutely barren.
- Lyratum folium.** A *Lyrate* or *Lyre-shaped* leaf. Divided transversely into several jags; the lower ones smaller and more remote from each other than the upper ones. *t. 2. f. 20.*
- Male flower.** *Masculus flos.* Bearing stamens only, without pistils; or at least wanting the stigma.
- Male plant.** *Plantam.* Producing only male flowers: therefore barren or abortive.
- Many-cleft or Multifid leaf.** See *Cloven*.
- Many-flowered glume and perianth.** *Gluma multiflora*, *Perianthium multiflorum*. Inclosing several flowers.—Many-flowered peduncle and stem. *Pedunculus & caulis multiflorus*. Supporting several flowers.
- Many-leaved calyx or tendril.** *Polyphyllus*.
- Many-parted leaf.** *Folium multipartitum*. See *Partitum*.
- Many-petalled corolla.** *Polypetala*. Opposed by Linneus to a monopetalous or one-petalled corolla. Other writers have named it *dipetalous*, *tripetalous*, &c. as far as six; calling that which has more than six *polypetalous*. Linneus also makes this distinction, but yet includes them all under the term *polypetalous*.
- Many-valved glume.** *Multivalvis*. Consisting of more than two valves, which is the common number.
- Marcescens.** *Withering*, *Shrivelling*. Decaying without falling off. Applied to the perianth in the class *Diadelphia*; and to the corolla, in *Campanula*, *Orchis*, *Cucumis*, *Cucurbita*, *Bryonia*.
- Marginatus.** *Margined* or *Bordered*. Leaf. Seed.
- Marrow.** *Medulla*. The pith in trees: the inner vesicular substance. Or the soft spongy matter which clothes the inner surface of a hollow stem.
- Masculus.** See *Male*.
- Masked corolla.** See *Personata*.
- Matted.** See *Cespitosa*.
- Mealy, Dusted, Powdered.** *Pulveratus*. As the *English Mercury*, and the leaves and flowers of *Auricula*.
- Measures.** Linneus generally expresses the size of any particular

tular part in a plant, by the proportion which it bears to other parts. Sometimes however he refers to certain standards; and as plants vary exceedingly in the size both of the whole and of the parts, he has judiciously adopted measures taken from the human figure, principally the hand and arm.

1. *Capillus*. A Hair's-breadth: $\frac{1}{12}$ of a Line.
2. *Linea*. A Line. The breadth of the little crescent or white part at the root of the nail of the middle finger: $\frac{1}{12}$ of an Inch.
3. *Unguis*. A Nail. About half an inch.
4. *Pollex*. An Inch. The length of the first joint of the thumb.
5. *Palmus*. A Hand's-breadth. The breadth of the four fingers at the base. About three inches.
6. *Spithama*. A short span. The space between the end of the thumb and fore-finger extended. About seven inches.
7. *Dodrans*. A long Span or Palm. The space between the end of the thumb and little finger extended. About nine inches or a quarter of a yard.
8. *Pes*. A Foot. From the bend of the elbow to the base of the thumb, twelve inches.
9. *Cubitus*. A Cubit. From the bend of the elbow to the end of the middle finger: about eighteen inches, or half a yard.
10. *Brachium*. An Arm. From the arm-pit to the end of the middle finger: about twenty-four inches or two feet.
11. *Orgya*. A Fathom. The height of a man, or the space between the ends of the fingers when the arms are extended. About six feet or two yards.

Observe that the above geometrical measures chiefly follow the old French standard; and that the English foot is $11\frac{1}{4}$ French, nearly. The hand by which horses are measured is the greatest breadth of the palm, or about four inches. The ancient Palm was $\frac{1}{3}$ of a foot. The modern Roman Palm for architecture is, 8,78, and for buying goods, 9,79, English measure.

Mediocris. Of a middling length. Applied to a petiole, that is about the same length with the leaf. When it is shorter than the leaf, it is said to be *brevis*, short; when it much surpasses the length of the leaf, it is called *longus*, long. —It is applied to the calyx or other parts; and is one of Linneus's rules of proportion.

Medulla. See *Marrow*.

Membranaceous. Thin, shining and tough like parchment. Stipule as in *Arenaria rubra*.—Valve—calyx. Petiole; flattened like the leaf itself. Stem; (*membranatus*) the edges bordered with a thin leafy substance: as in *Scrophularia* and *Lathyrus*. Leaf; having no distinguishable pulp between the two surfaces.

Meteoricæ Vigiliæ. See *Vigiliæ*.

Midrib. The principal nerve which runs from the base to the end of a leaf along the middle, and from which the other nerves and veins arise and spread. This is sometimes termed *Rachis* by Linneus.

Monadelphia. *United brotherhood*. The 16th class in the Linnean system; comprehending those plants which have hermaphrodite flowers, with one set of united stamens. *t. 7. f. 16*. They form a natural class, entitled *Columnifera*.

Monandria. The first class in the Linnean system, comprehending those plants which have only one stamen in a hermaphrodite flower. *t. 7. f. 1*.

Monocotyledones plantæ. Plants which have only one lobe to the seed: as *Grasses*, *Palms*, and *Liliaceous plants*. Linneus remarks, that these are more properly *Acotyledones*, since the cotyledon or lobe continues within the seed.

Monoeceia. *One house*. The 21st class in the Linnean system; comprehending the androgynous plants, or such as produce male and female flowers on the same individual, without any mixture of hermaphrodites. *t. 7. f. 21*.

Monogynia. The first Order in each of the thirteen first classes of the Linnean system; comprehending such plants as have one pistil, or stigma only, in a flower. *t. 8. f. 1*.

Monopetala corolla. A *monopetalous* or *one-petalled* corolla. The whole in one piece. It may be cut deeply, provided it is not entirely separated at the base. Exemplified in *Convolvulus*, *t. 4. f. 6*. *Primula*, &c.

The most remarkable forms of the monopetalous corolla are the *Bell-shaped*, *Funnel-shaped*, *Salver-shaped*, *Wheel-shaped* and *Labiata*. See *t. 4*.

Monophyllum perianthium. A *monophyllous* or *one-leafed* perianth or calyx. All in one, not separated to the base: as in *Datura*, *Primula*. Applied also to the Involucre.

Monosperma planta. A *monospermous* or *one-seeded* plant: having one seed only to each flower: as in *Polygonum* and *Collinsonia*. *Monosperma bacca*. A one-seeded berry.

Monostachyos caulis. A stem bearing a single spike.

Moon-shaped. See *Crescent-shaped*.

Mosses. See *Musci*.

Mouth. *Os*. The opening of the tube in the corolla. See *Faux*.

Mucronatum folium. A *dagger-pointed* leaf. Terminating in a sharp point like a dagger; as in *Bromelia Ananas*. Ap-

plied also to the calyx.—The diminutive *mucronulatum* is sometimes used.

Mule plant. See *Hybrida*.

Multangularis. See *Polygonus*.

Multicapulare pericarpium. A *multicapular* pericarp; or, a fruit of many capsules. Having several pericarps succeeding to a flower; *t. 5. f. 4*: as in *Caltha*, *Trollius*, *Helleborus*.

Multidentata corolla. A *many-toothed* corolla. Having the border (in a monopetalous corolla), or the petals (if it be polypetalous), cut about the edge.

Multifidum folium. A *multifid* or *many-cleft* leaf. Divided into several parts by linear sinuses and straight margins. See *Cloven*.

Multifidus cirrus. A *many-cleft* tendril. Divided and subdivided several times.

Multifida corolla. A *many-cleft* corolla. The same with *lacinatus flos* of Tournefort.—Exemplified in *Convolvulus Solanella*.

Multiflorus caulis. A *many-flowered* stem; as in several species of *Iris*.—Scapus; as in *Primula*.—Calyx; as in *Scabiosa* and *Syngenesia*: the component flowers of these are called *florets*.—Pedunculus; as in *Browallia elata*.

Multiloculare pericarpium. A *many-celled* pericarp: divided internally into several cells. As in *Nymphaea*.

Multipartita corolla. A *many-parted* corolla.—*Multipartitum folium*. A *many-parted* leaf. Divided into several parts almost to the bottom.

Multiplicatus flos. A *multiplied* flower. A sort of Luxuriant flower having the corolla multiplied so far as to exclude a part only of the stamens. It is called *Double*, *Triple*, &c. according to the number of rows: but in common language all these have the general appellation of *Double* flowers.

Multifloræ. The 23rd order in Linneus's fragments, and the 26th of his natural orders: comprehending those plants which have several pods succeeding to each flower: as *Columbine*, *Hellebore*, &c.

Multivalvis gluma. A *many-valved* glume: having more than two valves.

Muniens somnus. When the upper leaves of a plant, which during the day had spread out horizontally on long petioles, drop them at night, and hang down so as to form an arch round the stem.

Muricatus. *Muricated*. Covered with sharp points or prickles, like the *Murex* shell-fish. Applied to the stem—to the calyx, as in *Crepis biennis*—to the pod, as in *Bunias*—to the seeds, as in *Caucalis* and *Anmi*.—Hence we have *Muricata* for the name of the 11th order in Linneus's fragments.

Musci. *Mosses*. The third of the Families, and the 7th of the Nations, Tribes or Casts into which Linneus has distributed all vegetables.—The 56th order in his fragments, and of his natural orders.—They form the 2nd order of the class *Cryptogamia* in his artificial system.

Muticus. *Awnless*. Opposed to *aristatus* awned. But sometimes it means blunt, without any point at the end; in which sense we have *arista mutica*.—This term is applied to the calyx in *Serratula*; and to the anthers in *Erica herbacea*.

Mutilus f. *Mutilus flos*. A *Mutilated* flower. Not producing a corolla, when it ought regularly to do it.

Naked. *Nudus*. Applied to the stem, signifies, that it is without leaves, fulcres or arms. When it is destitute of leaves only, the term *aphyllus* or *leafless* is used.—Applied to the leaf, it means, that it is void of all pubescence; and is opposed to *tectum*, covered.—Applied to the flower, it implies that the calyx is wanting—to the mouth or opening of the tube, it implies that it has no valves or teeth there, as in some of the *Asperifolia*.—Applied to the Receptacle, it means that it is without hairs, bristles or chaffs.—Applied to a head of flowers, it implies that it has no leaves on it, and is opposed to *foliosum*.—Applied to a whorl, the meaning is, that there is no involucre or leaves.—In the same sense it is applied to the Raceme, Petiole, Peduncle, &c.

Nap and Nappy. See *Tomentosus*.

Natans folium. A *floating* leaf. Lying flat on the surface of the water: as in *Nymphaea*, *Potamogeton*.

Nations. See *Genes*.

Natural Character of Vegetables, is that which delivers all possible characteristic marks of the fructification, and may therefore be used under any system or arrangement.—Such characters are given by Linneus in his *Genera Plantarum*; from the number, figure, situation and proportion of the parts; rejecting taste, smell, colour and size.

Natural Class. An assemblage of several genera of plants, agreeing in their parts of fructification, general appearance and qualities.—We have instances of such in the *Umbellatæ*, *Verticillatæ*, *Siliquosæ*, *Leguminosæ*, *Compositæ*, *Gramina*, &c.

Navicularis f. *Cymbiformis Valvula*. A *boat-shaped* Valve: as in *Isatis* and *Thlaspi*.

Necessary Polygamy. *Polygamia Neccessaria*. The 4th Order in the class *Syngenesia*: wherein the imperfect hermaphrodite florets

florets of the disk, for want of a stigma, are barren; but the female florets of the ray, being impregnated by the pollen from the central ones, bear perfect seed.

Neck. See *Collum*.

Nectarium. The *Nectary*, or part of a flower destined to secrete and contain honey. It commonly makes a part of the corolla, but is sometimes distinct from it, and is then called a *proper Nectary*. It appears in a variety of forms: as, of a horn or spur, a cup, a gland, &c. *t. 4. f. 4, 14, 16—20*. Sometimes in flowers of one petal the tube contains the honey, as in the *Honeysuckle*.

Nervosum folium. A *Nerved* leaf. Having vessels perfectly simple and unbranched extending from the base towards the tip. As in *Plantain. t. 2. f. 32*.—It is applied also to the stipule.

Nesting. *Nidulans*. Applied to seeds which lie loose in pulp or cotton, within a berry or other pericarp.

Neutral flowers or florets; such as contain neither stamens nor pistils.

Nitidum folium. Glossy. So smooth as to shine. Opposed to *Opaque*. Exemplified in *Ferula* and *Angelica canadensis*.

Nodding. *Nutans*. Stem; bent down outwards from the top:—Flower, having the peduncle considerably curved, but not so much as in the *flos cernuus*. See *Drooping*.

Nodus and Nodosus. See *Knot* and *Knotted*.

Notched leaf. See *Grenatum*.

Nucamentum: the same with *Amentum*. Hence *Nucamentaceæ*, the 17th order in Linneus's fragments.

Nucleus. A *Kernel*. The seed of a nut and of stone fruits, contained within a *Putamen* or shell.

Nudus. See *Naked*.

Nut. *Nux*. A seed or kernel covered with a hard woody shell: as *Hazel-nut*, *Acorn*, &c. When the Nut is covered with a pulpy or fleshy substance, as in a *Peach* or *Apricot*, it is called a *Stone*; and the whole fruit, a *Drupe*.

Nutans. See *Nodding*.

Nux. See *Nut*.

Obconicum Nectarium. An inversely conical nectary: as in *Narcissus minor*.

Obcordatum folium. An *obcordate* or inversely heart-shaped leaf: having the point of the heart next to the stem or branch; as in some of the *Trefoils. t. 3. f. 2*.—Obcordatum petalum: in the class *Monadelphia*, &c. *t. 4. f. 12. c, d. and 13. c*.—Obcordatum legumen: as in *Polygala*.—Obcordata filicula: as in *Shepherd's Purse*.

Obliquum folium. An *oblique* or *slanting* leaf. Having the base directed towards the sky, and the apex or point towards the horizon. This sense respects the position of a leaf; and is exemplified in *Protea* and *Fritillaria*.—But it is also used in another sense, which respects the shape of a leaf; when the surface is placed obliquely to the petiole: as in *Begonia*.

Obliquus caulis. An *oblique* stem. Neither perpendicular nor horizontal: or having a lateral direction without being bent.

Oblongum folium. An *oblong* leaf. Considerably longer than broad; narrowed, but yet rounded at both ends.—Applied to the Anther, Capsule, and Spike.—*Oblongiusculus*: rather or somewhat oblong.

Obovatum folium. An *Obovate* or inversely-ovate leaf. Having the narrow end downwards or next the petiole, branch or stem. *t. 2. f. 1. γ*.

Obsoletus. *Indistinct*, scarcely distinguishable, very obscure.—Obsoletely lobed or serrate: applied to leaves which are not regularly so; or in which the lobes and serratures are not very distinguishable, or seem as if almost gone or worn out.

Obtusum folium. An *Obtuse* or *Blunt* leaf. Ending bluntly, but within the segment of a circle.—Applied to the perianth, in *Convolvulus* and *Melia*—to the capsule, in *Rhinanthus*.

Obtusiusculus. *Bluntish*.

Obversum folium *f. verticale*. An *Obverse* or *Vertical* leaf. Having the base narrower than the top, so that they seem to have changed places.

Obvoluta foliatio *f. vernatio*. *Obvolute foliation* or *vernation* of leaves. When, as the leaves lie in the bud, the margins alternately embrace the straight margin of the opposite leaf.

Ostandia. The 8th class in the Linnean system; comprehending those plants which have hermaphrodite flowers with eight stamens.

Ostoides calyx. An eight-cleft calyx: as in *Tormentilla*. See *Claven*.

Oleraceæ. See *Holeraceæ*.

One-celled capsule. *Capsula unilocularis*. As in *Primula*, *Trientalis*, &c.

One-flowered glume. *Gluma uniflora*. Including one flower only.—One-flowered peduncle. *Pedunculus uniflorus*. Sustaining one flower.

One-leaved calyx. *Monophyllus*. All of one piece.

One-petalled corolla. *Monopetala*. All of one piece.

One-ranked. See *Secundus*.

One-sided. *Unilateralis*. Applied to a raceme which has all the flowers inserted on one side. It seems not to differ from *secundus*.

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One-valved. *Univalvis*. Applied to the glume in some Grasses—to a spathe opening on one side—to a pericarp which has the outer shell undivided.

Opacum folium. An *Opaque* leaf. Dark coloured; not reflecting light: in opposition to *Nitidum* or *Lucidum*.

Operculum. A *Lid* or cover to a capsule: as in *Mosses* and *Hyoscyamus*. Such a capsule is said to be *operculata* or covered with a lid.

Opposita folia. *Opposite leaves*. Growing in pairs, and commonly decussated. *t. 3. f. 18*.—*Oppositi rami, pedunculi*. Opposite branches and peduncles.—Contrasted with *Alternate*.

Oppositifolius pedunculus. A peduncle placed opposite to a leaf. This term is applied also to stipules.

Oppositè pinnatum. See *Pinnatum*.

Orbiculatum folium. An *orbicular* or *circular* leaf.—Applied to a seed, which is flat with a round margin, as *Lens*—also, but improperly, to a globular spike.

Orchideæ. The fourth order in Linneus's fragments; and the 7th of his natural orders.

Ordo. An *Order*. The subdivision of a Class; or, the second branch in a System. This subdivision is usually arbitrary; and is adopted principally, that too many genera may not occur at once to be distinguished.—In Linneus's system, the Orders of the first thirteen Classes are taken from the Number of Pistils in the flower: in the 14th and 15th from the pericarp: in the 16th, 17th, 18th, 20th, 21st, and 22nd from the number, &c. of stamens: in the 19th from the disposition and character of the florets.

Orgya. A *Fathom*. See *Measures*.

Os. See *Mouth*.

Ovale folium. An *Oval* leaf. Having the longitudinal diameter longer than the transverse, and the curvature the same at both ends. *t. 2. f. 2*.—The *Elliptic* leaf differs only in being much longer in proportion to its breadth than the Oval leaf. *t. 2. f. 3*.

Ovarium. See *Germen*.

Ovatum folium. An *Ovate* or *Egg-shaped* leaf. The longitudinal section of an egg. *t. 2. f. 1*. It agrees with the Oval leaf in having the longitudinal diameter exceed the transverse; but differs in being narrower, or having a greater degree of curvature at top than at the base, which is usually a segment of a circle.—The Ovate leaf is much the most common. Applied to a fruit, seed, or germ, the term implies that it has the substantial form of an egg.

Pagina. The surface of a leaf.—*Superior*, or *supinus discus*, the upper surface.—*Inferior*, or *pronus discus*. The Lower surface.

Pair. See *Jugum*.

Palatum. The *Palate*. A prominence in the throat of a corolla, in Labiate flowers—or, a process of the lower lip, extending towards the upper part, by which the gape or opening is closed.

Palea and Paleaceum. See *Chaff* and *Chaffy*.

Palmæ. The 6th family; and the 1st of the nine great tribes, nations, or casts, into which Linneus divides all vegetables. They are placed in the Appendix to the Artificial System; but take the lead in the natural orders.

Palmaris mensura. See *Measures*.

Palmata radix. A *Palmate* or hand-shaped root. Consisting of several oblong tubers or knobs, spreading out like the fingers: as in some sorts of *Orchis. t. 1. f. 5*.

Palmatum folium. A *Palmate* or hand-shaped leaf. Divided beyond the middle into several nearly equal lobes: as in *Passiflora carulea. t. 2. f. 17*.—It resembles the hand with the fingers spread, and is one of the simple leaves; whereas the Digitate leaf resembles the fingers spread, without the hand, and having all the leaflets separate, is one of the compound leaves.

Panduræforme folium. A *violin-shaped* leaf. Oblong, broader below, contracted on the sides; like the body of a violin.—*Convolvulus panduratus* and *Rumex pulcher. t. 2. f. 15*.—*Pandura* is the name of an old musical instrument of the guitar kind, in Merseusus.

Panícula. A *Panicle*. A species of inflorescence, in which the flowers or fruits are scattered on peduncles variously subdivided: as in *Oats* and some Grasses.

Panícula spicata. In appearance a spike, but in reality a panicle: as in several of the Grasses, which are commonly called Spiked Grasses.

Papilionacea corolla. A *Papilionaceous* or *Butterfly-shaped* corolla. Irregular, and (usually) four-petalled. The lower petal is shaped like a boat, and is called *carina* or the keel: the upper petal, which spreads and rises upwards, is called *vexillum*, standard or banner: the two side ones, separated by the keel, are called *alæ*, the wings. *t. 4. f. 13*.—The keel is sometimes split, and then this corolla is properly five-petalled.—These flowers form a natural class called *Papilionaceæ*; the 55th order of Linneus's fragments, and the 32nd of his natural orders.—They are chiefly comprehended within the order *Decandria* of the class *Diadelphia*.—This is one of the classes in Tournefort's elegant system; and is the same with the *Leguminosæ* of Ray and other

- other authors.—The Pea being the most obvious of these, some call them *Pea-blossomed* flowers.
- Papillosum folium.** A *Nipled* leaf. Covered with fleshy dots or points.
- Pappus.** *Seed-down.* See *Down*.
- Papulofum folium.** A *Pimpled* or rather *Blistered* leaf. Covered with little bladders or blisters.
- Parabolicum folium.** A *Parabolic* leaf. Having the longitudinal diameter exceeding the transverse, and narrowing from the base upwards into a half ovate.
- Parasiticus caulis.** *Parasitica planta.* A *Parasitical* stem or plant. Growing on some other plant, not in the ground: as the *Mistle* on an apple tree; *Epidendrum*, *Tillandsia*.
- Partialis umbella.** A *Partial* umbel, or *Umbellet*; *Umbellula*. A smaller umbel proceeding from the general umbel.—The involucre at the foot of this is called the *Partial* involucre.—*Pedunculus partialis*, a *Partial* peduncle, is a subdivision of a common peduncle. See *Umbella*, *Pedicellus* and *Pedunculus*.
- Partition.** *Dissepimentum.* The substance or fence separating a pericarp internally into cells. It is either transverse, *transversum* l. *contrarium*, or parallel to the valves.
- Partitum folium.** A *Parted* leaf. Simple, but divided almost down to the base. t. 2. f. 23. According to the number of divisions it is called *Bipartitum* or two-parted; *Tripartitum* or three-parted, &c.—The term is applied in the same sense to the Perianth and Corolla.
- Patens folium.** A *Spreading* leaf. Forming an acute angle with the stem or branch; between erect and horizontal. t. 3. f. 18. c.—Applied also to the branches, stipule, and petiole.
- Patulus calyx.** An *Open* calyx; as in *Sinapis*, *Ranunculus acris* and *repens*. *Pedunculus*: bearing the flowers loose or dispersed; opposed to *coarctatus*, squeezed or pressed together.
- Pectinatum folium.** A *Pectinate* or comb-like leaf, in which the leaflets are toothed like a comb: as in *Artemisia pectinata*.
- Pedatum folium.** A *Pedate* or bird-footed leaf. Having a bifid petiole connecting several leaflets on the inside only. t. 3. f. 4. As in *Arum*, *Helleborus foetidus*, &c.—It is applied to the raceme.
- Pedatifidum folium.** A *Pedatifid* leaf. This is to pedate, what pinnatifid is to pinnate: the parts of the leaf not being separate, but connected, as in the feet of water fowl. Exemplified in *Arum muscivorum*.
- Pedicellus.** A *Pedice* or *Pedicle*. A partial peduncle: or, rather the ultimate subdivision of a common peduncle, immediately connected with the flower itself.
- Pedunculus.** A *Peduncle*. The fulcrum of the fructification; or, a partial stem supporting that only.
- Peltatum folium.** A *Peltate* or target-shaped leaf. Having the petiole inserted into the disk of the leaf, instead of the edge or base, as is most usual. t. 2. f. 31. As in *Nymphaea*, *Hernandia*, *Colocasia*, *Hydrocotyle*, *Tropaeolum*, *Geranium peltatum*.—Applied also to a stigma, when it is round and flat, like a pelta or target.
- Penicilliformis appendix.** An Appendix to the keel of the corolla in some sorts of *Polygala*; in shape of a camel's-hair pencil.
- Penicilliforme stigma.** A pencil-shaped stigma: as in *Milium*.
- Pentacocca capsula.** A *Pentacoccus* or five-grained capsula. Swelling out in five protuberances; or having five united cells, with one seed in each: as in *Geranium*.
- Pentagonus caulis.** A *Pentagonal* or five-cornered stem.
- Pentagynia.** One of the Orders in the 5th, 10, 11th, 12th, and 13th classes of the Linnean system; containing those plants which have five pistils in a hermaphrodite flower.
- Pentandria.** The 5th class in Linneus's system; comprehending those plants which have hermaphrodite flowers with five stamens.
- Pentapetala corolla.** A *Pentapetalous* or five-petalled corolla: as in the *Umbellata*, &c.
- Pentaphyllus calyx.** A *Pentaphyllous* or five-leaved calyx: as in *Cistus*, *Adonis*, *Cerbera*.
- Perennis radix-caulis.** A *Perennial* root or stem. Continuing several years, at least more than two.
- Perfectus flos.** A *Perfect* flower. Having all its parts; or at least all its essential parts.
- Perfoliatum folium.** A *Perfoliate* leaf. Having the base entirely surrounding the stem; so that it seems as if the stem had been driven through the middle of it: as in *Bupleurum rotundifolium*. t. 3. f. 20. c.
- Perforatum folium.** A *Perforated* leaf. Full of small holes, very apparent when held up to the light: as in *Hypericum*.—Hence *Perforate*, the 60th Order in Linneus's fragments.
- The term *Perforatum* is applied also to a stigma, that has a hole bored through it. *Pertusum* and *Punctatum* seem to be synonymous with this: and they are all explained to be—with hollow dots scattered over the surface.—*Anagallis* and *Plantago maritima* have the leaves dotted underneath.
- Perianthium.** The *Perianth*, or calyx of a flower when contiguous to the other parts of the fructification. t. 4. f. 7. b. This part is often called the calyx exclusively; but that has a more extensive signification. See *Calyx*.
- Pericarpium.** A *Pericarp*. Seed vessel, or Seed-case. A Viscus big with seeds; or, a vessel containing seeds, which it drops when they are ripe. Or, it may be considered as the ovary or germ fecundated and arrived at a state of maturity, after the flower is past, and containing ripe seeds analogous to fruitful eggs. t. 5.
- The most remarkable pericarps are the *Capsule*, *Siliqua*, *Lagune*, *Follicle*, *Drupe*, *Pome*, *Berry*, *Strobile*.
- Perichætiun.** A bristly involucre, surrounding the base, among the leaflets; in *Mosses*.
- Permanent.** *Perfistens*. Applied to leaves that remain on the plant till the fruit is ripe, or after the summer is over.—To stipules continuing after the leaves drop off; as in the class *Diadelphia*, and the order *Polygynia* of class *Icosandria*.—To calyxes abiding after the corolla is withered; as in the class *Didynamia*.
- Personata corolla.** A *Personate* or *masked* corolla. A species of the Labiate with the lips closed. t. 4. f. 11. See *Labiatum*.
- Pertusum.** *Punched*. See *Perforatum*.
- Pes.** See *Measures*.
- Petalum.** A *Petal*. In a monopetalous flower the Petal is the corolla, exclusive of the nectary; and it consists of the tube and limb or border. t. 4. f. 6. a.—in a polypetalous flower the Petal is one of the leaves of which the whole corolla is composed; and it consists of the *claw* and *lamina* or border. t. 4. f. 12. d. *Petaliforme stigma*. A petal-shaped stigma: as in *Iris*.—*Petalinum nectarium*. A petal-like nectary.—*Petalodes flos*. A flower having petals; in opposition to *Apetalous*, having none.
- Petiolus.** A *Petiole*. Leaf-stalk or Foot-stalk. A partial stem, supporting the leaf, or connecting it with the main stem or branch.—In *Turnera* and *Hibiscus* the same foot-stalk supports both leaf and fructification.
- Petiolulus* or *Petiolet* in a partial Petiole, connecting a leaflet with the main petiole, in compound leaves.
- Petiolaris cirrus*. A petiolar tendril. Proceeding from the petiole of a leaf.—*Pedunculus*. A petiolar peduncle. Inserted into a petiole.—*Gemma*. A petiolar bud. Formed from a petiole.—*Glandula*. A petiolar gland. Growing on the petiole: as in *Ricinus*, *Iatropha*, *Passiflora*, *Cassia*, *Mimosa*, &c.
- Petiolatum folium*. A *Petiolate* or *Petioled* leaf. Growing on a leaf-stalk, inserted into it usually at the base. Opposed to sessile.
- Pileus.** The *Cap* of a Fungus, covering the fructifications. In the common Mushroom, when fully expanded, called the *Flap*.
- Pilosum folium.** A *hairy* leaf. Having the surface covered with long distinct hairs: as in *Cortusa*, *Juncus pilosus*, *sylvaticus*, *campestris*.—*Pilosum semen*. A hairy seed: as in *Centaurea* and *Tragopogon*.—*Pilosum receptaculum*. A hairy receptacle. Having hairs between the florets.
- Pilus.** A *Hair*. A species of pubescence, and an excretory duct of a plant; in that form and structure.
- Pimpled leaf.** See *Papulofum*.
- Pinna.** The leaflet of some compound leaves. A subdivision of the Pinna is called *Pinnula*.
- Pinnatifidum folium.** A *Pinnatifid* leaf: by some called *Wing-cleft* or *Feather-cleft*. Divided transversely by oblong horizontal segments or jags, not extending to the midrib. t. 2. f. 18.
- Pinnatum folium.** A *Pinnate* or *Winged* leaf. A species of compound leaf, wherein a simple petiole has several leaflets fastened to each side of it.—*Conjugatum*. Conjugate. Having only one pair of leaflets. t. 3. f. 11.—*Bijugum*, having two: *Trijugum*, having three: *Quadrijugum*, having four pairs of leaflets.
- Pinnatum cum impari*. Unequally pinnate. Terminated by a single or odd leaflet. t. 3. f. 5.—*Abruptè*. Abruptly pinnate. Not terminated either by a leaflet or tendril. f. 6.—*Cirrhosum*. Cirrhosely pinnate. Terminated by a tendril. f. 7.—*Oppositè*. Oppositely. Having the leaflets placed over against each other in pairs.—*Alternatim*. Alternately. Having the leaflets alternate along the common petiole. f. 7.—*Interruptè*. Interruptedly. Having smaller leaflets interposed between the principal ones. f. 8.—*Articulatè*. Jointedly. When the common petiole is jointed. f. 10.—*Decursivè*. Decursively pinnate. When the leaflets run into one another along the common petiole. f. 9.
- Pinnulatum folium*, f. *pinnulata pinna*. When each pinna is subdivided.
- Piperitæ.** The first order in Linneus's fragments, and the second in his natural orders.
- Pistillum.** *Pistil* or *Pointal*. A viscus or organ adhering to the fruit, for the reception of the pollen. Its appearance is that of a column or set of columns in the centre of the flower: and, when perfect, it consists of three parts.—1. *Germen*, the Germ or Ovary. 2. *Stylus*, the Style. 3. *Stigma*. t. 8. f. 1, 2, 3, 4.
- Pistilliferus flos*. A pistilliferous flower. Having a pistil or pistils, without stamens. Called a Female flower by Linneus: Pitcher-shaped. *Urceolatus*. Swelling or bellying out like a pitcher or jug. Applied to the calyx, corolla and nectary.
- Pith.** See *Marrow*.
- Pthy.** See *Inanis*. As *Elder* and *Rush*.

Pitted leaf. See *Lacunosum*.

Placenta. See *Receptaculum*.

Placentatio. *Placentation*. The disposition of the cotyledons or lobes in the vegetation or germination of the seed.

Plaited. *Plicatus*. Folded like a fan. Distinguished from waved by the folds being angular.—Applied to the leaf, as in *Alchemilla*—to the calyx, as in *Statice*—to the corolla, as in *Convolvulus*—to the nectary, as in *Narcissus Tazetta*.—A term also in *Foliation* and *Placentation*.

Planta. A *Plant*. In common language synonymous with Vegetable: but frequently used in a more restricted sense: Plants are placed by Linneus in the last of the seven Families into which he has distributed the whole Vegetable kingdom: comprehending all that are not *Fungus*, *Alga*, *Mosses*, *Ferns*, *Grasses*, or *Palms*. They are 1. *Herbaceous*. 2. *Shrubs*. 3. *Trees*.—In *Regn. Veg.* he has sunk the word *Planta*; and has divided them into *Lilia*, *Herbae*, *Arbores*. *Platum folium*. A *Plane* or flat leaf. Having the two surfaces parallel—referring to succulent leaves.—In *Delin. plant.* it is—*superficie aequali*; having an even surface: but in this sense the term is not wanted. See *Lavis*.

Plenus. See *Full*.

Plicatus. See *Plaited*.

Plumosa or Plumata seta. A *Feathered* bristle. Having hairs growing on the sides of the main bristle. Resembling a feather.

Plumosus Pappus. *Feathered* or Compound Seed-down. A flying crown to some seeds made up of feathery or compound hairs: as in *Crepis*, *Scorzonera*, *Tragopogon*. Opposed to *Capillary*. See *Pappus*.

Plumula. The *Plume*, or ascending scaly part of the *Cormum* or Heart of the seed.

Pod. See *Legumen* and *Siliqua*.

Pointal. See *Pistillum*.

Pollen. *Farina*, or prolific powder, like fine meal or flour, contained in the anther of flowers; and which, according to Linneus, being moistened with a liquor peculiar to the stigma, and lodged upon it, bursts and explodes elastically a substance imperceptible to the naked eye, which he calls *Fovilla*.

Pollen, when exposed to the microscope, is found to put on a great variety of forms, in the flowers of different plants.

Pollex. See *Measures*.

Polyadelphia. The 18th Class in the Linnean system; comprehending those plants which bear hermaphrodite flowers, with three or more sets of united stamens. *t. 7. f. 18*.

Polyandria. The 13th class in the Linnean system, comprehending those plants which bear hermaphrodite flowers with many stamens (from 20 to 1000) growing on the receptacle detached from each other. *t. 7. f. 13*.

Polycotyledones Plantæ. Plants which have more than two cotyledons or lobes to the seed: as *Pinus*, *Cupressus*, *Linum*.

Polygama planta. A *Polygamous* plant is that which has hermaphrodite, and also either male or female flowers, or both.

Polygamia. The 23d Class in the Linnean system, comprehending those plants which bear hermaphrodite flowers, accompanied with male or female flowers, or both; not inclosed within the same common calyx, but scattered either on the same plant, or on two, or on three distinct individuals. *t. 7. f. 23*.—Whence the three Orders of this class—1. *Monœcia*. 2. *Dioœcia*. 3. *Trioœcia*.

This Class has been entirely discarded by many of Linneus's successors.

The term *Polygamia*, as, applied to a Compound flower, in the Orders of the Class *Syngenesia*, signifies that several distinct flowers (called *Florets*) are included in one common calyx.

Polygonus caulis. A many-angled stem. Having several prominent longitudinal angles. The *Multangular* stem does not seem to differ from this.

Polygynia. One of the Orders in the 5th, 6th, 12th and 13th classes of the Linnean system; comprehending those plants which have flowers with many pistils.

Polypetala corolla. See *Many-petalled*.

Polyphyllus. *Many leaved*. Applied to the calyx, perianth, involucre and tendril; in opposition to *monophyllus*, one-leaved. But Linneus uses *diphyllus*, *triphyllus*, &c.

Poly sperma capsula-bacca. A *many-seeded* capsule or berry: containing several seeds.

Polystachyus culmus. A culm bearing several spikes: as in *Scirpus lacustris*, *holoschoenus* and *setaceus*.

Pomaceæ. The 37th Order in Linneus's fragments; and the 32nd of his natural orders: comprehending such plants as bear a Pome.

Pomum. A *Pome*. A pulpy pericarp or fruit without valves, containing a capsule.—It includes all the moist fruits which have the seeds lodged in a core; as *Apple*, *Pear*, *Quince*.

Ponch. See *Silicula*.

Præmorsus. *End-bitten*. Root: not tapering but ending blunt, and having the appearance of being bitten off short at the end: as in *Scabiosa*, *Plantago*, *Valeriana*. *t. 1. f. 2*.—Leaf: ending very obtusely, with unequal notches.—Corolla: as in *Althea*.

Preciæ. The 51st Order in Linneus's fragments; and the 21st

of his natural orders: comprehending such plants as flower early in the spring.

Pressed to. See *Adpressus*.

Prickle. *Aculeus*. A sharp process from a plant, fixed into the bark only: as in *Rose*, *Bramble*, *Gooseberry*, *Barberry*. See *Arms*, *Fulcrum* and *Fork*.

Prickly. *Aculeatus*. Armed with prickles. Applied to the stem, sipe, leaf, petiole and perianth.

Prickly-pointed. Dr. Withering's term for *Cuspidatum*, which see.

Prismaticus. *Prismatic* or *Prism-shaped*. Linear, or of the same thickness from top to bottom, with several flat sides. Calyx or perianth, as in *Pulmonaria*. Stigma—Pericarp.

Procumbens caulis. A *Procumbent*, Trailing, or Prostrate stem. Unable to support itself, and therefore lying upon the ground, but without putting out roots. When it does, it is called *Repens* or *Creeping*. *Convolvulus Soldanella* is an instance of the Procumbent stem.

Prolifer caulis. A *Proliferous* stem. Putting forth branches only from the centre of the top: as in *Pinus*.—*Prolifer flos*. A *Proliferous* flower. Having smaller flowers growing out of the principal one: as in *Childing Daisy*.—A *Proliferous Umbel*. Having the umbellet subdivided.

Prominens dissepimentum. A *Prominent* partition in a filique: standing out beyond the valves.—*Prominens faux*. A *Prominent* throat or opening in the tube of a corolla: as in *Cyclamen*.

Pronus discus f. inferior pagina folii. The lower side or surface, or back of a leaf.

Prop. See *Fulcrum*.

Proprium receptaculum. A *proper* or *peculiar* receptacle: That which respects the parts of a single fructification: in opposition to a common receptacle, connecting several florets; as in *Aggregate* flowers.—*Proprium Perianthium*.—*Involucrum*. A *proper* perianth or involucre: respecting one flower only: As in simple flowers. *Aggregate* flowers have usually both a calyx common to the whole, and a perianth *proper* to each floret.—*Proprius flos*.—*Propria corolla*. A *Proper* or individual flower or corolla. One of the single florets or corollets in *aggregate* flowers: in opposition to the common or compound flower, consisting of the aggregate of florets, making one whole. *Proprium nectarium*. A *Proper*, peculiar or distinct nectary. Separate from the petals and other parts of the flower. *t. 4. f. 17, 19*.

Prostrate. See *Procumbens*.

Protruded. See *Exserta*.

Pubes. *Pubescence*. All hairiness or shagginess in a plant; or whatever clothes it with any hairy or villous substance. The different forms of Pubescence are—1. *Pili*. *Hairs*. 2. *Lana*. *Wool*: or close curled hairs. 3. *Barba*. *Beard*. Parallel hairs. 4. *Tomentum*. *Flocks*: or interwoven villous hairs, scarcely conspicuous. 5. *Strigæ*. Stiffish flattish hairs. 6. *Setæ*. *Bristles*. Stiffish roundish hairs. 7. *Hamuli*. Hooks. Sharp crooked points. 8. *Glochides*. *Barbs*. Straight toothed points. 9. *Glandulæ*. *Glands*. Small teats. But Glands seem to be improperly enumerated as a species of pubescence.

Pulposum folium. A pulpy leaf, filled with a soft tenacious substance between the two surfaces. See *Fleshy*.

Pulveratus. See *Mealy*.

Punched leaf. *Pertusum*. See *Perforatum*.

Punctatum folium. See *Dotted* and *Perforatum*. But the dots are smaller than in the Perforated leaf, and do not always appear through to both surfaces.

Putamen. The *Shell* of a nut and other fruits allied to it.—Hence

Putaminæ. The name of the 31st Order in Linneus's fragments, and the 25th of his natural orders.

Quadrangularis caulis. *Quadrangulare folium*. A *quadrangular* or four-cornered stem or leaf. Having four prominent angles.

Quadricapsulare pericarpium. A *quadricapsular* pericarp. Having four capsules to a flower.

Quadridentatus pappus. A *four-toothed* seed-down. Having four teeth on the edge: as in *Rudbeckia*.

Quadrifidus calyx. A *four-cleft* perianth: as in *Rhinanthus*.—*Quadrifidum folium*. A *four-cleft* leaf. See *Cloven*.

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Quinquecapulare pericarpium. Having five capsules to a flower; as in *Aquilegia*. *t. 5. f. 4.*
 Quinquefidum folium. A five-cleft leaf. See *Cloven*.—Applied to the Corolla—and to the perianth in *Nicotiana*.
 Quinquejugum folium. A pinnate leaf with five pairs of leaflets. *t. 3. f. 6.*
 Quinquelobum folium. A five-lobed leaf. See *Lobatum*.
 Quinqueloculare pericarpium. A five-celled pericarp: as in *Pyrola*.
 Quinquepartitum folium. A five-parted leaf. See *Partitum*.—Applied to the perianth in *Lithospermum*.
 Quinquevalve pericarpium. A five-valved pericarp: as in *Hottentia*.
 Racemus. A Raceme or bunch. A species of inflorescence, consisting of a peduncle with short lateral branches: as in the *Vine* and *Currant*.
 Rachis. The Spine or Spike-stalk. A filiform receptacle connecting florets longitudinally into a spike: as in *Panicum crus corvi* and *crus galli*, *Lolium* and many other Grasses.—This term is also sometimes used for the principal rib of a leaf.
 Radiata corolla. Radiatus flos. A Radiate or Rayed corolla or flower. A kind of compound flower, consisting of a disk, in which the corollets are tubular and regular; and of a ray, in which the florets are irregular. These are most commonly ligulate: as in *Sunflower*, *Daisy*, &c.—Sometimes however they also are tubular, but irregular; as in *Centaurea*. And sometimes they are naked, or nearly so: as in *Artemisia*, *Gnaphalium*.—Umbelled flowers are likewise called radiate, when the outer florets are larger than those in the middle. In this case the outer petals are larger than the inner petals of the same floret.
 Radicalis pedunculus. A root peduncle: scarcely different from a scape, but sustaining only one flower.—Radicalis folium. A root-leaf. Proceeding immediately from the root, or growing close to the ground: often different from the other leaves: as in *Campanula rotundifolia*.
 Radicans. See *Rooting*.
 Radicula. A Radicle or Fibre. That part of the root in which the stock or main body of the root terminates, and by which the plant draws in nourishment from the earth. Properly speaking the Fibres only are the roots; the stock being the descending trunk.
 Radius. See *Ray*.
 Radix. See *Root*.
 Ragged. See *Squarrosus*.
 Ramentum. A small particle of any thing, scraped or cut off from a larger piece; as gold-dust, saw-dust, little chips, &c.—Applied by Linnaeus to the small loose scales that are frequently found on the stems of vegetables.
 Rameum folium. Rameus pedunculus. A branch-leaf. A branch-peduncle.—Growing on, or proceeding from a branch. In opposition to such as proceed from the root or axils, or grow on the stem itself.
 Ramosus, Ramus and Ramulus. See *Branched*, *Branch* and *Branchlet*.
 Ray. Radius. The outer part or circumference of a compound radiate flower.
 The peduncles of an umbel or umbellet are called Radii, which Dr. Withering translates *Spokes*.
 Rayed. See *Radiata*.
 Receptaculum. A Receptacle. The base by which the other parts of the fructification are connected.—By Boerhaave named *Placenta*, and by Vaillant *Thalamus*. *Proprium*. Peculiar. Belonging to one fructification only.—*Commune*. Common—to several: as in Compound flowers (*Syngenesia*)—*Umbel*, *Cyme*, *Spadix* and *Rachis*. Receptacle of the fructification. Common both to flower and fruit.—Of the Flower. Base of the flower, exclusive of the germ.—Of the Fruit. Base of the fruit only.—Of the Seeds. Base to which the seeds are fastened: as in *Adonis*.
 Reclinatum folium. A Reclining leaf. Curved downwards or backwards a little, so that the point of the leaf is lower than the base.—In Foliation, this term implies that the leaves are curved downwards towards the petiole: as in *Podophyllum*, *Aconitum*, *Anemone*, *Adoxa*.
 Reclinatus caulis. A Reclining stem. Bowed towards the earth, as in *Ficus*.
 Rectus caulis. See *Straight*.
 Recurvatum folium. A Recurved leaf. Bent, or rather bowed or curved downwards, so that the bow or convexity is upwards.—Applied to a Prickle, &c. it is said only to be bent outwards.
 Reflexus. Reflex. Bent back. Branches. Hanging down perpendicularly.—Leaf: as in *Euphorbia portlandica*.—Perianth: as in *Asclepias* and *Leontodon*.—Flower, Corolla, Petals: as in *Lilium chalcidonicum*, *Cyclamen*, *Narcissus triandrus*, *Iris*, *Hyacinthus*, &c.—Applied also to the Stipule and Bracte. See *Retroflexus*.
 Refractus. Bent back (at an acute angle) as if broken. Applied to the corolla. See *Retrofractus*.
 Regularis corolla. Regular in the figure, size and proportion of the parts: as in *Privet*, *Lilac*, *Jasmin*, &c.
 Remotus. Remote, Distant. Leaves, opposed to Approximate.

—Peduncles, opposed to *conferti*, clustered.—Whorls, opposed to contiguous: as in *Galeopsis Ladanum*.
 Reniforme folium.—A Reniform or Kidney-shaped leaf. Roundish, hollowed out at the base, without angles. *t. 2. f. 10.* As in *Convolvulus Soldanella*, the lower leaves of *Campanula rotundifolia*, *Saxifraga granulata*, *Glechoma hederacea*.—Applied also to the anther and seed.
 Repandum folium. A Repand leaf: having a serpentine or scalloped margin. Distinct from the undulating leaf, in which the curvature respects the disk.
 Repens. See *Creeping*.
 Reptans flagellum. A Runner: as in *Strawberry*.
 Refupinata corolla. Turned upside down. When the upper lip faces the ground, and the lower lip the sky. Or, when that which is usually the upper lip (in a labiate corolla) becomes the lower, and the contrary: as in *Scrophularia*, *Ocimum*, *Ajuga orientalis*, the European *Violets*, and some *Satyriums*.
 A leaf is said to be *Refupinate* or turned upside down, when that which is commonly the upper surface becomes the lower; and the contrary.
 Reticulata corolla—petala. Netted corolla or petals. Having distinct veins crossing like net-work: beautifully exemplified in *Geranium striatum*.
 Retroflexus. Branches bending this way and that in different directions, usually in a distorted manner. Thus it seems to differ from *Reflex*, which is only bent back at an angle.
 Retrofractus. Reduced to hang down as it were by force: so as to appear as if it had been broken.—It seems hardly different from *Refractus*, and the term might have been spared.
 Retusum folium. A Retuse leaf. Ending in a blunt sinus: as in *Frankenia pulverulenta*, *Crotalaria retusa*. Applied to the seeds of *Lycopus* it means merely blunt.
 Revolutus. Rolled back or downwards.—*Revolute foliation* or *leafing*. When the sides of the leaves (in the bud) are rolled spirally back, or towards the lower surface.—*Leaf*: having the edges rolled back: as in *Rosemary* and *Teucrium fruticans*.—*Tendrils*: when a spire of the skrew, having made half a revolution, turns back in a contrary direction.—*Corolla*: having the petals rolled back: as in *Asparagus*, *Medeola*.—*Valve*: turned back after it opens: as in the filique of *Cardamine*.—This term is opposed to *Involutus* rolled inwards.
 Rhoeades or Rhoeadeæ. The 30th order in Linnaeus's fragments; and the 27th of his natural orders: containing vegetables allied to the Poppy.
 Rhombeum folium. A Rhomb-shaped, or Diamond-shaped leaf. Having four nearly equal sides, but the angles not right ones. See *Deltoid*.
 Rhomboidcum folium. A Rhomboid leaf. Having the opposite sides equal, and the angles not right ones: as in *Chenopodium viride*. See *Deltoid*.
 Rib. Costa. The continuation of the petiole along the middle of the leaf, and from which the veins take their rise.
 Ribbed. Costatum.
 Rictus. The Gape. The opening between the two lips, in a labiate flower.
 Rigidus. Rigid, stiff, inflexible. Opposed to *laxus*; and applied to the stem, leaves and bristles.
 Rimosus. Abounding in cracks, clefts or chinks; as the outer bark of some trees.
 Ringens corolla. Ringent or Gaping. An irregular one-petalled corolla, the border of which is usually divided into two parts, called the *upper* and *lower lip*. The first has sometimes the name of *Galea* or *Helmet*: the second of *Barba* or *Beard*. The opening between these is *Rictus* or the *Gape*: the opening of the tube, *Faux*, the *Throat* or *Jaws*: the prominent swelling in the Faux is *Palatum* the *Palate*: the upper part of the tube is *Collum*, the *Neck*. See *Labialis* and *Personata*.
 Rising leaf or petiole. See *Affurgens*. Which differs from *ascendens*, in first inclining downwards, before it gradually rises upwards.
 Rolled back. See *Revolutus*.
 Root. Radix. That organ of a vegetable which draws in the nourishment, and produces the herb with the fructification. *t. 1.*
 Rooting stem. Caulis radicans. Bending to the earth and striking root, but not creeping.—Rooting leaf. Folium radicans. Shooting forth roots; as in some aquatic plants: sometimes called *folium radicans*.
 Rootlet, Radicle or Fibre. See *Radicula*.
 Rostellum. The Rostel, or descending plane part of the corolla or heart, in the first vegetation of the seed.
 Rostratus fructus. A Beaked fruit. Having a process resembling the beak or bill (*rostrum* of a bird.)
 Rotata corolla. A Wheel-shaped corolla. Monopetalous, spreading flat, without any tube: as in *Borago*, *Veronica*, *Lyfimachia*.—Applied to the nectary in *Narcissus poeticus*.
 Rotundum folium. A Round leaf. Without angles. Bounded by a curve that has no breaks. Opposed to *angulatum*. *Orbiculatum* is Linnaeus's term for what we should call a round leaf in English.—A Round stem is expressed by *Teres*.
 Rotundo

Rotundo-trigonum. Obtusely three-cornered, or three-sided with the corners rounded off: as in the germ of *Hyacinthus*.

Rough. *Asper*. Having hairs or bristles.—Linneus makes it synonymous with *scaber*; but uses it in a much more general sense.—See *Rugged* and *Scaber*.

Roughened. *Exasperatus*.—Applied to the calyx.

Round. See *Rotundum*. Rounded. *Rotundatum*. Bent into a curve.

Roundish leaf. *Folium subrotundum*. Nearly circular.

Rugged or Scabrous. *Scaber*. Rough with tubercles or prominent stiffish points. Applied to the stem and leaf: also to the calyx of the Oak.

Rugosum folium. A *Wrinkled* leaf. When the veins are more contracted than the disk, so that the intermediate substance rises above them: as in *Sage*, *Primrose*, *Cowslip*, *Cistus incanus*, &c.

Runcinatum folium. A *Runcinate* leaf. A sort of pinnatifid leaf, with the lobes convex before and straight behind; like the teeth of the great cross-cutting saw. Exemplified in common *Dandelion*. t. 2. f. 19.

Runner. *Reptans flagellum*. A shoot producing roots and leaves at the end only, and thus propagating the plant: as in *Strawberry*. See *Sarmentosus*.

Sabre-shaped. See *Acinaciform*.

Sagittatum folium. A *Sagittate* leaf. Shaped like the head of an arrow. Triangular, hollowed at the base, with angles at the hinder part—or, with the hinder angles acute divided by a sinus. t. 2. f. 13. As in *Convolvulus arvensis* and *sepium*, *Sagittaria*, *Rumex Acetosa*, and *Erica vulgaris*.—This term is applied also to the *Stipula* and *Anther*.

Salver-shaped. See *Hypocrateriformis*.

Sap. *Succus*. The juice or fluid part of the vegetable.—Also the tender white part of the wood (*Albuminum*) in trees; newly formed from the *liber* or inner bark.

Sarmentaceæ. (From *Sarmentum*, the twig or spray of a vine). The 49th order in Linneus's fragments; and the 11th of his natural orders.

Sarmentosus caulis. A *Sarmentose* stem. Filiform and almost naked: or, having only leaves in bunches at the joints or knots, where it strikes root.—It seems to be in shrubs, what the runner (*flagellum*) is in herbaceous plants.

Scaber. *Rugged* like a file, or shagreen. See *Rugged*. Different from *asper*, rough, which refers to pubescence. Hence

Scabridæ. The 20th order in Linneus's fragments; and the 53rd of his natural orders: and

Scabrities. *Ruggedness*.

Scalloped may be applied to the *repand* leaf. Dr. Withering applied *scolloped* to the *crenate* leaf.

Scaly. *Squamosus*. Like the skin of a fish.—Applied to bulbs, as in the *Lily*. t. 1. f. 10.—to the stem and peduncle—and to the calyx, as in *Burdock*. t. 7. f. 19. and t. 8. f. 17.

Scandens caulis. A *Scandent* or *climbing* stem. Weak and requiring support in mounting: the clasper or tendril is usually the agent. The *caulis volubilis* mounts by twining.

Scapus. A *Scape*. A stem bearing the fructification, without leaves: as in *Narcissus*, *Pyrola*, *Hyacinthus*, &c.

Scariosum folium. A *scariose* or *skinny* leaf. Of a dry substance, sonorous to the touch.—Applied to a perianth, which is tough, membranous, and semi-transparent: as in *Statice Armeria* or *Thrift*, *Centaurea glastifolia*, &c.—To the nectary: as in *Narcissus poeticus*.—To the spike, &c.

Scarred. See *Cicatrisatus*.

Scattered. See *Sparfus*.

Scitamineæ or Scitamina. (From *scitamentum* or *scitum edulium*, an eatable of a racy or spicy flavour.) The 3rd order in Linneus's fragments; and the 8th of his natural orders.—In the artificial system these are in the first class.

Scobiforme semen. Like fine saw-dust (scobs): as the seeds of the Orchis.—Dr. Withering has by mistake written it *scrobiforme*.

Scored stem. *Exaratus caulis*. Marked deeply with parallel lines. If it differs from *fulcatus*, the channels are shallower; and perhaps intermediate between that and *striatus*.—Dr. Withering applies this term to *striatus*.

Scrotiforme nectarium. Purse or bag-shaped: as in the nectary of *Satyrion*.

Scurfy. *Furfureus*. Loureiro uses this term, and applies it to the capsule of *Croton punctatum*. Dr. Withering improperly translates *squarrosus* by *scurfy*.

Scutellum. An orbicular concave fructification, (in some Lichens), with the edge raised all round: like a small shallow saucer.—The *Pelta* is flat.

Scymitar-shaped. See *Acinaciform*.

Scyphifer. A subdivision of the Lichens, having the fructifications in shape of a drinking glass.

Secundus. That species of inflorescence wherein the flowers are all turned towards one side—or are directed the same way: as in *Erica herbacea*, *Dactylis cynosuroides* and *glomerata*, several of the *Festuca*, &c.—We have no proper English term for this; and it is better to use a periphrasis, than such a term as *one-ranked*, which tends to mislead: for a plant may have several rows of flowers pointing one way.

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Seed. *Semen*. The rudiment or embryo of a new plant: or, the deciduous part of a vegetable, containing the rudiment of another vegetable of the same species, vivified by the pollen.—Analogous to the egg in animals.

It consists of the tegument, coat, or skin—the Cotyledons or lobes—and the Coraculum or heart.—Some seeds have also a Hilum or eye—others an Aril or loose coat—others again a Coronet; which is either the calyx adhering, a Pappus or down, a wing, tail, hook, awn, or other process, to assist in their disposition.

Seed-bud. See *Germen*.

Seed-coat. See *Arillus*.

Seed-down. See *Down*.

Seed-leaves. The primary leaves, being the lobes of the seed expanded, and in a state of vegetation. Quite different from the other leaves.

Seed-lobes. See *Cotyledon*.

Seed-vessel. See *Pericarpium*.

Segmenta. *Segments*. The parts into which a perianth is cut.

Segregata Polygamia. When several florets comprehended within a common calyx are furnished also with their proper perianthis.—These constitute the fifth Order of the class *Syngenesia*.

Sejugum folium. A pinnate leaf having six pairs of leaflets.

Seimen. See *Seed*.

Semiamplexicaule folium. A leaf embracing the stem half way.

Semicolumnar or Semicylindrical. See *Semiteres*.

Semiflosculus. A *Semifloret*—and *Flos semiflosculus*, (a flower composed of semiflorets. These are Tournefort's terms, corresponding with the *corollula* and *corolla ligulata* of Linneus.—Ray calls such compound flowers *plumpectati*. Hence

Semiflosculosa (plantæ) or Semiflosculi (flores). A subdivision in the first order of Compound flowers; comprehending such as are made up wholly of fertile ligulate florets: as *Dandelion*, *Lettuce*, *Sowthistle*, *Hawkweed*, &c.

Seminalia folia. *Seed-leaves*, which see.

Seminatio. *Semination*. The natural dispersion of seeds.

Semiorbiculatum semen. A *semiorbicular* seed. In shape of half a globe or sphere.

Semiquinquefidus calyx. A half-five-cleft calyx.

Semifagittata stipula. Shaped like half the head of an arrow: as in *Ervum tetraspermum*.

Semifexfidus calyx. Half-six-cleft.

Semiteres. Flat on one side, and rounded on the other; as the stem of *Allium vineale*; and the leaves of *Narcissus Jonquilla*. Linneus calls these *semicylindrææ*. Applied also to the petiole. See *Teres*.

Sena folia. Six-fold leaves, or growing in sixes, as in *Galium spurium*, &c. A variety of the scillate leaf.

Sensiles f. Sensitivæ plantæ. Sensitive plants. Changing the situation of their parts, when touched.

Senticosa. The 35th Order in Linneus's fragments and natural orders.

Separiæ. The 25th Order in Linneus's fragments, and the 44th in his natural orders: containing the hedge plants.

Sericum folium. A *Silky* leaf. Covered with very soft hairs pressed close to the surface.

Serpentine leaf. See *Repandum*.

Serratum folium. Serrate, or toothed like a common saw. Having sharp imbricated notches about the edge, pointing towards the extremity. t. 2. f. 28. The direction of the notches is the essential character of the serrate leaf. They are not always imbricate, and that circumstance is omitted in *Deliu*. plant.

Duplicato serratum. Doubly-serrate leaf has the large teeth cut into small ones: as in *Elu*.

The term Serrate is applied also to the calyx in *Hypericum*—to the corolla in *Tilia* and *Alisma*—and to the stipule.

Serrato-ciliatum. Having fine hairs, like the eye-lashes, on the serratures.

Serrulatum folium. A Serrulate leaf. Finely serrate with very small teeth.

Sesquialter flosculus. A *Sesquialteral* floret. When a large fertile floret is accompanied by a small abortive one: as in *Aira villosa*.—Haller applies the term *Sesquialteral* to flowers, in which the stamens are half as many again in number as the leaves or segments of the calyx or corolla.

Sessile folium. A *Sessile* leaf. Connected immediately with the stem or branch, without the intervention of a petiole: opposed to a Petioled leaf.—Applied to a flower which has no peduncle: as in *Trillium sessile*—to the seed-down, which having no stipe, is placed immediately on the seed: opposed to stipitate or stiped.

Seta. See *Pubescence* and *Bristle*.

Setaceous. See *Bristle-shaped*. It is applied to the leaflets or divisions of the calyx.

Setosus. See *Bristly*. Applied to the leaf as well as the receptacle.

Sexangularis caulis. A *hexangular* stem: as in *Eriocaulon*.

Sexfidus calyx. *Six-cleft*: as in *Pavia*. *Sexfidum nectarium*. A six-cleft nectary: as in *Narcissus minor*.

Sexloculare pericarpium. A *six-celled* pericarp: as in *Asarum* and *Aristolochia*.

f f

Sexus

Sexus. *Sexes* in vegetables are 1. *Male*. 2. *Female*. 3. *Hermaphrodite*: having the two first in the same flower.—When they are separate, either on the same or different individuals; such plants are called *Androgynous*.—When Hermaphrodites are accompanied with one or both of the two first, such a plant is denominated *Polygamous*.

Shaggy. See *Hirsutus*.

Sharp. See *Acute*.

Sharp-pointed. See *Acuminate*.

Sheath. *Vagina*. A membrane investing a stem or branch; as in *Grasses*. Very different from *Spatha*, which some translate a sheath.

The white, tender, brittle membrane at the top of the sheath, just where it ends, and the proper leaf begins, is called by Dr. Withering *Sheath-scale*, and by Leers *Ligula*.

Shedding. Dr. Withering translates *caducus* by this term.

Shining leaf. See *Lucidum*.

Shrivelling. *Marcescens*. Fading without falling off: as the corolla of *Plantain*.

Shrub. *Frutex*. In its general acceptation, a vegetable with several permanent woody stems, dividing from the bottom, more slender and of lower growth in general than trees. Linneus makes the distinction of a tree from a shrub to consist in its having no buds: but trees have no buds in hot climates. He acknowledges indeed that nature has placed no limits between them.

Shrubby. *Fruticosus*. Perennial, with woody stems.

Sickle-shaped. *Falcatus*. Applied to the keel of a papilionaceous flower.

Silicula. A *Silicule*, *Silicle*, little Pod or Pouch. A membranaceous, two-valved pericarp, having the seeds fastened along both sutures, and the transverse diameter equal, or nearly so, to the longitudinal. It varies in shape; being orbiculate, ovate, or flattened; entire at the end, or emarginate. Hence

Siliculosa. The name of the first Order in the *Tetradynamia* class.

Siliqua. A *Siliqua* or Pod. An oblong, membranaceous, two-valved pericarp, having the seeds fastened along both sutures. The *Silicula* does not differ essentially from the *Siliqua*, but only in being short and small.—The proper *Siliqua* has a partition running the whole length, dividing it into two cells. But some pericarps, as in *Fumaria* and *Chelidonium*, have no partition, and are therefore one-celled: these having the same form, take the same name.

Siliquosa. The name of the second order in the *Tetradynamia* class.

Siliquosa. The 57th order in Linneus's fragments, and the 39th in his natural orders. The 20th class in Ray's method. The same with the *Cruciformes* of Tournefort.

Silky. See *Sericeum*.

Simplex. *Simple*, undivided, unbranched; root, stem, spike.—Leaf, only one on a petiole, or opposed to Compound: *t. 2, 3.*—Frustrification or Flower; in opposition to that which is composed of several florets.—Umbel, having only one set of rays; or, having the receptacle divided once only, as in *Anthriscus Pecten*.—Calyx, having only one row of leaflets, as in *Tragopogon*: opposed to *calyced* and *imbricate*.—Down, opposed to *plumosus* or feathered.—Applied also to Bristle, Tendril, Stigma, &c.

Single flower. *Unicus flos*. Only one on a stem, as in *Tulip*: opposed to many.—In common language it is used in opposition to a double or monstrous flower.

Sinuatum folium. A *Sinuate* leaf. Having large curved breaks in the margin, resembling bays (*Sinus*). As in the *Oak*. *t. 2. f. 22.*

Sinuato-angulosum. Sinuate-angular: as in *Hollyhock*.

Sitting. See *Sessile*.

Situs foliorum. The situation or disposition of leaves: as *stellate*, *tern* or *three-fold*, &c. *Opposite*, *alternate*, *scattered*, *crowded*, *imbricate*, *fascicled* or in bundles, *distich* or in two rows.

Six-petalled. *Hexapetala corolla*. A flower of six distinct petals.

Skinny. See *Scariosum*. Like gold-beater's skin.

Slanting. See *Obliquus*.

Sleep of Plants. *Somnus plantarum*. The form and appearance which plants put on during the night, very different from what they have in the day; chiefly in the leaves.

Slender. *Tenuis*. Applied to the seed.—*Tenuifolia planta*. A slender-leaved plant; in opposition to *latifolia*, broad-leaved.—*Tenuis* however is often put for thin.

Smooth. *Glaber*. Having a slippery surface, void of all roughness: exemplified in *Daphne Laureola*, *Arbutus Unedo*, *Geranium peltatum*.—Greater degrees of smoothness are expressed by *nitidus* or *nitens*, and *lucidus*; shining, bright, glittering, glossy.

Snipt leaf. *Folium incisum*. See *Gashed*.

Solares flores. See *Vigilia*.

Solidus bulbus, Solidus radix. A *solid* bulb, as in *Tulip*: a solid root, as in *Turnep*. Of a fleshy, uniform, undivided substance.—*Solidus caulis*. A *solid* stem. Full within; in opposition to *inanis*, which has only a light spongy substance in it; and *fulvus*, hollow like a pipe.

Solitarius. *Solitary*, separate, one only in a place. *Solitaria*

stipula: a solitary stipule, as in *Melanthus*.—*Solitarius pedunculus*: a solitary peduncle; as in *Convolvulus tricolor*. *Solitarius flos*: a solitary flower; only one to each peduncle; as *Euphorbia Peplis*, *Dianthus chinensis*. *Solitarium semen*: a solitary seed: only one in a pericarp.

Solutus. *Loose*. Opposed to *adnatus*. Applied to stipules.

Somnus plantarum. See *Sleep of plants*.

Spadix. The receptacle in Palms, and some other plants, proceeding from a spathe. Hence *Flos spadiceus*. A Spadiceous flower. A sort of aggregate flower, having a receptacle common to many florets, within a spathe.—As *Palms*, *Arum*, *Calla*, *Dracontium*, *Pothos*, *Zosteria*, *Acorus*.

Spadiceus color. The colour of the spadix in the Palm: it is commonly translated a Bay-colour, from the Greek *ξανός*.

Span. See *Measures*.

Sparfus. *Scattered*. Neither opposite nor alternate, nor in any apparent regular order. Applied to branches—to leaves, as in several sorts of *Lily*—to peduncles and flowers—to calycine scales, as in *Crepis barbata*.

Spatha. A *Spathe*. The calyx of a spadix, opening or bursting longitudinally, in form of a sheath.—Applied also to the calyx of some flowers which have no spadix; as *Narcissus*, *Crocus*, *Iris*, &c. Hence

Spathaceæ. The 8th Order in Linneus's fragments; and the 9th in his natural orders.

Spatulatum folium. A *Spatulate* or *Spatula-shaped* leaf. Roundish, with a long narrow linear base. *t. 2. f. 4.* As in *Cistus incanus*. Dr. Withering names it *battledore-shaped*.

Spear-shaped. See *Lanceolatum*.

Species. The distinct forms of vegetables originally so created, and producing, by certain laws of generation, others like themselves. There are therefore as many species as there are different invariable forms or structures of vegetables now existing.

Specific Character. A circumstance or circumstances distinguishing one species from every other species of the same genus.

Specific Name. *Prænomén* triviale. Commonly called the Trivial name. This added to the Generic constitutes a complete denomination of a plant.

Spherical. See *Globosus*.

Spica. A *Spike*. A species of inflorescence, in which sessile flowers are placed alternately on a common simple peduncle: as an ear of *Wheat*, *Rye* or *Barley*, many of the *Grasses*, *Lavender*, *Mullein*, *Agrimony*, &c.

Spicula. A *Spikelet* or *Spiket*, as Dr. Withering calls it. A partial spike, or a subdivision of it: as in some *Grasses*.

Spike-stalk. See *Rachis*.

Spina. See *Thorn*.

Spindle-shaped root. See *Fusiformis*.

Spinescens. *Spinescent*. Becoming hard and thorny. Incident to petioles and stipules.

Spinofus. See *Thorny*.

Spiralis. *Spiral*. Twisted like a screw. As the cotyledons of the *Holeraceæ*; the anthers of *Chironia*; the tails of the seeds in *Geranium*. *t. 6. f. 9.*

Spithama. See *Measures*.

Spreading. See *Patens* and *Patulus*. Dr. Withering renders *Diffusus* by this term.

Spur or Horn. *Calcar*, *Cornu*. The hinder part of the nectary in some flowers, shaped like a cock's-spur, or a horn. *t. 4. f. 15. a.*—This kind of nectary is called *Nectarium calcaratum*; and a corolla having such a nectary is named *Corolla calcarata*; as in *Larkspur*, *Orchis*, &c.—a calyx having such a process is called *Calyx calcaratus*; as in *Tropæolum*.

Squamatus f. Squamofus. See *Scaly*.

Squarrosus. *Squarrose*. By some translated *Ragged*; by Dr. Withering *Scurfy*.—Calyx: consisting of scales very widely divaricating or spreading every way: as in *Carduus*, *Onopordum*, *Conyza*; *Achyranthes muricata*.—*Squarrosum folium*: divided into shreds or jags, raised above the plane of the leaf, and not parallel to it.

Stalk. See *Stem*. Dr. Withering translates *Scapus* by stalk.

Stamen. A *Stamen*; in the plural *Stamens*; not, as in the Latin, *Stamina*. An organ or viscus for the preparation of the pollen; and formed, according to Linneus, from the wood. It is the third part in the fructification; and consists of the *filament* and *anther*.—Some English writers call it the *Chive*.

Stamineus flos. A stamineous flower: having no corolla: a term used by Ray.—Linneus has adopted *Apetalus* from Tournefort. Others call such flowers Imperfect or Incomplete.

Staminiferus flos. A flower bearing stamens without a pistil, and therefore barren. The same with the male flower of Linneus.—*Staminiferum nectarium*. A nectary having stamens growing on it: as in *Kleinbovia*.

Standard or Banner. *Vexillum*. The upper petal of a papilionaceous corolla. *t. 4. f. 13. a, c.*

Statuminata. The 61st Order in Linneus's fragments of a natural method; containing only *Ulmus*, *Celtis*, *Bosca*.

Stellata folia. *Stellate* leaves. When more leaves than two, seldom fewer than four, sometimes six, eight or more, surround the stem in a whorl, whence they are called *Verticillata*: or radiate from the stem like the spokes of a wheel;

or like a star, as it is vulgarly represented: exemplified in *Galium*. t. 3. f. 21. b, c.—*Stellata seta*. A stellate bristle. When a little star of smaller hairs is affixed to the end.—Applied also to the stigma, as in *Asarum*.—*Stellatus flos*: the same with *radiatus*, which Linneus has adopted from Tournefort.

Stellatæ. The name of the 44th Order in Linneus's fragments; and of the 47th in his natural orders.—It is also the name of a class in Ray's and Herman's methods.

Stem or Stalk. *Caulis*. The body of an herb, rising from the root, and bearing the branches, leaves and fructification.—According to Linneus, *Truncus* is the generic term, of which *Caulis* is a species: but in English we apply Trunk to the body of a tree, and *Stalk* to that of herbaceous plants. *Stem* might be adopted as the generic term. See *Truncus*.

Stem-clasping. See *Amplexicaule*. Exemplified in *Potamogeton*, *Perfoliatum*, *Verbascum Blattaria*, *Hyoscyamus niger*, &c. t. 3. f. 20. d.

Stem-leaf. *Folium caulinum*. Growing immediately upon the stem, without the intervention of branches.—Or, opposed to a root-leaf.

Stemless. *Acaulis*. Having no stem, properly so called.—Opposed in Philos. Bot. to *Caulescens*.

Sterilis flos. A Barren flower. A term of Tournefort's. Linneus names it *Masculus*—Ray, *paleaceus*.—Others *Abortiens* and *Staminiferus*.

Stiff. See *Rigidus* and *Strictus*.

Stigma. The top of the pistil, pubescent and moist, in order to detain and explode the pollen.—Grew named it the *Knob* or *Button*.—Withering the *Summit*: but the Latin term has generally obtained in English. The classical term *Fibula* would have been more elegant.

Stimuli. *Stings*. Processes or sharp points, usually on the stem, branches or leaves, producing inflammatory itching punctures: as in *Nettle*, *Jatropha*, *Acalypha*, *Tragia*.

Stipes. A *Stipe*. The base of a frond: or, a species of stem passing into leaves; or, not distinct from the leaf.—Also, the stem of a Fungus—and the slender stalk or pedicel which supports the seed-down, and connects it with the seed. Such seed-down is called *Stipitate* or *stiped*, *Stipitatus*.

Stipula. A *Stipula* or *Stipule*. A scale at the base of the nascent petioles or peduncles: as in the *Pea* and other *Papilionaceæ*, &c.

Stolo. See *Sucker*.

Straddling. See *Divaricate*.

Straight stem. *Rectus caulis*. Making one right line, not bent.—*Erectus* is upright, or perpendicular to the horizon.—*Rigidus* is stiff, difficult to bend.—*Strictus* is both stiff and straight.

Strap. *Ligula*. An appendage to the leaf in some Grasses.—Also the flat part of the corollet in ligulate florets.

Strap-shaped. See *Ligulatus*. Dr. Withering has given this name to the linear leaf.

Striatus. *Striated* or *Streaked*. Marked or scored with superficial or very slender lines; as the stems of many Grasses.

Strictus. *Stiff* and *Straight*. See *Straight*.—Applied to the stem in *Astragalus fulcatus*—to the culm—branch—leaves in *Campanula patula*—and to the peduncle.

Strigæ. Stiffish flatish lanceolate bristles or prickles: as on *Cactus*, *Malpighia*, *Hibiscus*, *Rubus*.

Strigosum folium. A Strigose leaf. Set with *strigæ*, or stiff lanceolate bristles.

Strobilus. A *Strobile*. A Pericarp formed from an Ament, by the hardening of the scales—or, made up of scales that are imbricate, or lie over each other, from an Ament contracted or squeezed together, in their state of maturity.—This term includes not only the Cone, but also some other fruits, which recede considerably in structure from that sort of Pericarp; as that of *Magnolia*. t. 6. f. 1.—To translate *Strobilus* therefore by *Cone* is improper. See *Cone*.

Strobiliformis spica. A Strobile-shaped spike: as in *Justicia Ecbolium*.

Stylus. The *Style*. A part of the Pistil, raising the stigma from the germ, or connecting the germ at bottom with the stigma at top. Dr. Withering names it the *shaft*, which is agreeable to its derivation, from *στυλος*, a column: but *Style* has generally obtained.

Sub in composition, is frequently used by Linneus for *almost*, *nearly*, *somewhat*, *thereabouts*, *approaching to*, *most commonly*; and signifies that the term must be understood with some latitude. Thus *subacaulis* is almost without stem—*subæqualis* nearly equal—*subcordatus* somewhat heart-shaped.—Sometimes the Latin prefix may be preserved, as *subovatus*, subovate; *subsessilis*, subsessile: or the English termination *ish* may be used, *subrotundus*, roundish.

Sometimes however *Sub* has the common meaning of *under*: as *folium submersum* is a leaf under water. *Herbæ submarine* are herbs growing at the bottom of the sea.

Subdivisus does not mean somewhat or a little divided, but *divided again*, in the usual sense of our English *subdivided*.

Suberosus. *Corky*, of a substance like cork. To be distinguished from *sub-croesus*, which is applied to leaves that have little

irregular sinuses on their edges, giving them the appearance of having been gnawed by insects.

Substantia. The substance of a vegetable consists of the *Epidermis* or *Cuticle*, covering the *Cortex* or outer Bark, depositing from its inner surface the *Liber* or inner Bark, which changes gradually into harder and harder rings of *Wood*, clothing the *Medulla* or *Pith*.—Or, taking it the other way, the Substance is the *Medulla* or *Pith* clothed by the *Wood*, which is formed from the *Liber*, separating from the *Cortex*, invested by the *Epidermis*.

Subulatum folium. A *Subulate* or *awl-shaped* leaf. Linear at bottom, but gradually tapering towards the end. t. 2. f. 8. As in *Arenaria saxatilis*, *Sedum rupestre*.—Applied also to the Filament, in class *Didynamia*, &c.—to the scales of the calyx, in *Dianthus chinensis*—to the Stipule, Anther, Style and Receptacle.

Succulentum folium. A *Succulent* leaf. Full of juice; in opposition to *exsuccum*, juiceless or dry.—Applied also to the Drupe, as in the *Plum* or *Peach*; opposed to *Sicca*, dry, as in the *Almond*. Hence

Succulentæ. The 46th Order in Linneus's fragments: and the 13th in his natural orders.

Sucker. *Stolo*. A side shoot from the root of vegetables, particularly shrubs, by which they may be propagated. See *Runner* and *Sarmentosus*.

Suffrutex. An *Undershrub*. Permanent or woody at the base, but the yearly branches decaying; usually of a lower growth than the *Frutex* or *Shrub*: as *Lavender*, *Sage*, *Thyme*. *Suffruticosus*. Suffruticose, Undershrubby.

Sulcatus. See *Furrowed*.

Superficies folii. See *Disk* and *Pagina*.

Superflua Polygamia. Superfluous Polygamy. The name of the second Order in the class *Syngenesia*: wherein the florets of the disk are hermaphrodite and fertile; and the florets of the ray, though female only, are also fertile.

Superus flos f. calyx. A *Superior* flower or calyx. Having the receptacle of the flower above the germ.—*Superum germen*. A *Superior* germ, is included within the corolla. This must have an inferior calyx, and the contrary.

Supinus discus folii f. superior pagina. The upper surface of a leaf.

Support. See *Fulcrum*.

Supra-axillaris. See *Supra-foliaceus*.

Supradecompositum folium. A *Superdecompound* leaf. When a petiole divided several times connects many leaflets; each part forming a decompound leaf: as in *Pimpinella glauca*, *Ranunculus rutafolius*. *Tergeminate*, *Triterminate*, and *Tripinnate* leaves are species of this.

Suprafoliaceus f. supra-axillaris pedunculus, f. flos. A peduncle or flower inserted into the stem above the leaf, or petiole, or axil.

Surculus. A tender *Shoot* from a branch. Linneus puts it for a branchlet of Moss, and a shoot of Fern.

Sword-shaped leaf. See *Ensisforme*.

Syngenesia. The name of the 19th class in Linneus's artificial system; comprehending those plants which have the anthers united into a cylinder.—The orders are six.—1. *Polygamia Equalis*.—2. *Polygamia Superflua*. 3. *Polygamia Frustranea*. 4. *Polygamia Necessaria*. 5. *Polygamia Segregata*. 6. *Monogamia*.—The five first orders contain the Compound flowers, and form a Class truly Natural. t. 7. f. 19. and t. 8. f. 15—20.

Systema. A *System* is a regular arrangement of natural bodies, according to some certain characters.—In Botany it consists of five members or divisions. 1. Class. 2. Order. 3. Genus. 4. Species. 5. Variety.

Tail. *Cauda*. A process or thread terminating a seed, and facilitating its propagation. t. 6. f. 9.—This term was used formerly for the narrow base of a petal in a polypetalous corolla, which Linneus names *Unguis*, the *Claw*.

Tapered or Tapering. See *Attenuatus*.—Dr. Withering puts this term for *Acuminatus*.

Target-shaped. See *Peltatum*.

Tendril or Clasper. *Capreolus*, *Cirrus*. One of the *Fulcres*. A spiral shoot or string, by which some plants support themselves on other bodies, as the *Vine*, *Pea*, &c.

Tenuis is put both for *Slender* and *Thin*.—*Tenuifolia planta*, is a plant with narrow leaves.

Tercs. Without angles. It may often, but not always be expressed in English by *round*. *Cylindrical* is not strictly proper; for stems and branches, leaves, petioles and peduncles, to which it is applied, resemble the shaft of a column, tapering gradually from the bottom upwards. *Columnar* would be more accurate: but Linneus has appropriated the term *columnaris* to the filique of *Erysimum*, which is in shape of a square column.—*Allium vineale* and *sleraceum* are instances of the *teres* in leaves.

Tergeminum folium. A *Tergeminate* or thrice-double leaf. When a forked petiole is so subdivided as to have two leaflets at the extremity of each subdivision; and also two other leaflets at the division of the common petiole. It is a species of the superdecompound leaf.

Terminalis. *Terminating*, or coming out at the end of a branch or stem. Applied to scape, peduncle, flower, spike, cyme, anther, awn, and thorn. Opposed to *axillary*.

Terna

Terna folia. Three-fold leaves, or rather in threes, or three and three: expressing the number of leaves in each whorl or set: as in *Statice sinuata*. See *Stellata*.

Applied to peduncles, in threes from the same axil: as in *Impatiens zeylanica*.

Terni flores. flowers in threes: as in *Beta Cicla*.

Ternatum folium. A *Ternate* leaf. Having three leaflets on one petiole: as in *Trefoil*, *Strawberry*, *Bramble*, &c. t. 3. f. 2.

Tessellatum folium, petalum: A *Tessellate* or chequered leaf or petal. Painted or spotted like a chess-board. For the leaf, Linneus refers to *Satyrion repens*, and *Cypripedium bulbosum*. As an instance of a flower, we may cite *Fritillaria Meleagris*.

Tetradynamia. The name of the 15th class in the Linnean system; comprehending those plants which bear hermaphrodite flowers with six stamens, four of which are longer than the other two. This is a truly natural class, and the same with the *Cruciformes* of Tournefort—the *Siliculosæ* and *Siliquosæ* of Ray; which last are the names of the Orders into which the class is divided by Linneus. t. 7. f. 15. and t. 8. f. 13, 14.

Tetraedra filiqua. A *four-sided* filique: called also by Linneus *columnaris*.

Tetragonus caulis. A *four-cornered* stem. Having four prominent longitudinal angles: as in *Passiflora alata*. A species of the *Anceps*.

Tetragynia. An Order in several of Linneus's classes; comprehending those plants which have four pistils.

Tetrandria. The fourth Class in the Linnean system; comprehending those plants which have hermaphrodite flowers with four stamens of equal lengths.

Tetrapetala corolla. A *Tetrapetalous* or four-petalled corolla: consisting of four distinct petals: as in the class *Tetradynamia*.

Tetraphyllus calyx. A four-leaved calyx. Consisting of four distinct leaves or leaflets, Exemplified in *Sagina*, *Epimedium*, and the class *Tetradynamia*.

Tetrasperma planta. A four-seeded plant. Producing four seeds in each flower: as in the *Asperifoliæ* and *Verticillatæ*.

Textura vegetabilium. The texture of vegetables. See *Vessels*.

Thalamus. See *Receptaculum*.

Thorn or *Spine*. *Spina*. A sharp process from the woody substance of a plant; as in *Prunus*, *Cratægus*, &c. See *Prickle*.—It commonly disappears by culture; as in *Pear*, *Orange*, &c.

Thorny. *Spinosus*: Armed or set with thorns: as the stem of many shrubs.—A *Thorny* leaf. *Folium spinosum*. Running out at the edge into hard, stiff, sharp points. Opposed to *inermis*.—Sometimes a petiole, stipule or bracte becomes hard and sharp: it is then said to be *spinescens*, or becoming thorny.

Thread-shaped. See *Filiformis*.

Three-capsuled pericarp. *Tricapsulare Pericarpium*. Having three capsules succeeding to each flower: as in *Veratrum*, *Delphinium*.

Three-celled Pericarp. *Triloculare Pericarpium*. Divided into three cells within: as *Lilium*. t. 5. f. 2.

Three-cleft. *Trifidus*. See *Cloven*. Applied to the leaf in *Reseda lutea*—to the calyx in *Alisma* and *Cliffortia*—to the nectary in *Nigella*—to the stigma in *Amaryllis formosissima*—to the Cirrus, &c.

Three-cornered or *Three-edged*. *Trigonus*. A species of the *Anceps* or ancipital stem: having three angles and the sides hollowed. In *triqueter* they are flat. See *Three-sided* and *Triangularis*.

Three-leaved calyx. *Triphyllus*. Consisting of three distinct leaflets: as in *Tradescantia*.

Three-lobed leaf. *Folium trilobum*. See *Lobatum*.—Instanced in *Leonurus Cardiaca*, *Reseda odorata*.

Three-nerved leaf. *Folium trinervium*. See *Nervosum*.

Three-parted leaf. *Folium tripartitum*. See *Partitum*. Instanced in *Eryngium campestre*. Applied also to the Cyme.

Three-petalled corolla. *Tripetala*. Consisting of three distinct petals: as in *Alisma*, *Sagittaria*.

Three-seeded capsule. *Trisperma*. Containing three seeds: as in *Euphorbia*. See *Tricocca*.—Applied also to the Berry.

Three-sided stem. *Triqueter caulis*. Having three plane sides: as in *Viola tricolor*—culm, as in *Carex*—leaf, as in *Anthericum ossifragum*.—Applied also to the scape, petiole, peduncle and pericarp. See *Triangularis*.

Three-valved pericarp. *Trivalve pericarpium*. Opening with three valves: as in *Viola*, *Polemonium*, *Cistus Helianthemum*.

Throat of the Corolla. See *Faux*.

Thyrus. A *Thyrse*. A species of inflorescence. A Panicle contracted into an ovate form: as in *Syringa* and *Petasites*.

Tomentosus. *Tomentose*, *Nappy*, *Coltony* or *Floppy*. A species of pubescence. Applied to the stem and leaf, when they are covered with interwoven hairs. It is generally white, as on some sea-plants, and many of those which grow in exposed situations.

Tongue-shaped. See *Linguiforme*.

Toothed. See *Dentatum*.—Somewhat toothed. *Subdentatus*.

Having very few teeth.—*Toothletted*. *Denticulatus*.

Having very small teeth.—*Tooth-ferrate*. *Dentato-ferratus*.—*Tooth-spined*. *Dentato-spinosus*. As in *Agave*.

Top shaped. See *Turbinatum*.

Torn. See *Lacera*.

Torofus. *Torose*: swelling out in knobs, like the veins and muscles. Applied to some filiques and other pericarps; as in *Lycopersicum* and *Phytolacca*.—*Torulofus*. Swelling a little.

Torsio. See *Intorsio*.

Tortilis, *Tortuosus*, *Tortus*. *Twisted*, *Twisting*, *Coiled*. Applied to the awn—and to the leaf, as in *Narcissus major*—to the corolla: see *Contorta*—to the legume, when the apex is not in the same line with the base. See *Twisted*.

Tracheæ. See *Vessels*.

Trailing. See *Procumbens*.

Transversum dissepimentum. A *transverse* partition. The same with *contrarium*. At right angles with the valves of the pericarp. Opposed to *parallel*. See *Partition*.

Trapeziforme folium. A leaf having the shape of a trapezium, or plane figure with four unequal sides.

Tree. *Arbor*. A vegetable with a single woody trunk.—Trees occupy the fifth tribe, division or cast of the vegetable kingdom, in Linneus's *Regnum Vegetabile*. In the artificial system they are incorporated with herbs that have the same character of the fructification. Ray and Tournefort kept them separate; but Rivinus had united them before Linneus.

Triandria. The name of the third class in the Linnean system, comprehending those plants which bear hermaphrodite flowers with three stamens.—The second order *Digynia* contains most of the Grasses.

Triangularis caulis. A *Triangular* stem. Having three prominent angles. In this term respect is had only to the number of angles.—*Trigonus*, *Tetragonus*, &c. are variations of the *caulis anceps*, in which the angles are sharp, and the sides not flat.—*Triqueter* has three flat sides.

Triangulare folium. A *Triangular* leaf. Any leaf which has three angles, of whatever form.

Tribus vegetabilium. *Tribes* of vegetables. These are 1. *Monocotyledones*, containing Palms, Corn and Grasses, and Liliaceous plants. Comprising the three first *Genes* or Nations.

2. *Dicotyledones*, containing Herbs and Trees. The fourth and fifth Nations.

3. *Acotyledones* or *Cryptogamia*. The four last Nations.

Trichotomus caulis. A *Trichotomous* stem. Dividing by threes.

Tricocca capsula. A *Tricoccus* or Three-grained Capsule, Swelling out in three protuberancies, internally divided into three cells, with one seed in each: as in *Euphorbia*. Hence

Tricoccae. The 47th Order in Linneus's fragments; and the 38th in his natural orders.

Tricuspidatum stamen. A *three-cusped* or three-pointed stamen: as in some species of *Allium*. See *Cuspidatum*.

Trifidus. See *Three-cleft* and *Cloven*.

Triflorus pedunculus. A *Three-flowered* peduncle. Bearing three flowers.

Triglochis. See *Barb* and *Glochis*.

Trigonus. See *Three-cornered* and *Triangularis*.

Trigynia. The name of an Order in several of the Linnean classes; including such plants as have three pistils to each flower.

Tribilatae. The 50th Order in Linneus's fragments; and the 23d of his natural orders.

Trijugum folium. A *trijugous* leaf. A pinnate leaf with three pairs of leaflets.

Trilobum folium. See *Three-lobed* and *Lobatum*.

Triloculare pericarpium. See *Three-celled*.

Trinerve folium. A *Three-nerved* leaf. Having three unbranched vessels meeting in the base of the leaf.—When they meet behind or beyond the base, it is named *trinervatum*: and when they meet above or short of the base, it is *triplinerve*. But these arbitrary distinctions are not observed; and the last term should rather mean threefold nerves, or running three and three together.

Trioecia. The third order in the class *Polygamia*, containing plants that have hermaphrodite, male and female flowers on three distinct individuals of the same species.

Tripartitus. See *Three-parted* and *Partitum*.

Tripetala corolla. See *Three-petalled*. Hence

Tripetalodæ. The 6th Order in Linneus's fragments; and the 5th of his natural orders.

Triphyllus calyx. See *Three-leaved*.

Triplinatum folium. A *Tripinate*, or three times pinnate leaf. A species of superdecompound leaf: when a petiole has bipinnate leaves ranged on each side of it: as in common Fern, *Pteris aquilina*.

Triplinerve. See *Trinerve*.

Triqueter. See *Three-sided*.

Trisperma capsula, *bacca*. See *Three-seeded*.

Triternatum folium. A *Triternate* or triply three-fold leaf. A species

A species of Superdecompound leaf, when a petiole has three biternate leaves.

Trivalve pericarpium. See *Three-valved*.

Trivialia nomina. *Trivial* or *Specific* names.

The common or vulgar names for the species of plants, which added to the name of the genus, form a complete denomination of the species. These were invented by Linnæus, and first used in the *Pan fucus*; afterwards in the *Species Plantarum*, and thenceforward in all his other works. See *Specific name*.

Tropici Solares flores. *Tropical Solar flowers*. See *Vigilia*.

Truncatum folium. A *Truncate* leaf. Ending in a transverse line, so that it seems as if the top of the leaf had been cut off: as in the *Tulip-tree*.—Applied also to the petal—and to the nectary in *Narcissus Tazetta*.

Truncus. The *Trunk*, stem, main body, or bole of a tree. Linnæus uses the term *Caudex*. He applies *Truncus* to the stem of vegetables in general; and explains it to be that which produces the leaves and fructification; or the organ multiplying the plant. For the stem of herbs he uses the term *Caulis*.

Tuber. A knob, in roots. Solid, with the component parts all similar.—It is also the Latin name for the *Truffle*.

Tuberculum. A little knob, like a pimple.

Tuberosa radix. A *Tuberous* or knobbed root. Consisting of roundish fleshy bodies, connected into a bunch by intervening threads: as in *Paeonia*, *Hemerocallis*, *Filipendula*, *Jerusalem Artichoke*, *Potatoe*.

Tubulatus calyx. A *tubular* calyx: running into the form of a tube.—Applied to the corolla in the class *Didynamia*—and to the nectary of *Hellebore*.

Tubulosus flos. A *Tubulous* compound flower, composed wholly of tubulous florets: as in *Tansy*.—*Tubulosus flosculus*. A *Tubulous* floret: having a bell-shaped border, with five reflex segments, rising from a tube: as in the disk of the *Sun-flower*, *Daisy*, &c.—*Tubulosus caulis*. A hollow stem.—*Tubulosum folium*. A hollow leaf: as in *Onion*.

Tubus. A tube or hollow pipe. Put for the lower, narrow, hollow part of a one-petalled corolla, by which it is fixed into the receptacle.

Tunicatus bulbus. A *tunicated* or coated bulb: composed of numerous concentric coats; as the *Onion*.—*Tunicatus caulis*. A *tunicated* stem. Clothed with membranes.

Turbinatum. *Turbinate* or *Top-shaped*. Narrowed at the base, or inversely conical. Shaped like a boy's top or a pear. Applied commonly to the Germ and Pericarp.—Also to the Perianth, as in *Grifflea* and *Memecylon*—and to the Nectary, in *Narcissus Bulbocodium*.

Turio. The extreme twig or tender shoot of a tree.—The tender sprout or shoot of an herb from the ground, is called *Asparagus*.

Twin anther. *Didyma anthera*. Swelling out into two protuberances: as in *Ranunculus* and *Mercurialis*.—Applied also to Germ and Pericarp: as in *Veronica*.

Twining stem. *Caulis volubilis*. Ascending spirally round a branch, stem or prop. This is done either from right to left, contrary to the sun's apparent motion, as in *Hops*, *Honeysuckle*, *Black Bryony*, &c.—Or, from left to right, with the sun, as in *Convolvulus*, *Basella*, *Phaseolus*, *Cynanche*, *Euphorbia*, *Eupatorium*.

In order to understand this, we must conceive the spectator to stand with his face to the south, when of course the east will be on his left hand. Thus stationed, if he observes a stalk of *Convolvulus* or *Kidney Bean*, he will see that it twines from the left or east; by the south, towards the west: and that a *Honeysuckle* or *Hop* takes a contrary direction.

Twisted. See *Tortilis*. If we are to make any difference between this and *Coiled*, I should conceive the deviation of the latter to be in the same plane, and that of the former to be in different planes.

Two-capuled. See *Bicapsular*.

Two-celled. *Bilocularis*. A fruit divided into two cavities. This term is preferable to *Bilocular*, because we use the word *Cell* in English.

Two-cleft or Bifid. See *Cloven*. *Utricularia* is an instance of the two-cleft perianth.

Two-edged or Ancipital. See *Anceps*.

Two-faced leaves. See *Bifarius*.

Two-flowered peduncle. *Pedunculus biflorus*. Proceeding simple from the stem or branch, but bearing two flowers at the end.

Two-fold leaves. See *Binata* and *Binatum*.

Two-forked. See *Dichotomous*.

Two-horned. See *Bicornes*.

Two-leaved. See *Diphyllus*.

Two-lipped. See *Bilabiate*.

Two-lobed leaf. *Bilobum folium*, See *Lobatum*.

Two-parted. See *Partitum*.

Two-petalled. See *Dipetalum*.

Two-ranked or two-rowed. See *Distichus*.

Two-seeded fruit. *Dispermus fructus*. Containing two seeds. —*Disperma planta*. Having two seeds following each flower: as in Umbellate and Stellate plants.

Two-valved pericarp. *Bivalve pericarpium*, See *Bivalve*.

Vagina. A *Sheath*; which see. Hence

Vaginales. The 27th Order in Linnæus's fragments.

Vaginant folium. A *Sheathing* leaf.

Vaginatus caulis. A *Sheathed* stem.

Valva f. Valvula. A *Valve*, *Valvule* or *Valvelet*. (But since Linnæus does not make any distinction between *valva* and *valvula*, there seems to be no occasion to use the diminutives in English.) The outer coat, shell or covering of a capsule or other pericarp; or the pieces which compose it.—If a pericarp be entire, it is said to be *univalve*, or to consist of one valve. If it be divided, it is called *bivalve* or two-valved, *trivalve* or three-valved, according to the number of pieces or divisions.

The leaflets composing the calyx and corolla in Grasses are also named *Valves*: as are also the substances or scales which close the tube in some flowers: as in *Borage* and other *Asperifoliae*.

Valvatum petalum. A *valved* petal. Resembling the glume or valves in Grasses.

Varietas. A *Variety*. A Plant changed by some accidental cause; as size, fulness, curling, colour, taste and smell. There are as many Varieties, as there are plants of different appearance produced from seed of the same species.

Vasa. See *Vessels*.

Vaulted. *Fornicatus*. Arched like the roof of the mouth: as the upper lip of many Ringent flowers; in *Aconite*, &c.

Vegetabile. A *Vegetable*. Having compound life, without voluntary motion. Or, an Organical body, which draws in its nourishment by pores or vessels on its outer surface. Or, an Organical body destitute of sense and spontaneous motion, adhering to some other body in such a manner as to draw from it nourishment, and having the power of propagating itself by seed.

The primary parts of a Vegetable are—1. The Root. 2. The Herb. 3. The Fructification.

Vegetable Kingdom. *Regnum Vegetabile*. The second of the three great divisions of natural bodies, comprehending those substances which are organized and have life, but are destitute of sense and spontaneous motion. Linnæus distributes Vegetables into three Tribes, seven Families, and nine Nations. In his Artificial System he arranges them in twenty-five Classes. He has also made essays to reduce them into Natural Orders.

Vegetable Substance. See *Substantia*.

Veil. See *Calyptra*.

Venosum folium. A *Veined* or *Veiny* leaf. Having its vessels branching or variously divided.

When it has no veins, at least none that are perceptible to the naked eye, it is called *Folium avenium*, a *Veinless* leaf.

Ventricosus. *Ventricose*, *Bellied* or *Bellying*. Swelling out in the middle or at the sides. Applied to the Perianth in *Æsculus*; and to the corolla in *Digitalis*.

Ventriculosus. Swelling out a little; as the perianth of *Salicornia*.

Vepreculæ. The 54th Order in Linnæus's fragments, and the 31st of his natural orders.

Vernatio. See *Foliatio*.

Verrucosa capsula. A *Warted* capsule. Having little knobs like warts upon the surface: as in *Euphorbia verrucosa*.—*Verrucosum folium*. A *Warted* leaf. Covered with fleshy points.

The same with *Papillosum*.

Versatilis anthera. A *Versatile* anther. Placed by its side on the filament, so as to be freely moveable. Opposed to *cresta*, upright, which is stiffened by its base. Exemplified in *Vitex*, *Linnaea*, *Geranium*.

Verticale folium. A *Vertical* leaf. Opposed to *Horizontal*.

Verticillus. A *Whorl* or *Whirl*. A sort of inflorescence made up of several subsessile flowers surrounding the stem or branch in a ring: as in *Mint*, *Horehound*, &c.

Verticillati flores. *Verticillate* flowers, or flowers in a Whorl.—Applied to peduncles; and sometimes to branches and leaves.

Verticillatæ. *Verticillate* plants. Included in the 58th Order of Linnæus's fragments; and the 42nd of his natural orders.—In the artificial system they form the order *Gymnospermia* of the class *Didynamia*.—They also constitute one of Ray's classes.

Vesicularis Scabrities. *Vesicular* or bladdery ruggedness. Having little glands like bladders on the surface, as on the leaves of *Mesembryanthemum*, *Aizoon*, *Tetragonia*, &c.—It is applied also in common language to the pulp of *Orange*, *Lemon*, &c.

Vessels. *Vasa*—are 1. *Succiferous* or *Sap Vessels*. Canals commonly straight, and of a very small bore, for conveying the juices or sap of the vegetable.

2. *Utricles* or little Bags; usually full of a green pulp, filling up the interstices of the vessels, and serving as reservoirs wherein the sap is lodged and perhaps secreted.

3. *Air-vessels*, *Tracheæ*. Spiral canals, usually of a larger bore, for receiving and distributing the air.

See Grew's Anatomy of Vegetables, and Knight in Philos. Transf.

Vexillum. See *Standard*.

Vigiliæ plantarum f. florum. The state of the flower when opened. These *Vigiliæ* or Watchings are performed at determinate hours of the day, when plants open, expand, and shut their flowers daily.

Linneus calls those flowers which observe this stated rule of opening and shutting, *Solar* flowers; and divides them into three kinds.—

1. *Meteorici* opening and shutting sooner or later, according to the temperature of the air.

2. *Tropici*, or Tropical Solar flowers. Opening and shutting sooner or later as the days increase or decrease; and therefore observing the unequal or Turkish hours.

3. *Æquinoctiales*, or Equinoctial Solar flowers. Opening and usually shutting at certain determinate hours of the day; and therefore observing equal or European hours.

Linneus has given a table of these, with some observations, in *Philos. bot.* p. 273.

Villosus. *Villosus*. Pubescent, or covered with soft hairs. As the stem in *Tomex* and *Rhus*. The leaf in *Ulex europæus* or Furze, *Primula villosa*, &c.—Also the stigma.

Villus. Collected hairs; the pile or nap of cloth.—In Linneus's idea, it seems to be soft close hairs, forming a fine nap or pile like velvet.

Vimen. A bending *Twig* or *Wythe*: slender and flexible, fit for binding.

Virgatus caulis. A *Rod-like* or *Wand-like* stem or branch. Shooting forth slender weak unequal rods or twigs: as in *Artemisia campestris*.

Virgultum. Small twigs or brush-wood. Otherwise called *Cremum*, a *cremando*, from burning.

Viscidum folium. A *Viscid* or *Clammy* leaf. Covered or besmeared with a tenacious juice: as in *Senecio viscosus*. Applied also to the stem.

Vivipara planta. Viviparus caulis. A *Viviparous* plant or stem. Producing its offspring alive: either by bulbs instead of seeds; or by the seeds themselves germinating on the plant, instead of falling as they usually do.—Exemplified in some sorts of *Allium*, in *Polygonum viviparum*, and several of the *Grasses*.

Umbella. An *Umbel*. A Receptacle stretching out into filiform proportioned peduncles from the same centre.—It is a species of inflorescence, and is either 1. *Simple* or undivided. Or 2. *Compound*: each peduncle bearing another umbel, called *Umbellule* or *Umbellet*.—The first or larger set of rays constituting the *general* umbel; the second or subordinate set constituting the *partial* umbel or *Umbellet*.—

3. *Proliferous* or *superdecompound*.

Flowers growing in this manner are called *Umbellati*, *Umbellate* or *Umbelled* flowers: by old authors *Umbelliferous*. Hence

Umbellata. The 22nd Order in Linneus's fragments; and the 42nd in his natural orders. Included in the 2nd

Order of the 5th class, in the artificial system.—This Order is called by Ray and others *Umbelliferae*; by Cæsalpinus *Ferulaceæ*.

Umbilicus. The Navel. Used for the cavity at the end of some fruits opposite to the foot-stalk. It is the place of the receptacle in superior flowers, and is commonly surrounded by the remains of the calyx: as in *Pyrus*.

This term is sometimes applied to the centre of a corolla: as in *Browallia*.

Umbilicatus flos f. fructus. An *Umbilicate* flower or fruit. Formed in the middle like a navel.

Unangulatus caulis. A stem of one angle: as in *Iris foetidissima*.

Unarmed. *Inermis*. Without thorns or prickles. Applied to the stem, leaf and calyx.

Uncinatus. *Uncinate*. Hooked at the end: as the awn of the seed in *Geum urbanum*; and the stigma in *Viola*, *Lantana*, &c.—This term is used, but not explained by Linneus. In what it differs from *hamosus* I know not.

Undatus f. Undulatus. *Waved*. The surface rising and falling obtusely, not in angles. Applied to the leaf in *Potamogeton crispum*; and to the corolla in *Gloriosa*.

Undershrub. See *Suffrutex*.

Unguis. A measure of six lines. See *Measures*.—Also the base of the petal in a polypetalous corolla, called the *Claw* or *Tail*.

Ungulata filicula. A hoof-shaped filicle; as in *Rose of Jericho*.

Unicapulare pericarpium. A *Unicapular* pericarp. Having one capsule to each flower.

Unicus. See *Singlè*.

Uniflorus pedunculus. A one-flowered peduncle.

Unilabiata corolla. A one-lipped corolla.

Unilateralis racemus. A one-sided raceme. When the flowers grow on one side only of the common peduncle.

Uniloculare pericarpium. A unilocular or one-celled pericarp.

Univalve pericarpium. A univalvular or one-valved pericarp.

Universalis umbella. A *General* or *primary* umbel.—*Universale involucreum*. A *General* involucre: placed at the foot of the general umbel.

Volva. The membranaceous calyx of a Fungus.

Volubilis. See *Twining*.

Upright. See *Erect*.

Urceolatus. See *Pitcher-shaped*.

Urens. Stinging or armed with stings.

Utriculi. *Utricles*. See *Vessels*.

Waking or Watching of plants. See *Vigiliæ*.

Wand-like or Rod-like stem. See *Virgatus*.

Warted. See *Verrucosa*.

Wedge-shaped leaf. *Folium cuneiforme*. Having the longitudinal diameter exceeding the transverse one, and narrowing gradually downwards: as in *Apium graveolens*, *Saxifraga tridactylites*.

Wheel-shaped corolla. See *Rotata*.

Whorl, Wherl or Whirl. See *Verticillus*.

PLANTS in the body of this Work being arranged alphabetically, it will be a satisfaction to Botanists to have them arranged scientifically, according to the System of Linneus, together with their essential characters, from the heads of the Classes in the Systema Vegetabilium, corrected and enlarged in Willdenow's edition of Species Plantarum.

CLASS I.

MONANDRIA.

MONOGYNIA.

1. *Scitamineæ* with an inferior fruit one-celled or three-celled. *Canna* Jussieu.
 12. *KÆMPFERIA*. Cal. indistinct. Cor. six-parted: three of the segments larger patulous, one two-parted. Stigma bilamellate.
 3. *RENEALMIA*. Cal. one-leaved bursting. Cor. trifiid unequal. Neet. oblong, one toothed at the base on each side. Berry.
 2. *HELLENIA*. Cal. spathe-form. Cor. limb double, outer subtrifiid. Neet. two-leaved or bifid.
 6. *HEDYCHIUM*. Cal. one-leaved bursting. Cor. tube very long, limb double three-parted. Neet. two-leaved.
 11. *CURCUMA*. Cal. bifid. Cor. four-parted. Neet. three-lobed. Anther two-spurred at the base.
 5. *HORNSTEDTIA*. Cal. bifid. Cor. tube long filiform, limb double outer three-parted. Neet. tubulous.
 8. *ALPINIA*. Cal. three-toothed equal tubulous. Cor. three-parted equal. Neet. two-lipped, lower lip spreading.
 4. *AMOMUM*. Cal. trifiid unequal cylindrical. Cor. three-parted unequal spreading. Neet. two-lipped uprightish.
 7. *COSTUS*. Cal. trifiid gibbous. Cor. three parted ringent, Neet. two-lipped, lower lip very large three-lobed.
 10. *MARANTA*. Cal. three-leaved. Cor. trifiid. Neet. three-parted, the third upper segment having the anther at the side.
 1. *CANNA*. Cal. three-leaved. Cor. six-parted. Neet. two-parted. Caps. three-celled. Plate 1. f. 3, 4.
 14. *PHRYMUM*. Cal. three-leaved. Cor. three-petalled growing to the tube of the nectary. Neet. tube filiform limb four-parted. Caps. three-celled. Nuts three.
 13. *THALIA*. Cal. three-leaved. Cor. five-petalled, the two interior ones smaller. Neet. lanceolate concave. Drupe with a one-celled nut.
 9. *MYROSMA*. Cal. double, outer three-leaved, inner three-parted. Cor. five-parted irregular.
2. Fruit inferior four-celled.
 18. *LOPEZIA*. Cal. four-leaved. Cor. five-petalled unequal. Caps. four-celled four-valved many-seeded. Plate 1. f. 1, 2.
3. Fruit superior.
 15. *PHYLIDRUM*. Spathe one-flowered. Cal. none. Cor. four-petalled irregular. Caps. three-celled many-seeded.
 16. *CUCULLARIA*. Cal. four-parted. Cor. four-petalled unequal spurred. Filam. petal-form. Anth. with cells distinct.
 17. *QUALEA*. Cal. four-parted. Cor. two-petalled. Berry?
 19. *USTERIA*. Cal. four-toothed, with one segment much larger than the rest! Cor. funnel-form four-toothed. Caps. one-celled two-seeded.
 - + *Mangifera indica*. *Tradescantia monandra*.
4. One-seeded.
 20. *BOERHAAVIA*. Cal. superior with the rim quite entire. Cor. one-petalled bell-form.
 23. *HIPPURIS*. Mare's-tail. Cal. superior with a two-lobed rim [indistinct.] Cor. none. Pl. 1. f. 5, 6, 7.
 22. *SALICORNIA*. Cal. one-leaved ventricose. Cor. none.
 21. *POLLICHIA*. Cal. one-leaved five-toothed. Cor. none. Seed one covered with two berried scales of the receptacle.
 24. *MITHRIDATEA*. Recept. many-flowered four-cleft. Cal. none. Cor. none. Seeds solitary immersed in a fleshy receptacle.
 - + *Valeriana rubra*, *angustifolia*, *Calcitrapa*. Some species of *Scirpus* and *Cyperus*. *Alchemilla Aphanes*, *monandra*, *Polycnemum monandrum*.
5. Angiospermous.
 - CHARA*. Cal. Cor. Style none. Anther sessile. Berry many-seeded. See *Monocelia*.
 - ZOSTERA*. Spadix many-flowered. Cal. and Cor. none. Anth. sessile opposite to the germ. Stigmas two linear. Caps. one-seeded. See *Monocelia*.
- DICYNIA.
25. *LACISTEMA*. Cal. the scale of the ament. Cor. four-parted. Filam. bifid. Berry pedicelled one-seeded.
 26. *CORISPERMUM*. Cal. none. Cor. two-petalled. Seed one.
 27. *CALLITRICHE*. Cal. none. Cor. two-petalled. Caps. two-celled. [Seeds four naked.]
 28. *BLITUM*. Cal. trifiid berried. Cor. none. Seed one.
 29. *MNIARUM*. Cal. four-parted superior. Cor. none. Seed one.
 30. *CINNA*. Cal. a one-flowered glume. Cor. a two-valved glume. Grafs.
 - + *Leersia monandra*.

CLASS II.

DIANDRIA.

MONOGYNIA.

1. Flowers inferior, one-petalled, regular.
36. *OLEA*. Olive. Cor. four-cleft, with subovate segments. Drupe one-seeded.
37. *CHIONANTHUS*. Fringe or Snow-drop-tree. Cor. four-cleft, with very long segments. Drupe one-seeded with a striated nut.
35. *PHILLYREA*. Cor. four-cleft. Berry one-seeded.
34. *LICUSTRUM*. Privet. Cor. four-cleft. Berry four-seeded.
40. *PIMELEA*. Cor. four-cleft. Cal. none. Stam. inserted into the throat. Nut covered with a bark one-celled.
38. *SYRINGA*. Lilac. Cor. four-cleft. Caps. two-celled.
41. *ERANTHEMUM*. Cor. five-cleft, with flat obovate segments. Capsule.
31. *NYCTANTHES*. Cor. four-cleft, with truncate segments. Caps. two-celled margined. Seeds solitary.
32. *JASMINUM*. Cor. five to eight-cleft. Berry dicocious. Seeds solitary arilled.
33. *GALIPEA*. Cor. four or five-cleft. Stam. four, two of them barren. Capsule?
+ *Fraxinus*.
2. Flowers inferior, monopetalous, irregular. Fruit capsular.
45. *PÆDEROTA*. Cor. four-cleft, with a smooth throat. Cal. five-parted. Caps. two-celled.
46. *WULFENIA*. Cor. four-cleft, with a bearded throat. Cal. five-parted. Caps. two-celled.
44. *VERONICA*. Speedwell. Cor. four-parted, wheel-shaped, with the lower segment narrower. Caps. two-celled. Pl. 1. f. 10, 11.
49. *GRATIOLA*. Cor. four-cleft bilabiate resupine. Stam. four, two barren. Caps. two-celled.
50. *SCHWLNKIA*. Cor. almost equal, with the mouth plaited-stellate glandulous. Stam. five, three barren. Caps. two-celled.
48. *JUSTICIA*. Cor. irregular. Caps. two-celled bursting by the elastic claw; partition contrary adnate.
47. *CYRTANDRA*. Cor. irregular. Stam. four, two barren. Berry two-celled.
53. *PINGUICULA*. Butterwort. Cor. ringent spurred. Cal. five-cleft. Caps. one-celled.
51. *CALCEOLARIA*. Cor. ringent inflated. Cal. four-cleft. Caps. two-celled, four-valved.
52. *BAEA*. Cor. ringent. Cal. five-parted. Caps. two-celled four-valved.
54. *UTRICULARIA*. Bladderwort. Cor. ringent spurred. Cal. two-leaved. Caps. one-celled.
55. *GHINIA*. Cor. ringent. Cal. five-awned. Nut fleshy four-celled.
66. *SCIURIS*. Cor. ringent. Stam. five, three barren. Caps. five coalescent.
- + *Hemimeris sabulosa*, *diffusa*, *montana*. *Bignonia Catalpa*, *longissima*.
3. Flowers inferior, monopetalous, irregular. Seeds naked.
56. *VERBENA*. Vervain. Cor. almost equal. Cal. upper segment shorter. [Stam. and seeds two or four.]
57. *LYCOPUS*. Water Horehound. Cor. four-cleft almost equal, with one segment emarginate. Stam. distant.
58. *AMETHYSTEA*. Cor. five-cleft almost equal, with the lowest segment concave. Stam. approximating.
60. *ZIZIPHORA*. Cor. ringent, with the helmet reflexed. Cal. filiform.
61. *MONARDA*. Cor. ringent, with the helmet linear involving the genitals.
62. *ROSMARINUS*. Rosemary. Cor. ringent, with an arched bifid helmet. Stam. curved with a tooth.
63. *SALVIA*. Sage. Cor. ringent. Filam. pedicelled transversely.
59. *CUNILA*. Cor. ringent, with a flat helmet. Stam. four, two barren.

The plants printed in Italic character with a dagger prefixed will be found in their proper places; but to avoid mistake are also inserted where the student would expect to find them, if the laws of the system were rigidly observed.
The numbers before the names refer to the genus, in Willdenow's Species Plantarum.

64. **COLLINSONIA.** Cor. subringent, with a capillary multifid lip.
 † *The Plants of this section belong to the natural order of Verticillatae, along with those of the first order in the class Didynamia. Labiatae Juss. Verbena ought rather to be referred to the order Didynamia. It is placed by Jussieu in his order of Vitices.*
 4. *Flowers inferior polypetalous.*
42. **FONTANESIA.** Cor. two-petalled. Cal. four-parted. Caps. two-celled, not opening.
68. **LITHOPHILA.** Cor. three-petalled. Cal. three-leaved. Peric. two-celled.
69. **LINOCIERA.** Cor. four-petalled. Cal. four-toothed. Berry two-celled.
39. **DIALIUM.** Cor. five-petalled. Cal. none.
 † *Polycnemum sclerspermum.*
 5. *Flowers superior.*
65. **MORINA.** Cal. of the fruit tooth-awned—of the flower bifid.
43. **CIRCEA.** Enchanter's Nightshade. Cal. two-leaved. Cor. two-petalled obcordate. Pl. 1. f. 8, 9.
67. **GLOBBA.** Cal. trifid. Cor. trifid. Caps. three-celled.
 † *Valeriana Cornucopiae. Boerhaavia erecta, hirsuta, scandens.*
 6. *Flowers apetalous.*
70. **ANCISTRUM.** Cal. four-leaved. Drupe juiceless hispid one-celled.
71. **ARUNA.** Cal. five-parted. Berry one-celled.
 † *Salicornia. Lepidium ruderales. Coronopus didyma.* Sometimes four-petalled.
- DIGYNIA.**
72. **ANTHOXANTHUM.** Vernal Grass. Cal. Glume two-valved one-flowered. Cor. Glume two-valved acuminate awned. Plate 1. f. 12, 13.
73. **CRYPsis.** Cal. Glume two-valved one-flowered. Cor. Glume two-valved awnless.
 † *Saccharum cylindricum, Thunbergii.*
- TRIGYNIA.**
74. **PIPER.** Pepper. Cal. none. Cor. none. Berry one-seeded.
- CLASS III.**
- TRIANDRIA.**
- MONOGYNIA.**
1. *Flowers superior.*
75. **VALERIANA.** Cor. five-cleft, gibbous at the base. Seed one.
84. **MELOTHRIA.** Cor. five-cleft wheel-shaped. Berry three-celled.
92. **CROCUS.** Cor. six-parted equal. Stigmas convolute. Plate 1. f. 14.
93. **ANTHOLYZA.** Cor. six-cleft tubulous recurved, with unequal segments.
94. **GLADIOLUS.** Cor. six-parted tubulous, segments nearly equal, the upper ones converging.
97. **IRIS.** Cor. six-parted, with the alternate segments bent back. Stigmas petal-form.
93. **IXIA.** Cor. six-parted spreading. Stigmas three simple.
96. **ARISTEA.** Cor. six-petalled. Style declining. Stigma funnel-form gping.
98. **MORÆA.** Cor. six-petalled: petals alternate unequal spreading. Pl. 1. f. 17.
100. **DILATRIS.** Cor. six-petalled hirsute. Third Filament less than the others. Stigma simple.
 † *Boerhaavia excelsa, repanda, chierophylloides, plumbaginea. Pontederia limosa.*
2. *Flowers inferior, not glumaceous. Fruit vascular, except Polycnemum.*
101. **WITSENIA.** Cor. six-parted cylindrical. Stigma emarginate. Cal. none.
99. **MARICA.** Cor. six-parted, with three alternate segments only half the size of the others. Stigma petaloid trifid with the segments undivided. Cal. none.
103. **WACHENDORFIA.** Cor. six-petalled unequal. Cal. none.
102. **XIPHIDIUM.** Cor. six-petalled equal. Cal. none.
104. **COMMELINA.** Cor. six-petalled, three or four of them calyx-form. Nect. cruciate pedicelled.
76. **OKYBAPHUS.** Cor. five-toothed funnel-form. Cal. five-cleft. Nut five-cornered winged with the calyx!
78. **MACROLOBIUM.** Cor. five-petalled unequal. Cal. double, outer two-leaved, inner five-toothed. Legume.
79. **ROHRIA.** Cor. five-petalled unequal. Cal. five-parted. Stigmas three revolute. Capsule?
89. **HIPPOCRATEA.** Cor. five-petalled. Cal. five-parted. Caps. three, two-valved.
90. **TONSELLA.** Cor. five-petalled. Cal. five-parted. Nect. urceolate. Berry one-celled four-seeded.
87. **LOEFLINGIA.** Cor. five-petalled. Cal. five-leaved. Caps. one-celled.
83. **WILLICHIA.** Cor. four-cleft. Cal. four-cleft. Caps. two-celled.
105. **CALLISIA.** Cor. three-petalled. Cal. three-leaved. Caps. two-celled.
106. **SYENA.** Cor. three-petalled. Cal. three-leaved. Caps. three-valved one-celled.
80. **RUMPHIA.** Cor. three-petalled. Cal. three-cleft. Drupe inclosing a three-celled nut.
91. **FISSILIA.** Cor. three-petalled cohering, two of the petals bifid. Cal. urceolate entire. Stam. eight, five of them barren. Nut one seeded.
81. **CNEORUM.** Cor. three-petalled. Cal. three-toothed. Berry tricoecous.
107. **XYRIS.** Cor. three-petalled. Cal. two-valved. Caps. three-celled.
82. **COMOCLADIA.** Cor. three-parted. Cal. three-parted. Style none. Drupe.
77. **OLAX.** Cor. trifid. Cal. entire. Gland.
85. **ROTALA.** Cor. none. Cal. three-toothed. Caps. three-celled.
86. **ORTEGIA.** Cor. none. Cal. five-leaved. Caps. one-celled.
88. **POLYCNEMUM.** Cor. none. Cal. five-leaved, beneath three-leaved. Seed one.
 † *Tradescantia multiflora. Hirtella triandra. Fagara spinosa, acuminata.*
 3. *Flowers inferior, glumaceous, like those of Grass.* Seed one.
111. **SCHOENUS.** Cal. Glumes chaffy in bundles, outer ones barren. Cor. none. Seed roundish.
112. **CYPERUS.** Cal. Glumes chaffy distich-imbricate. Cor. none. Seed beardless.
113. **SCIRPUS.** Cal. Glumes chaffy imbricate every way. Cor. none. Seed beardless.
115. **ERIOPHORUM.** Cal. Glumes chaffy imbricate every way. Seed surrounded with very long wool.
110. **MAPANIA.** Cal. six-valved. Cor. none. Involucre three-leaved.
117. **NARDUS.** Cal. none. Cor. Glume two-valved. Seed covered.
114. **MIEGIA.** Cal. two-valved. Cor. two-valved. Nect. one-valved involving the germ.
109. **KYLLINGIA.** Cal. two-valved. Cor. two-valved. Ament imbricate.
119. **CENCHRUS.** Cal. two-valved. Cor. two-valved. Invol. three-flowered or four-flowered, lacinate echinate.
118. **LYGEUM.** Cal. a Spathe. Cor. two-valved. Nut two-celled.
116. **POMMEREULLIA.** Cal. two-valved turbinate. Cor. three or four, two-valved, awned.
108. **FUIRENA.** Cal. none. Cor. three-valved. Ament imbricate, with awned scales*.
- DIGYNIA.**
1. *Calyxes one-flowered, wandering.*
127. **PANICUM.** Cal. three-valved; the third dorsal valve very small.
120. **CORNUCOPIÆ.** Cal. two-valved. Cor. one-valved. Invol. common one-leaved many-flowered.
146. **ARISTIDA.** Cal. two-valved. Cor. one-valved with three awns at the tip.
129. **ALOPECURUS.** Fox-tail Grass. Cal. two-valved. Cor. one-valved undivided at the tip.
128. **PHLEUM.** Cat's-tail Grass. Cal. two-valved truncate acuminate sessile.
125. **PHALARIS.** Canary Grass. Cal. two-valved, valves keeled equal inclosing the corolla.
126. **PASPALUM.** Cal. two-valved, valves roundish of the same form with the corolla.
130. **MILIUM.** Millet Grass. Cal. two-valved ventricose bigger than the corolla. Stigmas villose.
131. **AGROSTIS.** Bent Grass. Cal. two-valved, valves acute shorter than the corolla. Stigmas feathered.
137. **DACTYLIS.** Cock's-foot Grass. Cal. two-valved, compressed, the larger valve keeled.
141. **STIPA.** Feather Grass. Cal. two-valved. Cor. with a terminating awn jointed at the base.
143. **LAGURUS.** Hare's tail Grass. Cal. two-valved villose. Cor. with two terminating awns and one dorsal awn.
122. **SACCHARUM.** Sugar-cane. Cal. two-valved clothed with woolliness on the outside. Cor. two-valved.
123. **PEROTIS.** Cal. none. Cor. two-valved clothed with woolliness on the outside.
124. **LEERSIA.** Cal. none. Cor. two-valved closed.
 † *Arundo epigeios, Calamagrostis, arenaria. Melica.*
2. *Calyxes two-flowered, wandering.*
132. **AIRA.** Cal. two-valved. Florets without any rudiment of a third between them.
133. **MELICA.** Cal. two-valved subbisflorous, with the rudiment of a third floret between them.

When the Student has determined the Class and Order of a Plant by the foregoing Tables, and has examined the Essential Characters of the Fructification by these Tables, he will then have recourse to the Body of the Work, where the Generic and Specific Descriptions, &c. are detailed at length.

The Plants of the first Section, with the exception of the two first, belong to the Natural Order of Ensatæ, and are of the Liliaceous Tribe.—*Irides* Juss.

* Most of this third section, together with Carex, Typha, &c. belong to the Natural Order of Calamariæ.—*Cyperoides* Juss.—*Nardus* and *Cenchrus* are ranged with Gramina.

- + *Tripsacum hermaphroditum*. *Holcus*.
3. Calyxes many-flowered, wandering.
136. UNIOLEA. Cal. many-valved, keeled.
135. BRIZA. Quaking Grass. Cal. two-valved. Cor. ventricose with cordate obtuse valves. Seed growing to the corolla. Pl. 1. f. 20, 21, 22.
134. POA. Meadow Grass. Cal. two-valved. Cor. valves ovate sharpish but awnless.
139. FESTUCA. Cal. two-valved. Spikelet oblong subcylindrical: glumes acuminate.
140. BROMUS. Cal. two-valved. Spikelet oblong: glumes awned below the tip, the inner glume ciliate.
142. AVENA. Oat. Cal. two-valved. Cor. glume subcylindrical awned at the back. Awn twisted.
144. ARUNDO. Reed. Cal. two-valved. Florets furrowed with a permanent wool.
145. PAPPOPHORUM. Cal. two-valved. Cor. two-valved many-awned.
153. LAPPAGO. Cal. subtrivalvular. Cor. two-valved reflexed.
- + *Dasylis glomerata*.
4. Spiked, with the common receptacle or rachis hollowed out.
148. ROTTBOELLIA. Cal. one-flowered pressed to the rachis, which is jointed.
150. SECALE. Rye. Cal. two-valved, two-flowered, solitary.
152. TRITICUM. Wheat. Cal. two-valved, many-flowered, solitary. Rachis toothed.
151. HORDEUM. Barley. Cal. two-valved, tern or in threes, one-flowered.
149. ELYMUS. Cal. bivalve, aggregate, many-flowered.
147. LOLIUM. Darnel. Cal. one-leaved, fixed, many-flowered.
158. CYNOSURUS. Dog's-tail Grass. Cal. two-valved, solitary, many-flowered. Receptacle proper one-sided, leafy. Plate 1. f. 16, 17, 18, 19*.

TRIGYNIA.

1. Flowers inferior.

157. HOLOSTEUM. Cal. five-leaved. Cor. Petals five eroded. Caps. subcylindrical, opening at the top.
159. POLYCARPON. Cal. five-leaved. Cor. five-petalled. Caps. three-valved, many-seeded.
164. LECHEA. Cal. five-leaved. Cor. three-petalled. Caps. triocceous.
154. ERIOCAULON. Cal. compound. Cor. three-petalled. Seed one crowned with the corolla.
155. MONTIA. Cal. two-leaved. Cor. one-petalled. Caps. three-valved, three-seeded.
161. MOLLUGO. Cal. five-leaved. Cor. none. Caps. three-celled.
162. MINUARTIA. Cal. five-leaved. Cor. none. Caps. one-celled, many-seeded.
163. QUERIA. Cal. five-leaved. Cor. none. Caps. one-seeded.
158. KOENIGIA. Cal. three-leaved. Cor. none. Seed one ovate.

+ *Tillæa muscosa*. *Stellaria media*.

2. Flowers superior.

160. DONATIA. Cal. three-leaved. Cor. polypetalous.
156. PROSERPINACA. Cal. three-parted. Cor. none. Seed one, three-celled.

CLASS IV.

TETRANDRIA.

MONOGYNIA.

1. Flowers monopetalous, one-seeded, inferior.

169. GLOBULARIA. Cor. monopetalous, irregular. Seeds naked of down.
2. Flowers monopetalous, one-seeded, superior. Aggregate.
171. DIPSACUS. Teasel. Cal. common foliaceous, many-leaved: proper superior. Recept. conical, chaffy. Seeds columnar, with a cyathiform pappus.
172. SCABIOSA. Cal. common many-leaved: proper superior, double. Recept. elevated, somewhat chaffy. Seeds crowned, involute. Pl. 1. f. 23, 24.
173. KNAUTIA. Cal. common oblong. Recept. flat, naked. Seeds villose at the top.
174. ALLIONIA. Cal. common three-leaved, three-flowered: proper superior none. Seeds naked.

+ *Valeriana sibirica*. *Boerhaavia tetrandra*. *Sanguisorba*.

3. Flowers monopetalous, four-seeded.

188. MATTUSCHKEA. Cor. four-cleft, salver-shaped. Cal. four-parted.

4. Flowers monopetalous, one-fruited, inferior.

203. PYROSTRIA. Cor. bell-form. Cal. four-toothed. Drupe with eight nuts in it.
202. MYONIMA. Cor. tubulous. Cal. quite entire. Drupe with a four-celled four-seeded nut.
201. PETITIA. Cor. tubulous. Cal. four-toothed. Drupe with a two-celled nut.

210. AQUARTIA. Cor. wheel-form. Cal. subquadrate. Berry many-seeded.

190. ROUSSEA. Cor. bell form. Cal. four-leaved. Berry four-cornered, many-seeded.

209. CALLICARPA. Cor. tubulous. Cal. four-cleft. Berry four-seeded.

208. WALLENIA. Cor. tubulous. Cal. four-cleft. Berry one-seeded.

211. WITHERINGIA. Cor. subcampanulate. Cal. indistinctly four-toothed. Peric. two-celled.

205. AEGIPHILA. Cor. salver-form. Cal. four-toothed. Berry two-celled. Style semibifid.

170. CEPHALANTHUS. Button-wood. Cor. funnel-form. Cal. four-cleft. Caps. four-celled not opening.

215. LASIOSTOMA. Cor. funnel-form with a villose throat: Cal. five-cleft. Caps. one-celled, two-seeded.

223. SCOPARIA. Cor. wheel-form. Cal. four-parted. Caps. one-celled, two-valved.

224. CENTUNCULUS. Cor. wheel-form. Cal. four-parted. Caps. one-celled, opening horizontally.

222. PLANTAGO. Plantain. Cor. refracted. Cal. four-parted. Caps. two-celled, opening horizontally.

213. POLYPREMUM. Cor. wheel-form. Cal. four-leaved. Caps. two-celled, emarginate.

220. BUDDLEIA. Cor. bell-form. Cal. four-cleft. Caps. two-celled, two-furrowed.

221. EXACUM. Cor. subcampanulate. Cal. four-leaved. Caps. two-celled, compressed.

212. MYRMECIA. Cor. tubulous. Cal. five-toothed. Caps. two-celled, many-seeded.

214. LABATIA. Cor. subcampanulate. Cal. four-leaved. Caps. four-celled.

218. PENEA. Cor. bell-form. Cal. two-leaved. Caps. four-celled, four-valved.

219. BLERIA. Cor. subcampanulate. Cal. four-parted. Caps. four-celled, opening at the corners.

+ *Jussiaea pulcherrima*, *Lycium tetrandrum*. *Cordia tetrandra*.

5. Flowers monopetalous, one-fruited, superior.

200. CHOMELIA. Cor. tubulous. Cal. four-cleft. Drupe with a two-celled nut.

204. CUNNINGHAMIA. Cor. funnel-form. Cal. four-toothed. Drupe with a two-celled nut.

192. SCOLOSANTHUS. Cor. tubulous with the limb revolute. Cal. four-cleft. Drupe one-seeded.

195. PAVETTA. Cor. tubulous. Cal. four-toothed. Berry one-seeded.

194. IXORA. Cor. tubulous. Cal. four-parted. Berry two-celled. Seeds two.

198. PETESIA. Cor. tubulous. Cal. four-toothed. Berry two-celled, many-seeded.

193. CATESBEA. Cor. tubulous. Cal. four-toothed. Berry one-celled, many-seeded.

191. FROELICHIA. Cor. tubulous. Cal. four-parted. Berry one-seeded, juiceless. Seed arilled.

199. HOFFMANNIA. Cor. tubulous. Cal. four-toothed. Filam. none. Berry two-celled, many-seeded.

196. ERNODEA. Cor. tubulous. Cal. four-parted. Berry two-celled. Seeds solitary.

197. SIDERODENDRUM. Cor. tubulous. Cal. four-toothed. Berry dicocceous. Seeds solitary.

207. COCCOCYPSILUM. Cor. funnel-form. Cal. four-cleft. Berry inflated, two-celled, many-seeded.

206. MITCHELLA. Cor. two to each germ, tubulous. Cal. four-toothed. Berry four-seeded, two-flowered, bifid.

176. HEDYOTIS. Cor. tubulous. Cal. four-parted. Caps. twin, many-seeded, opening at the top.

240. OLDENLANDIA. Cor. tubulous. Cal. four-parted. Caps. twin, many-seeded, opening between the teeth.

181. HYDROPHYLAX. Cor. funnel-form. Cal. four-parted. Caps. angular, two-celled with contrary partitions. Seeds solitary.

216. MANETTIA. Cor. tubulous. Cal. eight-leaved. Caps. one-celled.

183. CARPHALEA. Cor. tubulous rough-haired within. Cal. four-cleft. Caps. two-celled, many-seeded.

217. BELLARDIA. Cor. four-cleft. Cal. four-cleft. Caps. two-celled, bipartite, many-seeded.

225. SANGUISORBA. Great Burnet. Cor. flat, superior. Cal. two-leaved, inferior. Caps. four-cornered, between the calyx and corolla.

+ *Coffea occidentalis*. *Rondeletia pilosa*, *virgata*. *Hillia tetrandra*. *Guttarda elliptica*, *membranacea*. *Portlandia tetrandra*.

6. Flowers monopetalous, dicocceous, inferior.

184. HOUSTONIA. Cor. tubulous. Cal. four-toothed. Caps. two-celled, two-valved.

7. Flowers monopetalous, dicocceous, superior. Stellate.

187. RUBIA. Madder. Cor. bell-form. Fruit berried.

185. GALIUM. Bed-straw. Cor. flat. Fruit subglobular.

179. ASPERULA. Woodroof. Cor. tubulous. Fruit subglobular.

178. SHERARDIA. Cor. tubulous. Fruit crowned. Seeds three-toothed.

177. SPERMACECE. Cor. tubulous. Fruit crowned. Seeds two-toothed.

* Linnaeus has torn asunder in his Artificial System this truly Natural Class of the Grasses. The rest of the Genera are to be sought for in several other Classes. —In Class POLYGAMIA, *Aegilops*, *Ischaemum*, *Apluda*, *Holcus*, *Andropogon*, *Chloris*, *Anthyllaria*, *Manisuris*. In MONOECIA, *Olyra*, *Coix*, *Tripsacum*, *Zeugites*, *Zizania*, *Pharus*. In HEXANDRIA, *Gabnia*, *Elyria*, *Bambusa*, *Oryza*. In DIANDRIA, *Anthoxanthum*, *Cryptis*. In MONANDRIA, *Cinna*.

182. KNOXIA. Cor. tubulous. Fruit bipartite, furrowed.
 180. DIODIA. Cor. tubulous. Fruit four-cornered, connate, two-valved.
 186. CRUCIANELLA. Cor. tubulous, awned. Fruit naked. Seeds linear.

8. Flowers monopetalous, tetracoccus, inferior.

189. SIPHONANTHUS. Cor. tubulous. Cal. five-parted. Berries four, one-seeded.

9. Flowers four-petalled, inferior.

227. EPIMEDIUM. Barrenwort. Nectaries four, bagged, lying on the petals. Silique one-celled, superior, many-seeded.

235. PTELEA. Pet. leathery. Cal. four-parted. Stigmas two. Fruit a one-seeded Samara.

234. BLACKBURNIA. Pet. oblong. Cal. four-toothed. Stigma simple. Berry? one-seeded.

236. SKIMMIA. Pet. concave. Cal. four-parted. Berry four-seeded.

233. MONETIA. Pet. linear. Cal. four-cleft. Berry two-celled.

230. SAMARA. Pet. with a pit at the base. Cal. four-parted. Drupe roundish. Stigma funnel-form.

232. HARTOGIA. Pet. spreading. Cal. five-cleft. Drupe with a two-seeded nut.

247. CURTISIA. Pet. obtuse. Cal. four-parted. Drupe with a four or five-celled nut.

231. FAGARA. Pet. shorter than the stamens. Cal. quadrifid. Caps. four-valved, one-seeded.

237. OTHERA. Pet. lanceolate. Cal. four-parted. Stigma feffile. Capsule.

238. ORIXA. Pet. lanceolate. Cal. four-parted. Stigma headed. Capsule?

241. AMMANNIA. Pet. very rarely present. Cal. tubulous, eight-toothed. Caps. four-celled.

+ *Euonymus europæus, japonicus. Portulaca meridiana. Melastoma tetrandra. Cardamine hirsuta.*

10. Flowers four-petalled, superior.

243. TRAPA. Cal. four-parted. Nut armed with conical, opposite spines.

226. CISSUS. Cal. furrounding the germ. Berry one-seeded.

229. GLOSSOMA. Cal. four-toothed. Drupe with a one-seeded nut.

228. CORNUS. Cal. four-toothed, deciduous. Drupe with a two-celled nut.

239. LUDWIGIA. Cal. four-parted. Caps. four-celled, four-cornered.

251. SANTALUM. Cor. four-petalled growing on the calyx. Berry one-seeded.

11. Flowers incomplete, inferior.

252. STRUTHIOIA. Cor. four-cleft. Berry one-seeded, dry. Nect. of eight glands.

175. OPERCULARIA. Cor. four-cleft or five-cleft. Stam. inserted in the receptacle. Seeds solitary immersed in the receptacle.

165. PROTEA. Cor. four-cleft. Anthers inserted below the tips of the corolla. Nut one-seeded.

167. RUPALA. Cor. four-petalled. Stam. inserted in the middle of the petals. Berry one-seeded.

166. BANKSIA. Cor. four-petalled. Stam. inserted into the limb. Caps. two-valved, two-seeded. Seeds winged.

163. EMBOTHRUM. Cor. four-petalled. Stam. inserted into the limb. Follicle many-seeded. Seeds winged.

245. POTHOS. Cor. four-petalled. Spathe one-leaved. Berry two-celled.

253. KRAMERIA. Cor. four-petalled. Berry dry, one-seeded, echinate.

255. RIVINA. Cor. four-petalled. Berry one-seeded. Seed scabrous.

248. CHLORANTHUS. Petal three-lobed. Berry one-seeded.

256. SALVADORA. Cal. four-cleft. Berry one-seeded. Seed arilled.

257. CAMPHOROSMA. Cal. four-cleft. Caps. one-seeded.

258. ALCHEMILLA. Ladies Mantle. Cal. eight-cleft. Seed one, within the calyx.

244. DORSTENIA. Cal. Recept. flat, fleshy, common.

246. COMETES. Umbel four-leaved, three-flowered. Caps. tricoccus.

+ *Corchorus Corcta. Conwallaria bifolia. Ammannia. Parietaria.*

12. Flowers incomplete, superior.

250. GONATOCARPUS. Cor. four-cleft. Drupe with a one-seeded nut.

254. ACENA. Cal. four-leaved. Berry echinate, one-seeded.

242. ISNARDIA. Cal. bell-form, permanent. Caps. four-celled.

249. ELÆAGNUS. Cal. bell-form, deciduous. Drupe.

+ *Thesium alpinum.*

DIGYNIA.

260. BUFFONIA. Cor. four-petalled. Cal. four-leaved. Caps. one-celled, two-valved, two-seeded.

263. HYPECOUM. Cor. four-petalled, unequal. Cal. two-leaved. Silique.

261. HAMAMELIS. Cor. four-petalled, very long. Cal. double. Nut two-celled, two-horned.

262. CUSCUTA. Cor. four-cleft, ovate. Cal. four-cleft.

Caps. two-celled, opening horizontally. Plate 1. f. 25, 26, 27.

264. NERTERIA. Cor. bell-form. Cal. none. Berry two-celled.

265. GALOPINA. Cor. bell-form. Cal. none. Seeds two, mucicate.

259. CRUZITA. Cor. none. Cal. four-leaved: outer three-leaved. Seed one.

+ *Herniaria fruticosa. Gentiane quadrifida. Swertia corniculata, dichotoma.*

TRIGYNIA.

266. BOSCIA. Cor. four-petalled. Cal. four-toothed. Caps. four-celled.

TETRAGYNIA.

267. ILEX. Holly. Cor. monopetalous. Cal. four-toothed. Berry four-seeded.

268. COLDENIA. Cor. monopetalous. Cal. four-leaved. Seeds two, two-celled.

271. SAGINA. Cor. tetrapetalous. Cal. four-leaved. Caps. four-celled, (one-celled) many-seeded. Pl. 1. f. 28, 29.

272. TILLEA. Cor. three or four-petalled. (Pet. 3—5.) Cal. three or four-leaved. (3—5.) Caps. three or four. (3—5.) many-seeded.

273. MYGINDA. Cor. four-petalled. Cal. four-parted. Drupe one-seeded.

269. POTAMOGETON. Pondweed. Cor. none. Cal. four-leaved (or, Cor. four-petalled. Cal. none.) Seeds four, feffile, (naked.)

270. RUPPIA. Cor. none. Cal. none. Seeds four, pedicelled.

+ *Cerastium tetrandrum.*

CLASS V.

PENTANDRIA.

MONOGYNIA.

1. Flowers monopetalous, inferior, one-seeded.

273. MIRABILIS. Marvel of Peru. Nut below the corolla! Cor. funnel-form. Stigma globose papillose. Plate 2. f. 4.

295. TRICRATUS. Nut five-cornered. Cor. funnel-form, with two-lobed segments. Cal. none.

318. PLUMBAGO. Leadwort. Seed one. Stam. inserted into the valves. Cor. funnel-form. Stigma five-cleft.

317. WEIGELIA. Seed one. Cor. funnel-form. Style from the side of the germ!

470. QUINCHAMALA. Seed one. Cor. tubulous. Anthers feffile.

403. CORYMBIUM. Seed one, involved in wool. Cor. funnel-form. Cal. two-leaved. Anth. connate.

2. Flowers monopetalous, inferior, two-seeded. Asperifoliae.

281. CERINTHE. Honey-wort. Cor. throat naked, ventricose. Nuts two, bony, two-celled.

287. MESSERSCHMIDIA. Cor. throat naked, funnel-form. Nuts two, fibrofe, two-seeded.

3. Flowers monopetalous, inferior, four-seeded. Asperifoliae.—Borragineae. Juss.

286. ECHIUM. Viper's Bugloss. Cor. throat naked, irregular! bell-form. Stigma two-parted.

274. HELIOTROPIMUM. Turnsole. Cor. throat naked, salverform, with a tooth between the lobes.

279. PULMONARIA. Lungwort. Cor. throat naked, funnel-form. Cal. prismatic.

276. LITHOSPERMUM. Gromwell. Cor. throat naked, funnel-form. Cal. five-parted.

282. ONOSMA. Cor. throat naked, ventricose.

280. SYMPHYTUM. Comfrey. Cor. throat toothed, ventricose.

283. BORAGO. Borage. Cor. throat toothed, wheel-form.

285. LYCOPSIS. Bugloss. Cor. throat arched; funnel-form with the tube curved!

284. ASPERUGO. Cor. throat arched, funnel-form. Fruit compressed.

278. CYNOGLOSSUM. Hound's-tongue. Cor. throat arched, funnel-form. Seeds depressed, flattened by the side.

277. ANCHUSA. Alkanet. Cor. throat arched, funnel-form, base of the tube prismatic. Seeds engraved at the base.

275. MYOSOTIS. Mouse-ear Scorpion-grass. Cor. throat arched, salver-form with the lobes emarginate.

4. Flowers monopetalous, inferior, five-seeded.

289. NOLANA. Cor. monopetalous. Nuts. five, two-celled or four-celled.

5. Flowers monopetalous, inferior, with the seeds inclosed in a vessel.

374. CORIS. Caps. one-celled, five-valved. Cor. irregular! Stigma headed.

303. HYDROPHYLLUM. Water-leaf. Caps. one-celled, two-valved. Cor. scored with five nectaries. Stigma bifid.

424. GALAX. Caps. one-celled, two-valved. Cor. salverform. Stigma roundish.

432. BARRERIA. Caps? Cor. wheel-form. Anthers cohering. Stigmas three.

294. CORTUSA. Caps. one-celled, oblong. Cor. wheel-form. Stigma subcapitate.

Incomplete flowers want either the calyx or corolla. Some of the Cuscutæ (262) are five-cleft.

306. ANAGALLIS. Pimpernel. *Capsf.* one-celled, opening horizontally. *Cor.* wheel-form. *Stam.* hirsute. *Stigma* headed.
305. LYSIMACHIA. Loosestrife. *Capsf.* one-celled, ten-valved. *Cor.* wheel-form. *Stigma* obtuse.
300. DORÆNA. *Capsf.* one-celled, one-valved, many-seeded. *Cor.* five-cleft. *Stigma* emarginate.
298. CYCLAMEN. Sowbread. *Capsf.* one-celled, pulpy within. *Cor.* wheel-form, turned back. *Stigma* acute.
297. DODECATHEON. Meadia or Virginian Cowslip. *Capsf.* one-celled, oblong. *Cor.* wheel-form, turned back. *Stigma* obtuse.
296. SOLDANELLA. *Capsf.* one-celled. *Cor.* torn! *Stigma* simple.
395. LITA. *Capsf.* one-celled, two-valved. *Cor.* falver-form. *Anth.* sessile in the tube. *Stigma* truncate.
293. PRIMULA. Primrose. Cowslip. Auricula. *Capsf.* one-celled, with the mouth ten-cleft. *Cor.* funnel-form (or, falver-form), with the mouth pervious, and the tube cylindrical. *Stigma* globose.
292. ANDROSACE. *Capsf.* one-celled. *Cor.* falver-form with the throat contracted. *Stigma* globose.
291. ARETIA. *Capsf.* one-celled? *Cor.* falver-form. *Stigma* depressed-headed.
302. BACOPA. *Capsf.* one-celled. *Cor.* falver-form. *Cal.* unequal. *Stigma* headed.
301. HOTTONIA. Water Violet. *Capsf.* one-celled. *Cor.* falver-form. *Stam.* placed on the throat. *Stigma* globose. *Pl.* 2. f. 3.
313. SHEFFIELDIA. *Capsf.* one-celled, five-valved. *Cor.* bell-form. *Stam.* ten, alternately barren.
299. MENYANTHES. Buckbean. *Capsf.* one-celled. *Cor.* hirsute. *Stigma* bifid.
479. ALLAMANDA. *Capsf.* one-celled, lens-form, two-valved, valves boat-form. *Seeds* imbricate.
307. THEOPHRASTA. *Capsf.* one-celled, remarkably large. *Cor.* bell-form. *Stigma* acute.
371. GENIOSTOMA. *Capsf.*? two-celled. *Cor.* funnel-form, with a villose throat.
308. SPIGELIA. Worm-grass. *Capsf.* two-celled, twin. *Cor.* funnel-form. *Stigma* simple.
334. SPHENOCLEA. *Capsf.* two-celled, opening horizontally. *Cor.* five-cleft, smaller than the calyx. *Stigma* headed.
309. OPHIORHIZA. *Capsf.* two-celled, two-parted. *Cor.* funnel-form. *Stigma* bifid.
321. REFZIA. *Capsf.* two-celled. *Cor.* cylindrical, villose on the outside. *Stigma* bifid.
323. CONVULVULUS. Bindweed. *Capsf.* two-celled (or three-celled.) *Seeds* two. *Cor.* bell-form, plaited. *Stigmas* two.
310. LISIANTHUS. *Capsf.* two-celled, many-seeded. *Cor.* funnel-form, ventricose. *Style* permanent.
377. DATURA. *Capsf.* two-celled, four-valved. *Cor.* funnel-form. *Cal.* deciduous.
378. HYOSCYAMUS. Henbane. *Capsf.* two-celled, covered with a lid. *Cor.* funnel-form. *Stigma* headed.
379. NICOTIANA. Tobacco. *Capsf.* two-celled. *Cor.* funnel-form. *Stigma* emarginate.
376. VERBASCUM. Mullein. *Capsf.* two-celled. *Cor.* wheel-form. *Stigma* simple, obtuse. *Stam.* declined, bearded.
394. CHIRONIA. *Capsf.* two-celled. *Cor.* falver-shaped, with an urceolate tube. *Anth.* spiral, when the pollen is exploded.
322. PORANA. *Fruit* two-valved. *Cal.* in the fruit enlarged. *Style* elongated, femibifid.
290. DIAPENSIA. *Capsf.* three-celled. *Cor.* falver-form. *Cal.* eight-leaved.
320. PHLOX. Lychnidea. *Capsf.* three-celled. *Cor.* falver-form with a curved tube. *Stigma* trifid.
326. POLEMONIUM. Jacob's Ladder. *Capsf.* three-celled. *Cor.* five-parted. *Stam.* placed upon valves.
324. CANTUA. *Capsf.* three-celled, three-valved. *Seeds* winged. *Cor.* funnel-form. *Stigma* trifid.
325. IPOMOEA. *Capsf.* three-celled, *Cor.* funnel-form. *Stigma* headed.
375. BROSSÆA. *Capsf.* five-celled. *Cor.* truncate. *Cal.* fleshy.
312. AZALEA. *Capsf.* five-celled. *Cor.* bell-form. *Stigma* obtuse. *Pl.* 2. f. 1. 2.
315. EPACRIS. *Capsf.* five-celled. *Cor.* funnel-form, villose. *Scale* nectariferous.
481. NERIUM. Oleander or Rose-bay. *Follicles* two, erect. *Cor.* crowned at the throat. *Seeds* pappose.
482. ECHITES. *Follicles* two, erect. *Cor.* funnel-form, naked at the throat. *Seeds* pappose.
483. PLUMIERIA. *Follicles* two, retracted. *Cor.* funnel-form. *Seeds* winged.
484. CAMERARIA. *Follicles* two, lobed. *Cor.* falver-form. *Seeds* winged.
485. TABERNÆMONTANA. *Follicles* two, pulpy. *Cor.* falver-form. *Seeds* simple.
480. VINCA. Petiwinkle. *Follicles* two, erect. *Cor.* falver-form. *Seeds* simple.
475. CERBERA. *Drupe* two, with one or two seeds in the nuts. *Cor.* funnel-form.
339. THOUINIA. *Drupe.* *Cor.* bell-form, hispid on the outside. *Cal.* five-leaved.
402. TECTONA. Teak-tree. *Drupe* dry, with a three-celled nut. *Cor.* funnel-form.
391. ARDISIA. *Drupe* one-seeded. *Cor.* falver-form, with the limb turned back.
401. BUMELIA. *Drupe* one-seeded. *Cor.* falver-form, with teeth between the five clefts of the limb. *Nect.* five-leaved.
474. GYNOPOGON. *Drupe* with a nut two-celled half way. *Cor.* falver-form. *Stigma* globose, villose.
399. LAUGERIA. *Drupe* one-seeded, with a five-celled nut. *Stigma* headed.
398. VARRONIA. *Drupe* one-seeded, with a four-celled nut. *Stigma* quadruple.
396. CORDIA. *Drupe* one-seeded, with a two-celled or four-celled nut. *Stigma* dichotomous! *Cal.* growing to the berry-drupe.
386. IGNATIA. *Drupe* many-seeded. *Cor.* funnel-form, with a very long tube.
397. EHRETIA. *Drupe* four-seeded, with a two-celled nut. *Stigma* emarginate.
316. STYPHELIA. *Drupe* five-celled. *Cor.* tubulous.
478. WILLUGHBEIA. *Pompion.* *Cor.* falver-form. *Stigma* headed.
473. CARISSA. *Berries* two, many-seeded.
392. JACQUINIA. *Berry* one-seeded. *Cor.* ten-cleft. *Nect.* five-leaved.
421. MYRSINE. *Berry* one-seeded. *Cor.* bell-form. *Stigma* villose.
422. BLADHIA. *Berry* one-seeded. *Seed* arilled! *Cor.* wheel-form.
472. PÆDERIA. *Berry* two-seeded, inflated, fragile.
471. RAUWOLFIA. *Berry* two-seeded. *Seed* cordate.
415. ARDUINA. *Berry* two-seeded. *Seeds* oblong. *Cor.* curved. *Stigma* bifid.
387. CESTRUM. *Berry* one-celled. *Filam.* toothed.
311. FAGRÆA. *Berry* two-celled, fleshy. *Cor.* funnel-form with a long tube. *Stigma* headed.
288. TOURNEFORTIA. *Berry* two-celled, cells two-seeded, perforated at the tip!
385. STRYCHNOS. Poison-nut. *Berry* two-celled, corticose. *Stigma* headed.
384. CAPSICUM. *Berry* two-celled, juiceless. *Anth.* converging.
383. SOLANUM. Nightshade. *Berry* two-celled. *Cor.* wheel-form. *Anth.* with two pores.
382. PHYSALIS. Winter Cherry. *Berry* two-celled, with an inflated calyx. *Anth.* approximating.
380. JABOROSA. *Berry?* *Cor.* tubulous, very long.
381. ATROPA. *Berry* two-celled. *Cor.* bell-form. *Stam.* distant, curved inwards.
304. ELLISIA. *Berry* two-celled. *Seeds* two, one above the other.
388. LYCIUM. *Berry* two-celled. *Stam.* closing the throat of the corolla with their villose beard.
390. CRYPTOSTOMUM. *Berry* three-celled. *Cor.* funnel-form, inserted into the calyx. *Nect.* one-leaved, closing the corolla!
416. CAMAX. *Berry* four-celled, villose, many-seeded. *Cor.* wheel-form. *Cal.* five-parted.
319. TRIGUERA. *Berry* four-celled, with two-seeded cells. *Cor.* bell-form. *Cal.* five-toothed.
341. SOLANDRA. *Berry* four-celled, many-seeded. *Cor.* funnel-form. *Cal.* bursting.
369. MENAIS. *Berry* four-celled. *Cal.* three-leaved. *Stigmas* two.
449. LEEA. *Berry* five-seeded. *Cor.* wheel-form. *Nect.* urceolate, five-cleft, flaminiferous.
403. SIDEROXYLUM. Ironwood. *Berry* five-seeded. *Cor.* ten-cleft, with the inner segments converging.
400. CHRYSOPHYLLUM. Star-apple. *Berry* ten-seeded. *Cor.* ten-cleft, with the outer segments spreading very much.
393. BASSOVIA. *Berry* many-seeded knobbed. *Cor.* wheel-form.
364. BEBOTRYS. *Berry* many-seeded. *Cor.* tubulous. *Cal.* double*.

6. Flowers monopetalous, superior.

333. SAMOLUS. *Capsf.* one-celled, five-valved at top. *Cor.* falver-form. *Stigma* headed.
352. VIRECTA. *Capsf.* one-celled. *Cor.* funnel-form. *Cal.* five-toothed, with teeth interposed.
338. BELLONIA. *Capsf.* one-celled, with a beaked umbilicus. *Cor.* wheel-form. *Stigma* acute.
337. MACROCNEUM. *Capsf.* two-celled, turbinate. *Cor.* bell-form. *Stigma* two-lobed. *Seeds* imbricate.
351. DENTELLA. *Capsf.* two-celled. *Cor.* funnel-form, with the segments three-toothed.
350. CHIMARRHIS. *Capsf.* two-celled, with one seed in each cell. *Cor.* funnel-form. *Stigma* two-parted.
336. RONDELETIA. *Capsf.* two-celled, subglobular. *Cor.* funnel-form. *Stigma* obtuse.

* Some of the first genera in the fifth section belong to the natural order of *Preciæ*. Others from *Datura* will be found in the order of *Euridæ*. *Convolvulus*, &c. among the *Campanacæ*. *Nerium*, &c. among the *Contortæ*.

346. CINCHONA. Jesuit's Bark. *Caps.* two-celled, opening within! *Cor.* hirsute. *Stigma* simple.
340. PORTLANDIA. *Caps.* two-celled, crowned. *Cor.* ventricose. *Stigma* simple. *Seeds* imbricate.
330. ROELLA. *Caps.* two-celled, crowned. *Cor.* wheel-form. *Stigma* bifid.
344. GOODENIA. *Caps.* two-celled: *Cor.* one-petalled, cloven longitudinally.
331. PHYTEUMA. *Caps.* two or three-celled, perforated. *Cor.* wheel-form, five-parted. *Stigma* bifid or trifid.
332. TRACHELIUM. Throatwort. *Caps.* three-celled, perforated. *Cor.* funnel-form. *Stigma* headed.
329. CAMPANULA. Bell-flower. *Caps.* three or five-celled, perforated. *Cor.* bell-form. *Stigma* trifid.
342. LOBELIA. *Caps.* two or three-celled. *Cor.* irregular, cloven. *Anth.* connate. *Stigma* simple.
345. SCAEVOLA. *Drupe* one-seeded. *Cor.* irregular, fan-form, with a longitudinal fissure.
367. SCHOEPIA. *Drupe* one-seeded. *Cor.* bell-form. *Cal.* double; one inferior, the other superior.
372. MATTHIOLA. *Berry* one-seeded. *Cor.* funnel-form, undivided. *Stigma* obtuse.
363. MORINDA. *Berry* one-seeded, aggregate. *Cor.* funnel-form. *Stigma* bifid.
349. PSYCHOTRIA. *Berry* two-seeded. *Seeds* grooved. *Cor.* funnel-form. *Stigma* emarginate.
353. COFFEA. *Berry* two-seeded. *Seeds* arilled! *Cor.* falver-form. *Stigma* two-parted.
354. CHIOCOCCA. *Berry* two-seeded. *Cor.* funnel-form. *Stigma* simple.
389. SERISSA. *Berry* two-seeded. *Cor.* funnel-form, with the throat ciliate, segments of the limbs subtrilobate!
357. CEPHAELIS. *Berry* two-seeded. *Cor.* tubulous. *Involucre* four or five-leaved. *Recept.* chaffy.
355. VANGUERIA. *Berry* four or five-seeded. *Cor.* falver-form, with the tube globose, and the throat hairy.
347. SOLENA. *Berry* one-celled. *Cor.* falver-form with a very long tube. *Stigma* trifid.
476. WEBERA. *Berry* two-celled, with one seed in each cell. *Cor.* funnel-form.
477. GARDENIA. *Berry* two-celled, many-seeded. *Cor.* funnel-form.
348. UCRIANA. *Berry* two-celled. *Cor.* falver-form with a very long tube. *Stigma* bilamellate. *Stam.* inserted into the throat.
356. CANEPHORA. *Fruit* two-celled. *Cor.* bell-form. *Cal.* common tubulous many-flowered.
358. BERTIERA. *Berry* two-celled. *Cor.* falver-form. *Stigma* bilamellate. *Stam.* inserted into the tube.
361. LONICERA. Honeyfuckle. *Berry* two-celled, roundish, many-seeded. *Cor.* irregular. *Stigma* headed.
362. TRIOSTEUM. *Berry* three-celled, leathery. *Cor.* irregular. *Stigma* oblong.
467. PLOCAMA. *Berry* three-celled with one seed in each cell. *Cor.* bell-form.
370. MUSSENDA. *Berry* four-celled, oblong. *Cor.* funnel-form. *Stigma* two-parted.
360. SCHWENKFELDIA. *Berry* five-celled, many-seeded. *Cor.* falver-form. *Stigma* five-parted.
359. HAMELLIA. *Berry* five-celled, many-seeded. *Cor.* with a long tube. *Stigma* linear.
368. ERITHALIS. *Berry* ten-celled, subglobular. *Cor.* wheel-form. *Stigma* acute.
- + *Ixia pentandra*. *Pavetta pentandra*. *Oldenlandia digyna*, *pentandra*. Some *Rubias* and *Crucianellas*. *Prinos*. *Jasone*.
7. *Flowers tetrapetalous*.
365. STROEMIA. *Berry* corticose, two-valved. *Cal.* four-leaved. *Nect.* ligulate.
8. *Flowers pentapetalous, inferior*.
442. HIRTELLA. *Berry* one-seeded. *Style* lateral. *Stam.* permanent, spiral.
405. RHAMNUS. Buckthorn, &c. *Berry* three-celled, round. *Cal.* tubulous, urceolate, corolla-bearing. *Petals* with five mouths, converging.
412. CEANOTHUS. *Berry* tricoccous. *Cal.* tubulous, corolla-bearing. *Pet.* arched.
423. CELASTRUS. Staff-tree. *Berry* tricoccous. *Cal.* flat. *Seeds* arilled.
424. EUONYMUS. Spindle-tree. *Caps.* five-celled. *Cal.* flat. *Seeds* calypured.
429. STAAVIA. *Berry* five-seeded, corticate. *Recept.* chaffy-villose. *Stam.* inserted into the calyx.
454. EUPAREA. *Berry* juiceless, one-celled, many-seeded. *Pet.* five to twelve.
440. BILLARDIERA. *Berry* many-seeded. *Stigma* simple.
414. RUYSCHIA. *Berry* many-seeded. *Style* none. *Cor.* turned back.
453. VITIS. Vine. *Berry* five-seeded. *Cor.* often shrivelling-connate. *Style* none.
439. ESCALLONIA. *Berry* two-celled. *Stigma* headed.
441. MANGIFERA. Mango-tree. *Drupe* kidney-form. *Cor.* with lanceolate petals. *Nut* lanuginose.
406. ZIZYPHUS. *Drupe* with a two-celled nut. *Cal.* tubu-
- lous, corolla bearing. *Petals* with five mouths, converging.
401. SCHREBERA. *Drupe* dry with a two-celled nut. *Nectary* with a raised rim.
438. ELAEODENDRUM. *Drupe* with a two-celled nut. *Pet.* roundish. *Gland* under the germ.
430. WALKERA. *Drupe* five, one-seeded. *Cal.* five-parted.
451. CORYNOCARPUS. *Nut* club-form. *Nect.* five, petaliform, glandulous at the base.
435. HUMBOLDTIA. *Legume*. *Pet.* five, lanceolate. *Cal.* four-parted.
425. PILOCARPUS. *Caps.* two to five, united at bottom. *Stam.* inserted below the germ.
436. CEDRELA. *Caps.* five-celled, opening at the base! *Cor.* united to the receptacle. *Seeds* winged.
437. CALODENDRUM. *Caps.* six-celled, five-cornered. *Pet.* lanceolate. *Germ.* pedicelled. *Nect.* five-leaved.
413. SCOPOLIA. *Caps.* berried, five-celled: cells one-seeded. *Stigma* headed.
420. POLYCARDIA. *Caps.* five-celled. *Seeds* arilled. *Pet.* rounded. *Stigma* lobed.
431. PITTOSPORUM. *Caps.* two to five-celled, five-valved. *Seeds* covered with pulp. *Pet.* converging into a tube.
417. BUTNERIA. *Caps.* pentacoccous. *Cal.* eared with the petals. *Stam.* annexed to the nectary.
418. AYENIA. *Caps.* five-celled. *Pet.* united into a little star. *Nect.* a little pitcher covering a stamiferous pistil.
419. GLUTA. *Capsule*? *Pet.* inserted into the pedicel of the germ. *Cal.* bell-form, deciduous.
426. DIOSMA. *Caps.* quintuple. *Nect.* crowning the germ. *Seeds* arilled.
314. SPRENGELIA. *Caps.* five-celled, five-valved, many-seeded. *Anth.* connate.
427. HOVENIA. *Caps.* three-celled, three-valved. *Pet.* obovate. *Stigmas* three.
335. NAUCLEA. *Caps.* two celled, many-seeded. *Recept.* common hairy.
447. IMPATIENS. Balsam. *Caps.* five-celled, elastic. *Cal.* two-leaved. *Cor.* irregular, with a spur. *Anth.* cohering.
446. VIOLA. Violet. *Caps.* one-celled, three-valved. *Cal.* five-leaved, with a spur. *Cor.* irregular. *Anth.* cohering.
439. CLAYTONIA. *Caps.* one-celled, three-valved. *Cal.* two-valved! *Stigma* trifid.
457. RORIDULA. *Caps.* one-celled, three-valved. *Nect.* scrotiform base of the anthers.
433. ITEA. *Caps.* one-celled, two-valved. *Cal.* corolla-bearing. *Stigma* obtuse.
455. ÆGICERAS. *Caps.* one-celled, bowed, one-valved, one-seeded. *Cal.* five-cleft.
458. SAUVAGESIA. *Caps.* one-celled. *Nect.* five-leaved! *Pet.* imbricate.
407. VENTILAGO. *Samara* one-seeded, winged at the tip. *Cal.* five-cleft, corolla-bearing.
428. BRUNIA. *Seed* one, villose. *Recept.* common villose. *Stam.* inserted into the claws of the petals*.
- + *Casalpinia pentandra*. *Bombax pentandrum*. *Cassia nictitans*.
9. *Flowers pentapetalous, superior*.
445. RIBES. Currant. *Berry* many-seeded. *Cal.* Corolla-bearing. *Style* bifid.
452. HEDERA. Ivy. *Berry* five-seeded, surrounded by the calyx. *Stigma* simple.
444. PLECTRONIA. *Berry* two-seeded. *Cal.* closed by the claws. *Anth.* included, geminate.
443. STRUMPFIA. *Berry* one-seeded. *Cal.* five-toothed. *Anth.* united into an ovate body.
409. PHYLICA. *Berry* tricoccous. *Cal.* tubulous, corolla-bearing, with five converging scales.
410. CARPODETUS. *Berry* dry, five-celled. *Petals* inserted into the margin of the calyx.
448. GRONOVIA. *Caps.* one-seeded, coloured. *Cal.* coloured. *Pet.* minute.
328. JASIONE. *Caps.* two-celled. *Invol.* ten-cleft. *Cal.* five-parted. *Anth.* cohering at the base.
313. CYPHIA. *Capsule*. *Pet.* equal, linear. *Filam.* hairy, cohering at the base. *Stigma* hollow, gibbous.
450. ARGOPHYLLUM. *Caps.* three-celled. *Pet.* lanceolate. *Nect.* five-cornered, pyramidal.
327. LIGHTFOOTIA. *Caps.* three to five-celled. *Cor.* closed at bottom by stamiferous valves. *Cal.* five-valved.
456. LAGOECIA. *Seeds* two, naked. *Cal.* pinnate-peetinate. *Pet.* two-horned.
366. CONOCARPUS. *Seed* one, depressed. *Recept.* aggregant. *Pet.* converging.
10. *Flowers incomplete, inferior*†.

* Some genera in section 6, as *Macrocneum*, *Rondeletia*, *Cinchona*, *Portlandia*, *Gardenia*, belong to the natural order of *Contortæ*.—*Reclia*, *Plyteuma*, *Trachelium*, *Campanula*, *Lobelia*, &c. are in the order of *Campanacæ*.—*Morinda*, *Cheerica*, *Cephaelis*, *Lonicera*, *Triosteum*, are found in the order of *Aggregatæ*. In section 8, many of the first genera are shrubs or trees; see order of *Dumosa*.—*Lobelia*, *Viola*, and *Impatiens*, are removed from the last order of the class *Syngenesia*, where they were placed by Linnaeus.

† Most of the incomplete plants here and in the order *Digynia* are included in Linnaeus's natural order of *Helicacea*. The *Atriplicæ* and *Amarantibi* of Jussieu.

462. ACHYRANTHES. Seed one, oblong. Cal. exterior three-leaved, naked.
464. CHENOLIA. Utricle depressed, one-seeded.
463. CELOSIA. Cock's-comb. Caps. three-seeded. Cal. exterior three-leaved, coloured.
465. ILLECEBRUM. Caps. one-seeded; five-valved. Cal. simple, cartilaginous, five-leaved.
466. GLAUX. Caps. five-seeded, five-valved. Cal. simple, coloured, one-leaved.
411. COLLETIA. Fruit trilocular. Cor. bell-form, five-cleft, with five scale-form plait. Cal. none.
- † *Polygonum amphibium, lapathifolium. Polycnemum oppositifolium. Samara pentandra, floribunda. Ceratonia.*
Flowers incomplete, superior.
469. THESMUM. Seed one, corticate. Cal. stamiferous.
460. HELICONIA. Caps. trilocular: cells one-seeded. Cor. tripetalous. Nees. two-leaved.
461. STRELITZIA. Caps. trilocular: cells many-seeded. Cor. tripetalous. Nees. three-leaved.

DIGYNIA*.

1. Flowers monopetalous, inferior.

494. STAPELIA. Follicles two. Cor. wheel-form. Nees. forming a star.
488. CYNANCHUM. Follicles two. Cor. wheel-form. Nees. cylindrical.
487. PERIPLOCA. Follicles two. Cor. wheel-form. Nees. five, filiform.
491. HOSTEA. Follicles five-cornered. Cor. wheel-form.
489. APOCYNUM. Dog's-bane. Follicles two. Cor. bell-form. Nees. glandulous, five. Bristles five.
486. PERGULARIA. Follicles two. Cor. salver-form. Nees. five, semisagittate.
490. ASCLEPIAS. Swallow-wort. Follicles two. Cor. turned back. Nees. five, ear-form, with claws.
493. CEROPEGIA. Follicles two. Cor. limb converging.
492. MELODINUS. Berry two-celled, many-seeded. Throat of the corolla crowned.
511. SWERTIA. Caps. one-celled, two-valved. Cor. wheel-form: with five nectariferous pores.
512. GENTIANA. Caps. one-celled, two-valved. Cor. tubulous, indeterminate. Pl. 2. f. 5, 6.
502. CRESSA. Caps. one-seeded, two-valved. Cor. salver-form, with the limb turned back.
506. NAMA. Caps. one-celled, four-cornered, two-valved. Cor. length of the calyx, tubulous.
507. HYDROLEA. Caps. two-celled, two-valved. Cor. wheel-form.
508. ROCHEFORTIA. Fruit two-celled, many-seeded. Cor. funnel-form.
513. DICHONDRA. Caps. two. Cor. bell-form.
- † *Some species of Cuscuta.*

2. Flowers pentapetalous, inferior.

510. VELEZIA. Caps. one-celled, one-valved. Cor. five-petalled. Cal. tubulous.
495. LINCONIA. Caps. two-celled. In the Petals a hollow. Cal. four-leaved.
515. BUMALDA. Caps. two-celled, two-beaked. Cor. inserted into the germ. Styles villose.
509. HEUCHERA. Caps. two-celled, two-beaked. Cor. inserted into the calyx.
501. ANABASIS. Berry one-seeded. Cor. very small.
- † *Staphylea pinnata.*
3. Flowers incomplete.
500. SALSOLA. Saltwort. Seed one, screw-form covered. Cal. five-leaved.
497. CHENOPODIUM. Goosefoot. Seed one, lens-form, superior. Cal. five-leaved: leaflets concave.
498. BETA. Beet. Seed one, kidney-form. Cal. five-leaved, fleshy, with the seed immersed in it.
496. HERNIARIA. Rupture-wort. Caps. one-seeded, corticate. Cal. five-parted. Filam. five barren.
503. GOMPHRENA. Caps. one-seeded, opening transversely. Cal. two-leaved, compressed, coloured.
504. BOSEA. Berry one-seeded. Cal. five-leaved.
505. ULMUS. Elm. Samara compressed. Cal. one-leaved, shrivelling.
499. MICROTEA. Drupe dry, echinate. Cal. five-leaved, spreading.
- † *Polygonum virginianum. Some species of Zizyphus. Trianthema pentandra.*

4. Flowers pentapetalous, superior, capsular.

514. VAHLIA. Caps. truncate, one-celled, two-valved. Pet. ovate. Cal. five-leaved.

5. Flowers pentapetalous, superior, two-seeded. Umbellate*.

A. With both general and partial involucre.

516. PHYLLIS. Flowers dispersed.
518. ERYNGIUM. Eryngo. Flowers in a head. Recept. chaffy.

* The first genera to 492 inclusive belong to the natural order of *Contorta*.—*Apocineae*. Juss.—*Swertia* and *Gentiana* are in Linneus's order of *Rotaceae*; and Jussieu's of *Gentianeae*.—*Cressa*, *Nama*, and *Hydrolea* are in Jussieu's order of *Convolvuli*.

* This entire fifth section forms a class truly natural.

519. HYDROCOTYLE. Flow. subumbellate, fertile, or in a simple umbel. Seeds compressed.
520. AZORELLA. Fl. subumbelled, fertile. Seeds subglobose, three-toothed, grooved.
517. CUSSONIA. Fl. subumbelled. Margin of the receptacle dilated into a five-toothed calyx.
521. SANICULA. Sanicle. Fl. in a kind of head; abortive in the disk. Seeds hook-muricate.
522. ASTRANTIA. Masterwort. Fl. umbellate, abortive. Invol. coloured. Seeds wrinkled.
541. HERACLEUM. Cow Parsnep. Fl. rayed, abortive. Invol. deciduous. Seeds membranaceous.
548. OENANTHE. Water Dropwort. Fl. rayed; barren in the disk. Invol. simple. Seeds crowned, sessile.
525. ECHINOPHORA. Prickly Sampire. Fl. rayed, abortive: the central one female. Invol. simple. Seeds immersed in the involucre.
528. CAUCALIS. Fl. rayed, abortive. Invol. simple. Seeds muricate.
529. ARTEDIA. Fl. rayed, abortive. Invol. pinnate. Seeds with leafy notches at the edge.
530. DAUCUS. Fl. rayed, abortive. Invol. pinnate. Seeds hispid or muricate.
527. TORDYLIUM. Hart-wort. Fl. rayed, fertile. Invol. simple. Seeds notched at the edge.
552. CORIANDRUM. Coriander. Fl. rayed, abortive. Invol. one-leaved. Involucres halved. Fruit spherical.
540. LASERPITUM. Laserwort. Fl. flosculous, abortive. Pet. cordate. Seeds four-winged.
536. PEUCEDANUM. Sulphur-wort. Fl. flosculous, abortive. Invol. simple. Seeds compressed, winged, striated.
531. AMMI. Bishop's weed. Fl. flosculous, fertile. Invol. pinnate. Seeds gibbous, smooth.
526. HASSELQUISTIA. Fl. flosculous, fertile. Pet. cordate. Seeds of the ray flat, of the disk urceolate.
523. CONIUM. Hemlock. Fl. flosculous, fertile. Pet. cordate. Seeds gibbous, rib-furrowed. Involucres halved.
524. EXOACANTHA. Fl. flosculous, fertile. Pet. cordate. Seeds ovate, striated. Invol. both spiny.
532. BUNIUM. Earth-nut. Fl. flosculous, fertile. Pet. cordate. Involucres fetaceous.
535. ATHAMANTA. Stone Parsley. Fl. flosculous, fertile. Pet. cordate. Seeds convex, striated. Pl. 2. f. 7.
523. BUPLEURUM. Fl. flosculous, fertile. Pet. rolled inwards. Seeds compressed, striated.
544. SIUM. Water Parsnep. Fl. flosculous, fertile. Pet. cordate. Seeds subovate, striated.
534. SELINUM. Fl. flosculous, fertile. Pet. cordate. Seeds compressed, striated in the middle.
547. CUMINUM. Cumin. Fl. flosculous, fertile. Pet. cordate. Umb. 3-4-cleft. Invol. fetaceous, very long.
539. FERULA. Fennel-giant. Fl. flosculous, fertile. Pet. cordate. Seeds flat.
537. CRITHMUM. Sampire. Fl. flosculous, fertile. Pet. broad at the base. Invol. horizontal. Cal. entire.
546. BUBON. Fl. flosculous, fertile. Pet. flattish. Invol. five-leaved.
538. CACHRYS. Fl. flosculous, fertile. Pet. flattish. Seeds with a corky bark.
542. LIGUSTICUM. Lovage. Fl. flosculous, fertile. Pet. rolled inwards. Invol. membranaceous. Cal. five-toothed.
- MEUM. Spignel. Fl. flosculous, fertile. Pet. bent in. Invol. gashed. Cal. obsolete.
543. ANGELICA. Fl. flosculous, fertile. Pet. curved inwards. Umbels globular. Seeds hemispherical, three-winged.
545. SISON. Honewort. Fl. flosculous, fertile. Pet. bent inwards. Umbel impoverished. Seeds ovate, striated.
- B. With partial involucre only.
551. AETHUSA. Fool's Parsley. Fl. subradiant, fertile. Involucres halved.
553. SCANDIX. Chervil. Fl. rayed, abortive. Fruit oblong or subulate.
554. CHEROPHYLLUM. Cow-parsley. Fl. subradiant, abortive. Invol. turned back, concave, five-leaved.
549. PHELLANDRIUM. Water Hemlock. Fl. flosculous, fertile. Fruit crowned.
555. IMPERATORIA. Fl. flosculous, fertile. Umb. spreading out flat. Fruit compressed, margined.
556. SESELI. Fl. flosculous, fertile. Umb. stiffish.
550. CICUTA. Water Cowbane. Fl. flosculous, fertile. Pet. flattish. Fruit subovate, furrowed.
- † *Bupleurum rotundifolium. Caulalis infesta. Angelica sylvestris. Sium nodiflorum. Oenanthe fistulosa and peucedanifolia. Apium Petroselinum and Anisum.*
- C. Without any involucre: or scarcely any general involucre, and never any partial involucre.
559. SMYRNIUM. Alexanders. Fl. flosculous, abortive. Seeds kidney-form, angular.
561. CARUM. Caraway. Fl. flosculous, abortive. Seeds gibbous, striated.
557. THAPSIA. Fl. flosculous, fertile. Seeds membranaceous-winged, emarginate.

Involucre, *Involucellum*, is the same with Partial involucre. Umbellet, *Umbellula*, is the same with Partial umbel.

558. *PASTINACA*. Parsnep. *Fl.* flosculous, fertile. *Fruit* compressed-flat.
 560. *ANETHUM*. Dill. *Fl.* flosculous, fertile. *Fruit* somewhat compressed, with three ribs on both sides.
 564. *ÆGOPodium*. Gout-weed. *Fl.* flosculous, fertile. *Fruit* ovate, striated. *Stigmas* simple.
 563. *APIUM*. Smallage and Parsley. *Fl.* flosculous fertile. *Fruit* ribbed. *Pet.* bent in. *Invol.* one-leafed.
 562. *PIMPINELLA*. Burnet-Saxifrage. *Fl.* flosculous, fertile. *Fruit* striated. *Stigmas* subglobular.

TRIGINYA.

1. *Flowers superior.*

567. *VIBURNUM*. Wayfaring tree. *Cor.* five-cleft. *Berry* one-seeded.
 569. *SAMBUCUS*. Elder. *Cor.* five-cleft. *Berry* three-seeded.
 2. *Flowers inferior.*
 565. *SEMECARPUS*. *Cor.* five-petalled. *Nut* one-seeded in a large compressed fleshy receptacle.
 566. *RHUS*. *Cor.* five-petalled. *Berry* one-seeded.
 568. *CASSINE*. *Cor.* five-petalled. *Berry* three-seeded.
 574. *REICHELIA*. *Cor.* one-petalled, bell-form. *Capsf.* three-celled, opening horizontally.
 570. *SPATHELIA*. *Cor.* five-petalled. *Capsf.* three-celled, three-cornered, one-seeded. *Filam.* toothed at the base.
 571. *STAPHYLEA*. Bladder-nut tree. *Cor.* pentapetalous. *Capsf.* two or three inflated.
 572. *TAMARIX*. Tamarisk. *Cor.* five-petalled. *Capsf.* one-celled, three-valved. *Seeds* crowned with a pappus-form coma.
 581. *DRYPIS*. *Cor.* five-petalled, crowned. *Capsf.* one-seeded, opening horizontally.
 576. *TURNERA*. *Cor.* five-petalled. *Capsf.* one-celled. *Cal.* one-leafed, corolla-bearing.
 575. *SALMASIA*. *Cor.* five-petalled. *Style* none. *Capsf.* three-celled, three-valved.
 583. *SAROTHTA*. *Cor.* five-petalled. *Capsf.* one-celled, coloured. *Cal.* one-leafed.
 580. *ALSINE*. Chickweed. *Cor.* five-petalled. *Capsf.* one-celled. *Cal.* five-leaved. *Pet.* bifid.
 577. *TELEPHIUM*. *Cor.* five-petalled. *Capsf.* one-celled, three-sided. *Cal.* five-leaved.
 578. *CORRIGIOLA*. *Cor.* five-petalled. *Seed* one, three-sided. *Cal.* five-parted.
 584. *PORTULACARIA*. *Cor.* five-petalled. *Seed* one, wing-three-sided. *Cal.* two-leaved.
 579. *PHARNACEUM*. *Cor.* none. *Cal.* five-leaved. *Capsf.* three-celled.
 573. *XYLOPHYLLA*. *Cal.* five-parted. *Capsf.* tricoccus, with two seeds.
 582. *BASELLA*. *Cor.* none. *Cal.* six-cleft. *Seed* one, globose, in a berried calyx.
 † *Zizyphus Paliurus*. *Celastrus*.

TETRAGYNIA.

585. *PARNASSIA*. *Cor.* five-petalled. *Capsf.* four-valved. *Nect.* five, ciliate with bristles bearing balls at the end. *Pl.* 2. f. 8.
 586. *EVOLVULUS*. *Cor.* one-petalled. *Capsf.* four-celled.

PENTAGYNIA.

1. *Flowers superior.*

587. *ARALIA*. *Cor.* five-petalled. *Berry* five-celled. *Cells* one-seeded.
 588. *GLOSSOPETALUM*. *Cor.* five-petalled. *Berry* one-celled, five-seeded.
 2. *Flowers inferior.*
 594. *CRASSULA*. *Cor.* five-parted. *Capsf.* five, many-seeded.
 593. *GISECKIA*. *Cor.* none. *Cal.* five-leaved. *Capsf.* five, round, five-seeded.
 590. *LINUM*. Flax. *Cor.* five-petalled. *Capsf.* ten-celled.
 591. *ALDROVANDA*. *Cor.* five-petalled. *Capsf.* one-celled, ten-seeded.
 592. *DROSERA*. Sun-dew. *Cor.* five-petalled. *Capsf.* one-celled, three-valved, many-seeded. *Number of styles various from five to nine.*
 595. *MAHERNIA*. *Cor.* five-petalled. *Capsf.* five-celled, smooth.
 596. *COMMERSONIA*. *Cor.* five-petalled. *Capsf.* five-celled, echinate.
 597. *SIBBALDIA*. *Cor.* five-petalled. *Seeds* five, naked. *Cal.* ten-cleft.
 589. *STATICE*. Thrift and Sea Lavender. *Cor.* five-petalled. *Seed* one, clothed with the funnel-form calyx.
 † *Cerastium semidecandrum*, *pentandrum*. *Spergula arvensis*, *pentandra*, *filulata*. *Erodium*.

DECAGYNIA.

598. *SCHIFFELERA*. *Cor.* five-petalled. *Capsf.* ten-celled: cells one-seeded.

POLYGYNIA.

599. *MYOSURUS*. Mouse-tail. *Cal.* five-leaved. *Nect.* five, tongue-shaped. *Seeds* numerous, naked.
 600. *XANTHOPHIZA*. *Cal.* none. *Pet.* five. *Nect.* five, ped celled. *Capsf.* five, one-seeded.
 † *Ranunculus heqergaeus*.

CLASS VI.

HEXANDRIA.

MONOGYNIA.

1. *Flowers calyced, furnished both with calyx and corolla, but without spathes.*

602. *BROMELIA*. Ananas or Pine Apple. *Cor.* three-parted. *Cal.* three-parted, superior. *Berry*.
 603. *PITCAIRNIA*. *Cor.* three-parted. *Cal.* three-parted, femi-superior. *Capsule*.
 604. *TILLANDSIA*. *Cor.* three-petalled. *Cal.* three-parted, inferior. *Seeds* comose.
 606. *BURMANNIA*. *Cor.* three-petalled. *Cal.* one-leafed, inferior, three-sided, winged, coloured.
 607. *TRADESCANTIA*. Spiderwort. *Cor.* three-petalled. *Cal.* three-leaved, inferior. *Filam.* bearded.
 686. *STEPHANIA*. *Cor.* four-petalled. *Cal.* two-lobed. *Germ* pedicelled.
 690. *FRANKENIA*. Sea Heath. *Cor.* five-petalled. *Cal.* one-leafed, inferior. *Capsf.* one-celled, many-seeded.
 675. *COSSIGNEA*. *Cor.* five-petalled. *Cal.* five-parted. *Capsf.* three-celled.
 684. *LORANTHUS*. *Cor.* six-parted. *Cal.* margin superior. *Berry* one-seeded.
 687. *HILLIA*. *Cor.* six-cleft. *Cal.* six-leaved, superior. *Fruit* two-celled, many-seeded.
 685. *SCHRADERA*. *Cor.* six-cleft. *Cal.* truncate. *Berry* many-seeded.
 672. *DUROIA*. *Cor.* six-parted. *Cal.* truncate. *Pome*.
 671. *RICHARDIA*. *Cor.* six-cleft. *Cal.* six-cleft, superior. *Seeds* three, naked.
 665. *TACCA*. *Cor.* six-petalled. *Cal.* six-parted. *Berry* inferior.
 676. *BARBACENIA*. *Cor.* six-petalled. *Cal.* six-toothed. *Filam.* toothed. *Capsule*.
 677. *BERBERIS*. Barberry. *Cor.* six-petalled. *Cal.* six-leaved, inferior. *Berry* two-seeded.
 644. *LEONTICE*. *Cor.* six-petalled. *Cal.* six-leaved, inferior. *Berry* inflated, superior.
 679. *NANDINA*. *Cor.* six-petalled. *Cal.* many-leaved, imbricate. *Berry* two-seeded.
 674. *PRINOS*. Winter-berry. *Cor.* six-cleft. *Cal.* six-cleft, inferior. *Berry* six-seeded.
 678. *PSATHURA*. *Cor.* six-cleft. *Cal.* six-toothed. *Drupe* dry, inferior.
 688. *ISERTIA*. *Cor.* six-cleft. *Cal.* six-toothed. *Pome* six-celled.
 689. *CANARINA*. *Cor.* six-cleft. *Cal.* six-leaved, superior. *Capsf.* six-celled.
 673. *ACHRAS*. *Cor.* twelve-cleft. *Cal.* six-cleft, inferior. *Berry* twelve-seeded.
 683. *CAPURA*. *Cor.* six-cleft. *Cal.* none. *Germ* superior. *Berry*.
 † *Chlora imperfoliata*. *Portlandia hexandra*. Some *Lythrums*. *Fumaria Cucullaria*. *Peplis*.

2. *Flowers calyced, furnished with calyx, corolla and spathes.*

666. *CORYPNA*. *Cor.* three-parted. *Cal.* three-leaved. *Drupe*.
 667. *LICUALA*. *Cor.* three-parted. *Cal.* three-parted. *Nect.* garland-form. *Drupe*.
 608. *MNASIUM*. *Cor.* three-toothed. *Cal.* three-parted. *Spathe* two-valved. *Anthers* leafy*.

3. *Flowers spathaceous or glumaceous.*

601. *URANIA*. *Cor.* superior, three-petalled. *Spathes* alternate.
 610. *HÆMANTHUS*. Blood-flower. *Cor.* superior, six-parted. *Invol.* many-leaved, very large.
 613. *LEUCOIUM*. Snowflake. *Cor.* superior, six-petalled, bell-form. *Stam.* equal.
 614. *STRUMARIA*. *Cor.* six-petalled, flat. *Style* strumose!
 612. *GALANTHUS*. Snowdrop. *Cor.* superior, six-petalled: the three inner petals shorter, emarginate.
 616. *NARCISSUS*. *Cor.* superior, six-petalled. *Nect.* bell-form, petal-bearing, including the stamens.
 617. *PANCRATIUM*. *Cor.* superior, six-petalled. *Nect.* bell-form, terminated by the stamens.
 622. *AMARYLLIS*. *Cor.* superior, six-petalled, irregular. *Stam.* unequal, declining.
 618. *CRINUM*. *Cor.* superior, six-cleft, tubulous at the base. *Stam.* distant, inserted into the throat.
 621. *CYRTANTHUS*. *Cor.* superior, six-cleft, club-shaped. *Filam.* simple.
 620. *EUSTEPHIA*. *Cor.* superior, six-cleft, tubulous. *Filam.* three-cusped.
 619. *AGAPANTHUS*. *Cor.* inferior, six-cleft, funnel-form, regular.
 609. *PONTEDEIRA*. *Cor.* inferior, six-cleft, ringent.
 624. *BULBOCODIUM*. *Cor.* inferior, six petalled: with very long claws bearing the stamens.
 615. *TULBAGIA*. *Cor.* inferior, six-petalled, three of them lower. *Nect.* cylindrical, bearing the petal on the outside.

* The four first genera of the first section belong to the natural order of *Cornariæ*. *Bromelia* of Jussieu. The rest are distributed in various natural orders. *Corypha* and *Licuala*, in the second section, belong to the *Palms*.

626. *ALLIUM*. Garlic, Onion, &c. *Cor.* inferior fix-parted: petals ovate, sessile.
 636. *CURCULIGO*. *Cor.* inferior, fix-petalled. *Style* three-parted.
 625. *APHYLLANTHES*. *Cor.* inferior, fix-petalled. *Spathes* halved, glumose.
 611. *MASSONIA*. *Cor.* inferior, fix-parted: *Stam.* inserted into the nectary.
 637. *HYPOXIS*. *Cor.* superior, fix-petalled. *Spathes* glumaceous*.

4. Flowers naked.

605. *XEROPHYTA*. *Cor.* fix-parted, superior. *Stigma* club-shaped.
 661. *ALSTROEMERIA*. *Cor.* superior, fix-petalled, with two tubulous claws. *Pl. 2. f. 10.*
 655. *LANARIA*. *Cor.* superior, fix-cleft, subcampanulate.
 662. *HEMEROCALLIS*. Day Lily. *Cor.* inferior, fix-parted. *Stam.* declining.
 660. *AGAVE*. *Cor.* superior, fix-cleft, with the border erect, shorter than the filaments.
 635. *GETHYLLIS*. *Cor.* superior, fix-parted. *Berry* club-shaped, many-seeded.
 659. *ALOE*. *Cor.* inferior, fix-cleft. *Filam.* inserted into the receptacle.
 657. *ALETRIS*. *Cor.* inferior, fix-cleft, wrinkled. *Stam.* inserted into the throat.
 656. *VELTHEIMIA*. *Cor.* inferior, fix-cleft. *Stam.* inserted into the base of the corolla.
 650. *POLYANTHES*. *Cor.* inferior, fix-cleft, with the tube curved.
 649. *CONVALLARIA*. Lily of the valley and Solomon's seal. *Cor.* inferior, fix-cleft. *Berry* three-celled. *Stigma* three-cornered.
 648. *SANSEVIERA*. *Cor.* inferior, fix-parted. *Berry* one-seeded.
 652. *HYACINTHUS*. Hyacinth. *Cor.* inferior, fix-cleft, subcampanulate. *Stam.* inserted into the receptacle.
 651. *DRIMIA*. *Cor.* inferior, fix-cleft, bell-form. *Stam.* inserted into the tube of the corolla.
 623. *MILLEA*. *Cor.* inferior, fix-cleft, funnel-form. *Germ.* pedicelled!
 642. *ASPHODELUS*. Asphodel. *Cor.* inferior, fix-parted, with six valves each carrying a stamen.
 629. *EUCOMIS*. *Cor.* inferior, fix-parted, permanent. *Filam.* growing to the nectary.
 643. *ANTHERICUM*. *Cor.* inferior, fix-petalled, spreading flat.
 681. *ENARGEA*. *Cor.* inferior, fix-petalled, petals alternately biglandular at the base.
 653. *PHORMIUM*. *Cor.* inferior, fix-petalled, unequal. *Caps.* three-sided.
 654. *LACHENALIA*. *Cor.* inferior, fix-petalled, unequal. *Caps.* three-winged.
 639. *ORNITHOGALUM*. Star of Bethlehem. *Cor.* inferior, fix-petalled. *Filam.* widened at the base.
 638. *ERIOSPERMUM*. *Cor.* inferior, fix-petalled. *Filam.* lanceolate. *Seeds* woolly.
 640. *SCILLA*. Squill. *Cor.* inferior, fix-petalled. *Filam.* filiform.
 641. *CYANELLA*. *Cor.* inferior, fix-petalled; outer petals hanging down.
 682. *PHILESIA*. *Cor.* inferior, fix-petalled: three interior double the length of the rest.
 680. *LINDERA*. *Cor.* inferior, fix-petalled. *Caps.* two-celled.
 647. *DRACENA*. Dragon tree. *Cor.* inferior, fix-petalled. *Berry* three-seeded.
 616. *ASPARAGUS*. Sperage. *Cor.* inferior, fix-petalled. *Berry* six-seeded.
 645. *POLLIA*. *Cor.* inferior, fix-petalled. *Berry* many-seeded.
 631. *GLORIOSA*. Superb Lily. *Cor.* inferior, fix-petalled, bent back, tailed.
 652. *ERYTHRONIUM*. Dog-tooth Violet. *Cor.* inferior, fix-petalled, bent back, with two calluses at the base of the petals.
 630. *UVULARIA*. *Cor.* inferior, fix-petalled, with a nectariferous excavation at the base, erect.
 628. *FRITILLARIA*. Fritillary. Crown Imperial. *Cor.* inferior, ovate, fix-petalled, with a nectariferous excavation at the base.
 627. *LILIUM*. Lily. *Cor.* inferior, fix-petalled: with the petals tubular-channelled at the base. *Plate 2. f. 9.*
 633. *TULIPA*. Tulip. *Cor.* inferior, fix-petalled, bell-form. *Style* none. *Seeds* flat.
 658. *YUCCA*. Adam's Needle. *Cor.* inferior, fix-petalled, spreading. *Style* none.
 634. *ALBUCA*. *Cor.* inferior, fix-petalled; three outer spreading, three inner converging. *Stigma* surrounded by three cusps†.

† *Acorus*.

5. Flowers incomplete.

664. *ORONTIUM*. *Spadix* many-flowered. *Follicle* one-seeded.
 665. *ACORUS*. Sweet Flag. *Spadix* many-flowered. *Caps.* three-celled. (*Cor.* inferior, fix-petalled.)
 669. *CALAMUS*. Rattan. *Cal.* fix-leaved. *Peric.* imbricate reversely, one-seeded.
 670. *JUNCUS*. Rush. *Cal.* fix-leaved. *Caps.* one-seeded.
 668. *THRINAX*. *Cal.* fix-toothed. *Drupe*.
 691. *PEPLIS*. Water Purslane. *Cal.* twelve-cleft. *Caps.* two-celled.

Grasses.

693. *BAMBUSA*. Bambu-cane. *Cal.* none. *Cor.* two-valved.
 692. *GAHNIA*. *Cal.* one-valved. *Cor.* two-valved.
 694. *EHRHARTA*. *Cal.* two-valved. *Cor.* double.

DICYNIA:

697. *FALKIA*. *Cal.* five-parted: *Cor.* one-petalled. *Seeds* four.
 698. *ATRAPHAXIS*. *Cal.* two-leaved. *Cor.* two-petalled: *Seed* one, compressed.
 696. *NECTRIS*. *Cal.* fix-parted. *Cor.* none. *Caps.* two, many-seeded.
 695. *ORYZA*. Rice. *Glume* one-flowered. *Cor.* two-glumed. *Seed* one, oblong.

† *Leersia hexandra*. Some species of *Ehrharta*.

TRICYNIA.

1. Flowers inferior.

703. *WURMBEA*. *Cor.* fix-cleft, tubulous.
 707. *COLCHICUM*. Meadow Saffron. *Cal.* a spathe. *Cor.* hexapetaloid.
 704. *MELANTHIUM*. *Cal.* none. *Cor.* fix-petalled: petals stamiferous.
 705. *MEDEOLA*. *Cal.* none. *Cor.* fix-petalled. *Berry* tri-coccus.
 708. *HELONIAS*. *Cal.* none. *Cor.* fix-petalled. *Caps.* three-celled.
 706. *TRILLIUM*. *Cal.* three-leaved. *Cor.* three-petalled. *Berry* three-celled. *Pl. 2. f. 11.*
 702. *TRIGLOCHIN*. Arrow-grass. *Cal.* three-leaved. *Cor.* three-petalled. *Caps.* opening at the base.
 699. *RUMEX*. Dock. *Cal.* three-leaved. *Cor.* three-petalled. *Seed* one, three-sided.
 701. *SCHEUCHZERIA*. *Cal.* fix-leaved. *Cor.* none. *Caps.* three, one-seeded.
 † *Xylophylla latifolia*. *Tofieldia*. (*Anthericum*, *calyculatum*.)

2. Flowers superior.

700. *FLAGELLARIA*. *Cal.* fix-leaved. *Cor.* none. *Peric.* one-seeded.

HEXAGYNIA.

710. *DAMASONIUM*. *Spathes*. *Cal.* five-parted: *Cor.* three-parted. *Berry* ten-celled.
 709. *WENDLANDIA*. *Cal.* fix-leaved: *Cor.* fix-petalled. *Caps.* fix, one-seeded.

POLYCYNIA.

711. *ALISMA*. *Cal.* three-leaved. *Cor.* three-petalled. *Caps.* many, aggregate, one-seeded.

CLASS VII.

HEPTANDRIA.

1. Flowers complete.

712. *TRIENTALIS*. Chickweed Winter-green. *Cal.* seven-leaved. *Cor.* seven-parted, equal, flat. *Berry* one-celled. juiceless. *Pl. 2. f. 12.*
 713. *DISANDRA*. *Cal.* seven-parted, or thereabouts. *Cor.* wheel-form, seven-parted, or thereabouts. *Caps.* two-celled, many-seeded. *Pl. 2. f. 14.*
 717. *ÆSCULUS*. Horse-Chestnut. *Cal.* five-toothed. *Cor.* five-petalled, unequal. *Caps.* three-celled, two-seeded.
 718. *PETROCARYA*. *Cal.* five-cleft. *Cor.* five-petalled. *Drupe* fleshy. *Nut* two-celled.
 716. *PANCOVIA*. *Cal.* four-parted. *Cor.* four-petalled, curled. *Stam.* ascending.
 719. *JONESIA*. *Cal.* two-leaved. *Cor.* funnel-form. *Legume*.
 † *Pelargonium*.

2. Flowers incomplete.

714. *PISONIA*. *Cal.* bell-form, five-cleft. *Cor.* none. *Berry* one-seeded.
 715. *PETIVERIA*. *Cal.* four-leaved. *Cor.* none. *Style* lateral. *Seed* one.
 720. *DRACONTIUM*. Dragon. *Spathes* boat-form. *Spadix* covered. *Cal.* none. *Cor.* none. *Berry*.
 721. *CALLA*. *Spathes* ovate. *Spadix* covered. *Cal.* none. *Cor.* none. *Berry*.
 722. *HOULTUYNIA*. *Spathes* four-leaved. *Spadix* covered. *Cal.* none. *Cor.* none. *Caps.* three-celled?

DICYNIA.

723. *LIMEUM*. *Cal.* five-leaved. *Cor.* five-petalled, equal. *Caps.* two-celled, many-seeded.

Complete flowers have both calyx and corolla. Such are *Incomplete* want one or the other.

TETRA.

* The plants of the third section, most of them very specious, form the natural order of *Spadiceae*, with the exception of *Pontederia* and *Hypoxis*.—Jussieu's order of *Narcissi* includes these, but excludes *Allium*, *Aphyllanthus* and *Massonia*.† The beautiful plants of the fourth section are distributed among the three natural orders of *Spadiceae*, *Coronarieae* and *Sarmentaceae*: and *Lilia*, *Asphodeli*, and *Narcissi* of Jussieu. The flowers are called *naked* because they have neither calyx nor spathe.

TETRAGYNIA.

74. ASTRANTHUS. Cal. none. Cor. falver-form, fourteen-cleft. Seed one.
 725. SAURURUS. Lizard's-tail. Cal. an ament. Cor. none. Pist. four. Berries four, one-seeded.

HEPTAGYNIA.

726. SEPTAS. Cal. seven-parted. Cor. seven-petalled. Germs seven. Caps. seven. Pl. 2. f. 13.
 † *Phytolacca stricta*.

CLASS VIII.

OCTANDRA.

MONOGYNIA.

1. Flowers complete.

743. MIMUSOPS. Cor. eight-petalled. Cal. eight-leaved, inferior. Drupe.
 745. CUPANIA. Cor. five-petalled. Cal. five-leaved. Caps. three-celled; cells one-seeded. Seeds arilled.
 765. DIMOCARPUS. Cor. five-petalled. Cal. five-toothed. Berries two, one-seeded.
 727. TROPÆOLUM. Indian Cress. Cor. five-petalled. Cal. five-cleft, inferior, spurred. Nuts three.
 779. BÆCKIA. Cor. five-petalled. Cal. five-cleft, superior. Caps. four-celled.
 747. EPHIELIS. Cor. five-petalled. Cal. five-parted. Caps. one-celled, two-seeded.
 748. MOLINÆA. Cor. five-petalled. Cal. five-parted. Caps. three-celled, three-valved.
 742. HONCKENYA. Cor. five-petalled. Cal. five-leaved. Nect. stamiform! Caps. echinate.
 751. HAGENIA. Cor. five-petalled. Cal. two-leaved. Nect. five-leaved.
 766. MEMECYLON. Cor. four-petalled. Cal. quite entire, superior.
 734. COMBRETUM. Cor. four-petalled. Cal. five-toothed, superior. Seeds four.
 738. ROXBURGHIA. Cor. four-petalled. Cal. four-leaved, inferior. Anthers inserted into the nectary. Caps. two-valved.
 732. EPILOBIUM. Willow-herb. Cor. four-petalled. Cal. four-cleft, tubulous, superior. Caps. four-celled. Seeds pappose.
 731. GAURA. Cor. four-petalled. Cal. four-cleft, tubulous, superior. Nut one-seeded. Pl. 3. f. 2.
 730. OENOTHERA. Tree Primrose. Cor. four-petalled. Cal. four-cleft, tubulous, superior. Caps. four-celled. Anth. linear.
 735. VITMANNIA. Cor. four-petalled. Cal. four-cleft, inferior. Nut one-seeded.
 729. RHEXIA. Cor. four-petalled. Cal. four-cleft. Caps. four-celled, superior. Anth. bowed.
 728. OSBECKIA. Cor. four-petalled. Cal. four-cleft. Caps. four-celled, inferior. Anth. beaked.
 737. TETRATHECA. Cor. four-petalled. Cal. four-cleft. Anth. four-celled! Caps. two-celled.
 736. GRISLEA. Cor. four-petalled. Cal. four-toothed, inferior. Caps. one-celled.
 750. KOELREUTERIA. Cor. four-petalled, with a cylindrical nectary. Cal. five-leaved. Caps. three-celled.
 752. PERSOONIA. Cor. four-petalled, with a cylindrical nectary. Cal. four-parted. Caps. one-celled, many-seeded.
 753. GUAREA. Cor. four-petalled, with a cylindrical nectary. Cal. four-toothed, inferior. Caps. four-celled, four-valved. Seeds solitary.
 741. CORREA. Cor. four-petalled. Cal. four-toothed. Caps. four-celled: cells one-seeded.
 733. ANTICHRUS. Cor. four-petalled. Cal. four-leaved, inferior. Caps. four-celled, four-valved, many-seeded.
 740. ALLOPHYLUS. Cor. four-petalled. Cal. four-leaved, inferior. Stigma four-cleft.
 739. ORNITROPHE. Cor. four-petalled. Cal. four-leaved, inferior. Style bifid. Berries two, one-seeded.
 744. JAMBOLIFERA. Cor. four-petalled. Cal. four-toothed, inferior. Filam. flattish. Drupe.
 746. XYLOCARPUS. Cor. four-petalled. Cal. four-toothed, inferior. Nect. eight-cleft. Drupe dry.
 757. XIMENIA. Cor. four-petalled. Cal. four-cleft. Nect. none. Drupe one-seeded.
 763. LAWSONIA. Cor. four-petalled. Cal. four-cleft, inferior. Berry four-celled.
 749. MELICOCCA. Cor. four-petalled, refracted. Cal. four-parted. Drupe corticose. Stigma peltate, anepital.
 755. AMYRIS. Cor. four-petalled. Cal. four-toothed, inferior. Berry one-seeded.
 764. MELICOPE. Cor. four-petalled. Cal. four-parted. Caps. four, one-seeded.
 775. GNIDIA. Cor. four-petalled. Cal. four-cleft, corolliferous. Nut one-seeded.
 752. FUCHSIA. Cor. four-petalled. Cal. four-cleft, corolliferous. Berry four-celled, many-seeded. Plate 3. f. 1.
 754. HEDWIGIA. Cor. four-cleft. Cal. four-toothed. Caps. trilocular.
760. MICHAUXIA. Cor. eight-parted. Cal. sixteen-parted. Caps. eight-celled.
 759. CHLORA. Yellow Centaury. Cor. eight-parted. Cal. eight-leaved, inferior. Caps. one-celled, two-valved, many-seeded.
 768. VACCINIUM. Bilberry, Whortleberry, Cranberry. Cor. one-petalled. Cal. four-toothed, superior. Berry. Pl. 3. f. 3.
 769. MENZIESIA. Cor. one-petalled. Cal. repand, inferior. Capsule.
 770. ERICA. Heath. Cor. one-petalled. Cal. four-leaved, inferior. Capsule. Pl. 3. f. 4.
 † *Rhizophora Mangle*. *Æsculus Pavonia*. *Monotropa Hypopitys*. *Ruta graveolens*. Some species of *Jussiaea*. *Portulaca quadrifida*, *meridiana*. Two species of *Capparis*. *Dais octandra*. *Ammannia octandra*. *Fagara octandra*. Some species of *Melastoma*. *Trichilia pallida*, *acuminata*. *Gilibertia ovata*, *heterophylla*. *Elais*. *Cleome juncea*. *Acer*.
 2. Flowers incomplete.
771. OPHIRA. Cal. none. Invol. two-valved, three-flowered. Cor. four-petalled, superior. Berry one-celled.
 772. GRUBBIA. Cal. none. Invol. two-leaved, three-flowered. Cor. four-petalled, inferior.
 767. BUGINVILLÆA. Cal. none. Cor. tubulous, almost entire. Stam. included.
 773. LACHNÆA. Cal. four-cleft, corolline, unequal. Stam. exerted.
 774. DIRCA. Cal. without border, corolline, unequal. Stam. exerted.
 773. DAPHNE. Mezereon, Spurge Laurel, &c. Cal. four-cleft, corolline, equal, inferior. Stam. included. Berry one-seeded.
 777. PASSERINA. Cal. four-cleft, corolline, equal. Stam. upon the tube of the corolline calyx.
 776. STELLERA. Cal. four-cleft, corolline, equal. Stam. included. Nut.
 761. DODONÆA. Cal. four-cleft. Cor. none. Caps. three-celled.
 762. VALENTINIA. Cal. five-parted. Cor. none. Caps. berried, four-seeded.
 756. CEDROTA. Cal. six-parted. Cor. none.
 † *Rivina octandra*. *Samyda nitida*. *Casearia spinosa*, *to mentosa*.

DIGYNIA.

783. CODIA. Cor. four-petalled. Cal. four-leaved. Invol. four-leaved.
 782. WEINMANNIA. Cor. four-petalled. Cal. four-leaved. Caps. two-celled, two-beaked.
 784. MOEHRINGIA. Cor. four-petalled. Cal. four-leaved. Caps. one-celled.
 780. SCHMIEDELIA. Cor. four-petalled. Cal. two-leaved. Pericarps two, pedicelled.
 781. GALENIA. Cor. none. Cal. four-cleft. Caps. two-celled, two-seeded.
 † *Chrysosplenium*. *Scleranthus*. *Polygonum pennsylvanicum*.

TRIGYNIA.

788. SERIANA. Cor. four-petalled. Cal. five-leaved. Samaras three.
 787. PAULLINIA. Cor. four-petalled. Cal. five-leaved. Caps. three-celled, one-seeded.
 789. CARDIOSPERMUM. Cor. four-petalled. Cal. four-leaved. Caps. three-celled, one-seeded.
 791. PONÆA. Cor. four-petalled. Cal. four-parted. Caps. three-celled, three-seeded.
 790. SAPINDUS. Soapberry-tree. Cor. four-petalled. Cal. four-leaved. Berry trilocular, one-seeded.
 786. COCCOLOBA. Cor. none. Cal. five-parted. Berry calycine, one-seeded.
 785. POLYGONUM. Cor. none. Cal. five-parted, corolline, inferior. Seed one, naked.

TETRAGYNIA.

794. ADOXA. Tuberos Moschatell. Cor. four or five-cleft, superior. Cal. bifid or trifid, half inferior. Caps. four or five-celled, covered with the calyx.
 792. VERA. Cor. four-cleft. Cal. four-cleft. Caps. four, many-seeded.
 796. HALORAGIS. Cor. four-petalled. Cal. four-cleft. Drupe dry, four-celled.
 795. ELATINE. Cor. four-petalled. Cal. four-leaved. Caps. four-celled.
 793. PARIS. Cor. four-petalled: petals subulate. Cal. four-leaved. Berry four-celled, superior. Pl. 3. f. 5.
 797. FORSKOLEA. Cor. eight-petalled. Cal. four-leaved. Seeds four.
 † *Petiveria alliacea*. *Myriophyllum verticillatum*.

PENTAGYNIA.

- † *Cotyledon laciniata*.

OCTOGYNIA.

- † *Phytolacca octandra*, *stricta*.

CLASS IX.

ENNEANDRIA.

MONOGYNIA.

798. LAURUS. Bay, &c. *Cal.* none. *Cor.* six-petalled, calycine. *Berry* one-seeded. *Nect.* glands two-bristled.
800. PANK. *Cal.* four-cleft. *Cor.* four-cleft. *Caps.* one-seeded.
799. ANACARDIUM. Cashew-nut. *Cal.* five-parted. *Cor.* five-petalled. *Stamen* tenth without anther. *Nut* with a fleshy receptacle.
801. PLEGORHIZA. *Cal.* none. *Cor.* one-petalled. *Caps.* one-celled, one-seeded.
802. CASSYTA. *Cal.* none. *Cor.* six-parted, calycine. *Berry* one-seeded. *Nect.* glands truncated.
- † *Amyris enneandra. Brownæa enneandra. Gardenia Thunbergia.*

TRIGYNIA.

803. RHEUM. Rhubarb. *Cal.* none. *Cor.* six-cleft. *Seed* one, three-sided.

HEXAGYNIA.

804. BUTOMUS. Flowering Rush. *Cal.* none. *Cor.* six-petalled. *Caps.* six, many-seeded. *Plate 3. f. 6, 7, 8*.*

CLASS X.

DECANDRIA.

MONOGYNIA†.

1. Flowers polypetalous, irregular.

805. SOPHORA. *Cor.* papilionaceous, with the standard ascending. *Legume* (Lomentum) moniliform.
806. PODALYRIA. *Cor.* papilionaceous, with the standard ascending. *Legume* ventricose, many-seeded.
807. PULTENEA. *Cor.* papilionaceous, with the wings shorter than the standard. *Legume* two-seeded.
808. ANAGYRIS. *Cor.* papilionaceous, with a short straight standard, and the keel longer than the wings.
809. CERCIS. Judas-tree. *Cor.* papilionaceous, with standard-form wings. *Nect.* a style-form gland under the germ.
810. BAUBINIA. Mountain Ebony. *Cor.* spreading, clawed, ascending. *Pet.* lanceolate.
811. HYMENEA. Locust-tree. *Cor.* almost equal. *Legume* woody with a farinaceous pulp.
829. MYROXYLON. *Cor.* with the uppermost petal wider. *Legume* one-seeded dilated at the tip.
812. PARKINSONIA. *Cor.* with the lowest petal kidney-form. *Legume* round, twisted.
815. CÆSALPINIA. Brasselet. *Cor.* with the lowest petal more beautiful. *Cal.* segments unequal. *Legume* compressed.
828. TOLUIFERA. *Cor.* with the lowest petal larger. *Cal.* bell-form.
813. CASSIA. *Cor.* unequal. *Anth.* beaked. *Legume* (Lomentum) flat.
814. CUBEA. *Cor.* almost equal, with two petals bent down. *Legume* coriaceous, ventricose. *Seeds* somewhat kidney-form.
816. GUILANDINA. Bonduc or Nicker-tree. *Cor.* almost equal, placed on the calyx. *Legume* rhomb-form. *Seeds* bony.
817. HYPERANTHERA. *Cor.* almost equal. *Legume* three-valved. *Seeds* winged.
837. GÆRTNERA. *Cor.* almost equal. *Cal.* four-parted. *Samaras* four-winged.
851. GOMPHIA. *Cor.* almost equal. *Berries* many inserted into a large receptacle.
824. DICTAMNUS. Fraxinella. *Cor.* patulous: *Filam.* mealy. *Caps.* five, connected. *Seeds* arilled.
863. RHODORA. *Cor.* unequal three-petalled. *Cal.* five-toothed. *Caps.* five-celled ‡.

2. Flower's polypetalous, equal §.

* This is the least of all the Classes. Butomus is the only plant indigenous of Britain: and very few of the species are natives of Europe.—Several of them are in Linneus's natural order of *Holoraceæ*.—Rheum, with Polygonum and Rumex, is in Jussieu's order of *Polygonææ*.

† Many of these plants, Cercis, Baubinia, &c. belong to the *Lomentaceæ*. Some, as Sophora and Anagryis, to the *Papilionaceæ* or *Leguminosæ*, with the plants of the class *Diadelphia*. Lomentum differs from Legumen, in having the seeds separated by transverse septa; the parts falling in joints, instead of opening longitudinally.—Jussieu includes them all in one class *Leguminosæ*.

‡ The four last genera of the first section do not belong to the natural orders of *Lomentaceæ*, *Papilionaceæ* or *Leguminosæ*, either of Linneus or Jussieu.

§ Some of the first genera of the second section belong to the natural order of *Lomentaceæ* Linn. *Leguminosæ* Juss.—Some of the next, from *Gilbertia* to *Swietenia*, to the *Tribulææ*.—*Guaiacum*, *Tribulus*, *Fagonia*, *Zygophyllum*, *Quassia*, &c. to the *Grinales*.—*Ruta*, with *Distomus* in the preceding section, to the *Mulsiliquæ*. *Clethra*, *Pyrola*, *Ledum*, will be found in the natural order of *Ericales*.—The two first in the *Ericæ*, and the last in the *Rhododendro* of Jussieu. *Limonia*, *Cochia*, *Heisteria*, *Murraya*, and *Bergera*, in the *Arantæ* of Jussieu.

820. CYNOMETRA. *Cal.* four-leaved, with two opposite segments larger. *Legume* one-seeded, fleshy.
831. PROSOPIS. *Cal.* hemispherical, four-toothed. *Legume* many-seeded.
818. SCHOTIA. *Cal.* five-cleft, equal. *Legume* compressed, many-seeded.
832. CADIA. *Cal.* five-cleft. *Pet.* obcordate. *Legume* many-seeded.
836. ADENANTHERA. *Anth.* with a gland on them: *Legume* compressed, membranaceous.
830. HÆMATOKYLON. Logwood. *Stigma* emarginate. *Legume* with boat-shaped valves.
839. GILBERTIA. *Nect.* tubulous, truncated: *Anth.* sessile. *Caps.* four-celled.
840. TRICHILIA. *Nect.* tubulous, five-toothed. *Caps.* three-celled, three-valved. *Seeds* berried.
841. TURRÆA. *Nect.* tubulous, ten-toothed. *Caps.* pentacoccus. *Seeds* in pairs.
845. MELIA. Bead-tree. *Nect.* tubulous, ten-toothed. *Drupe* with a five-celled Nut.
842. SANDORICUM. *Nect.* tubulous, ten-toothed. *Drupe* with five Nuts.
843. SWIETENIA. Mahogany. *Nect.* tubulous, ten-toothed. *Caps.* woody, five-valved. *Seeds* imbricate, with a membranaceous margin.
819. GUAIACUM. Lignum vitæ. *Cal.* the two outer segments smaller. *Caps.* fleshy, three or five-celled, angular.
827. RUTA. Rue. *Germ* with ten melliferous dots. *Caps.* five-cleft, five-celled, many-seeded.
848. TRIBULUS. Caltrops. *Style* none. *Caps.* five, connected, many-seeded.
847. FAGONIA. *Cor.* the claws inserted into the calyx. *Caps.* five-celled, ten-valved, one-seeded.
846. ZYGOPHYLLUM. Bean-caper. *Nect.* ten flaminiferous scales. *Caps.* five-celled, many-seeded.
850. ZWINGERA. *Caps.* five, coriaceous, not opening.
849. QUASSIA. *Caps.* five, two-valved, one-seeded, inserted in a fleshy receptacle.
861. CERATOPETALUM. *Cor.* pentapetalous, pinnatifid. *Cal.* five-cleft, staminiferous. *Caps.* two-celled.
852. THRYALLIS. *Cor.* five-petalled. *Caps.* trilocular.
835. EKEBERGIA. *Cor.* four-petalled. *Berry* five-seeded.
857. SCHOUSBOEA. *Cor.* five-petalled, inserted into the calyx. *Berry* inferior, five-cornered, one-seeded.
826. PETALOMA. *Cor.* five-petalled, inserted between the segments of the calyx. *Berry* one-celled.
853. LIMONIA. *Cor.* five-petalled. *Berry* three-seeded.
844. COOKIA. *Cor.* five-petalled. *Pome* five-celled, with one seed in each cell.
858. HEISTERIA. *Cor.* five-petalled. *Drupe* on the coloured calyx enlarged.
859. QUISQUALIS. *Cor.* five-petalled, on a filiform calyx.
854. MONOTROPA. Yellow Bird's-nest. *Cor.* ten-petalled: the five outer petals gibbous at the base. *Caps.* five-valved, many-seeded.
872. CLETHRA. *Stigmas* three. *Caps.* three-celled, many-seeded.
873. PYROLA. Winter-green. *Cor.* five-petalled. *Anth.* with two pores. *Caps.* five-celled, many-seeded.
865. LEDUM. *Cor.* flat, five-parted. *Caps.* five-celled, many-seeded.
855. DIONEA. Venus's Fly-trap. *Cal.* five-leaved. *Stigma* fringed. *Caps.* one-celled, many-seeded.
833. MURRAYA. *Cor.* five-petalled. *Nect.* surrounding the germ. *Berry* one-seeded.
834. BERGERA. *Cor.* five-petalled. *Stigma* turbinate. *Berry* two-seeded.
862. MELASTOMA. *Cor.* placed on the calyx. *Anth.* refracted. *Berry* five-celled, clothed with the calyx.
863. MERIANIA. *Cor.* placed upon the calyx. *Anth.* refracted. *Caps.* five-celled, with contrary partitions.
856. JUSSIEUA. *Cor.* four or five-petalled. *Caps.* inferior.
- † Some species of *Rhexia*. *Conocarpus racemosa*. *Combretum decandrum*, *alternifolium*. *Jacquinia racemosa*. *Amyris decandra*. Some *Geraniums*. *Lythrum cordifolium*, *ciliatum*, *Melanium*. *Grislea tomentosa*. *Anacardium occidentale*.
3. Flower's monopetalous, equal.
822. PANZERA. *Petal* one, lateral. *Cal.* four-parted. *Legume*.
825. NICANDRA. *Cor.* tubulous, ten-cleft. *Cal.* four-cleft, unequal. *Berry* three-celled.
823. CODON. *Cor.* bell-form, ten-cleft. *Cal.* ten-parted. *Caps.* many-seeded.
875. INOCARPUS. *Cor.* tubulous, five-cleft. *Cal.* bifid. *Drupe* one-seeded.
838. STRIGILIA. *Cor.* five-cleft. *Nect.* ten-parted. *Fruit* six-celled.
868. ANDROMEDA. *Cor.* ovate. *Caps.* five-celled.
867. RHODODENDRON. *Cor.* funnel-form. *Stam.* declining. *Caps.* five-celled. *Pl. 3. f. 9.*

864. *KALMIA*. Cor. with the border five-horned beneath. Caps. five-celled. Pl. 3. f. 10.
 869. *EPIGÆA*. Cal. outer three-leaved: inner five-leaved. Caps. five-celled.
 870. *GUALTERIA*. Cal. outer two-leaved: inner five-cleft. Caps. five-celled, with a berried calyx.
 871. *ARBUTUS*. Cor. ovate, pellucid at the base. Berry five-celled.
 874. *STYRAX*. Cor. funnel-form. Drupe two-seeded.
 † *Vaccinium Myrtillus*, *uliginosum*. *Gardenia Thunbergia*.
 4. Flowers apetalous or incomplete.
 860. *DAIS*. Cor. one-petalled. Invol. four-leaved, many-flowered.
 878. *AQUILARIA*. Cal. five-cleft. Nect. five-cleft, with the lobes bifid. Caps. two-celled, two-valved.
 879. *AUGEA*. Cal. five-parted. Nect. ten-toothed. Caps. ten-celled.
 876. *SAMYDA*. Cal. five-parted. Nect. ten-cleft, surrounding the stamiferous germ. Caps. berried, one-celled, four-valved.
 877. *CASEARIA*. Cal. five-leaved. Nect. five-leaved, the leaflets alternating with the filaments. Caps. berried, one-celled, three-valved.
 881. *BUCIDA*. Cal. five-parted. Berry one-seeded.
 821. *CRUDIA*. Cal. four-parted. Cor. none. Samara orbicular.
 880. *COPAIFERA*. Cal. none. Cor. four-petalled. Legume one-seeded.
 † *Stellera Chamæjasme*. *Conocarpus racemosa*. *Forsskolea*.

DIGYNIA*.

890. *SCLERANTHUS*. Knawel. Cor. none. Cal. one-leafed. Seeds two.
 885. *TRIANTHEMA*. Cor. none. Caps. opening horizontally.
 886. *CHRYSOSPLENIUM*. Golden Saxifrage. Cor. none. Cal. coloured. Caps. two-beaked, many-seeded.
 882. *ROYENA*. Cor. one-petalled. Cal. ventricose. Caps. four-valved, four-seeded.
 883. *HYDRANGÆA*. Cor. five-petalled. Cal. five-cleft, superior. Caps. two-celled, two-beaked, opening horizontally.
 887. *SAXIFRAGA*. Cor. five-petalled. Cal. five-parted. Caps. two-beaked, many-seeded.
 888. *TIARELLA*. Cor. five-petalled. Cal. corolliferous. Caps. two-valved: one valve bigger than the other.
 889. *MITELLA*. Cor. five-petalled. Cal. corolliferous. Caps. two-valved. Pet. pectinate.
 884. *CUNONIA*. Cor. five-petalled. Cal. five-leaved. Caps. two-celled, acute.
 895. *SILENE*. Catchfly. Caps. half-three-celled. Pet. bifid, with claws, crowned at the throat.
 892. *SAPONARIA*. Soapwort. Cor. five-petalled. Cal. one-leafed, tubular, naked at the base. Caps. one-celled, oblong.
 893. *DIANTHUS*. Pink. Cor. five-petalled. Cal. tubulous, one-leafed, scaly at the base. Caps. one-celled, oblong. Plate 3. f. 11, 12, 13.

TRIGYNIA†.

900. *BRUNNICHIA*. Caps. one-seeded. Cor. none. Cal. five-cleft.
 897. *ARENARIA*. Sandwort. Caps. one-celled. Pet. entire, spreading.
 896. *STELLARIA*. Stitchwort. Caps. one-celled. Pet. two-parted, spreading.
 899. *DEUTZIA*. Caps. three-celled, three-beaked. Pet. entire.
 894. *CUCUBALUS*. Campion. Caps. three-celled. Pet. bifid, with claws, naked at the throat.
 891. *GYPHOPHILA*. Cor. five-petalled. Cal. five-parted, bell-form. Caps. one-celled, globose.
 898. *CHERLERIA*. Caps. one-celled, three-valved. Nect. five glands at the base of the stamens. Pet. none. (Sometimes five. *Sequier*.)
 901. *GARIDELLA*. Caps. three, distinct. Pet. calycine. Nect. five, bilabiate.
 906. *ERYTHROXYLON*. Drupe one-seeded. Pet. having a scale at the base.
 902. *MALPIGHIA*. Drupe three-seeded. Pet. five, with claws. Cal. glandulous.
 903. *BANISTERIA*. Samaras three, one-winged. Pet. five, with claws. Cal. glandulous.
 904. *HIRÆA*. Samaras three, with two opposite wings, or surrounded with a wing. Pet. five, with claws. Cal. not glandulous.
 905. *TRIOPTERIS*. Samaras three, three or four-winged. Pet. five, with claws. Cal. glandulous.
 † *Tamarix germanica*.

TETRAGYNIA.

- † *Lychnis alpina*, *quadridentata*.

* The plants of the order Digynia are distributed among three natural orders, *Succulentæ*, *Bicornes* and *Caryophyllei*.—*Portulacæ*, *Saxifragæ*, and *Caryophylleæ* of Jussieu.

† The plants of the third order, *Arenaria*, *Stellaria*, &c. belong to the *Caryophyllei*, *Garidella* to the *Multifloræ*. *Malpighia*, &c. to the *Tribitæ*.—The seven first genera are in the *Caryophylleæ* of Jussieu. *Garidella* in his *Ranunculaceæ*; and the rest in his *Malpighiæ*.

PENTAGYNIA.

911. *CNESTIS*. Caps. five, one-seeded. Cor. five-petalled.
 912. *COTYLEDON*. Navelwort. Caps. five, with a nectariferous scale at the base of each. Cor. one-petalled.
 913. *SEDUM*. Stone-crop. Caps. five, with a nectariferous scale at the base of each. Cor. five-petalled.
 914. *PENTHORUM*. Caps. five-lobed. Cor. Petals few or none: (none to five.)
 915. *BERGIA*. Caps. five-celled, five-valved: valves opening horizontally.
 908. *JONQUETIA*. Caps. one-celled, five-seeded. Pet. entire. Cal. five-leaved.
 922. *SPERGULA*. Spurrey. Caps. one-celled, many-seeded. Pet. entire. Cal. five-leaved.
 921. *CERASTIUM*. Mouse-ear Chickweed. Caps. one-celled. Pet. bifid. Cal. five-leaved.
 919. *AGROSTEMMA*. Campion. Cockle. Caps. one-celled, oblong. Cal. tubulous, coriaceous.
 920. *LYCHNIS*. Caps. five or one-celled, many-seeded. Cal. tubulous, membranaceous.
 918. *OXALIS*. Wood Sorrel. Caps. five-celled, angular. Seeds in pairs, arilled. Pet. connected at the base.
 910. *ROBERGIA*. Drupe with a one-celled nut. Cal. one-leafed.
 909. *SPONDIAS*. Hog Plum. Drupe with a five-celled-nut. Cal. one-leafed.
 907. *AVERRHOA*. Pome five-celled. Cal. five-leaved.
 917. *GRIELUM*. Seeds five, distinct, awnless. Cor. five-petalled. Styles none.
 916. *SURIANA*. Seeds five, roundish. Cor. five-petalled. Styles filiform, lateral*.
 † *Adoxa*. *Coriaria*. *Geraniums*. *Drosera lusitanica*.

DECAGYNIA.

923. *NEURADA*. Cal. five-parted. Cor. five-petalled. Caps. ten-grained.
 924. *PHYTOLACCA*. Cal. five-leaved, corollinous. Cor. none. Berry ten-grained.

CLASS XI.

DODECANDRIA.

MONOGYNIA.

Corolla none.

927. *BOCCONIA*. Cal. two-leaved, inferior. Caps. two-valved, one-seeded.
 925. *ASARUM*. Asarabacca. Cal. trifid, superior. Caps. fix-celled.
 955. *STERCULIA*. Cal. five-parted. Nect. stamiferous. Germ pedicelled. Caps. five.
 Corolla in four divisions.
 931. *RHIZOPHORA*. Cor. four-parted. Cal. four-parted, inferior. Seed one, club-shaped with a fleshy receptacle.
 938. *GARCINIA*. Mangostan. Cor. four-petalled. Cal. four-leaved, inferior. Berry eight-seeded, crowned.
 943. *CRATÆVA*. Cor. four-petalled. Cal. four-cleft, inferior. Berry two-celled, pedicelled.
 928. *DODECAS*. Cor. four-petalled. Cal. four-cleft. Caps. one-celled, four-valved.
 932. *CRENÆA*. Cor. four-petalled. Cal. four-cleft. Caps. five-celled, many-seeded.
 939. *HALESIA*. Cor. four-cleft. Cal. four-toothed, superior. Peric. four-seeded, four-cornered.
 933. *APACTIS*. Cor. four-petalled. Cal. none. Stam. fifteen.

Corolla five-petalled.

926. *TOMEX*. Cal. none. Invol. four or five-leaved; from five to twelve flowered. Berry one-seeded.
 945. *EURYA*. Cal. double. Caps. five-celled.
 944. *TRIUMFETTA*. Cal. five-leaved, inferior. Caps. four-celled, two-seeded, muricated.
 946. *PEGANUM*. Cal. five-leaved, inferior. Caps. three-celled. Stam. fifteen.
 954. *KLEINHOFIA*. Cal. five-leaved. Nect. stamiferous. Germ pedicelled. Caps. five-cornered, inflated.
 948. *NITRARIA*. Cal. five-cleft, inferior. Drupe one-seeded. Stam. fifteen.
 941. *ARISTOTELIA*. Cal. five-parted. Berry three-celled.
 937. *GRANGERIA*. Cal. five-cleft. Drupe one-seeded.
 936. *VATICA*. Anthers fifteen-celled: inner cells shorter.
 947. *HUDSONIA*. Cal. three-leaved, inferior. Caps. one-celled, three-valved, three-seeded.
 942. *CANELLA*. Cal. three-lobed, inferior. Berry one-celled, two or four-seeded. Nect. antheriferous.
 949. *PORTULACA*. Purslane. Cal. bifid, inferior. Caps. one-celled, opening horizontally.
 950. *TALINUM*. Cal. two-leaved. Caps. one-celled, three-valved. Seeds arilled.

* The first genera and *Surianna* the last of the order Pentagynia, are in the order of *Succulentæ*. *Cerastium*, *Agrostemma*, *Lychnis*, in that of *Caryophyllei*. *Oxalis*, *Avverrhoa* and *Griehum*, are found among the *Grünates*. *Neurada* is one of the *Succulentæ*: and *Phytolacca* of the *Illicaceæ*.—See *Simperivivæ*, *Caryophylleæ*, *Gerania*, *Terabintaceæ*, *Rosaceæ* of Jussieu.

*Corolla six-petalled.*951. LYTHRUM. Loofetrisfe. *Cal.* twelve-cleft, inferior.*Caps.* two-celled. *Pl.* 4. *f.* 2, 3.952. CUPHEA. *Cor.* unequal. *Cal.* six-toothed, unequal.*Caps.* one-celled, opening before it is ripe.953. GINORIA. *Cal.* six-cleft, inferior. *Caps.* one-celled, four-valved.954. BLAKEA. *Cal.* of the fruit six-leaved; of the flower superior, undivided: *Caps.* six-celled. *Anthers* connected.929. AGATHOPHYLLUM. *Cal.* truncate. *Drupe* one-seeded.*Corolla seven-petalled.*935. BEFARIA. *Stam.* fourteen. *Berry* juiceless, seven-celled.*Corolla eight-cleft.*930. BASSIA. *Stam.* sixteen. *Drupe* five-seeded.*Corolla ten-petalled.*940. DECUMARIA. *Cal.* ten-leaved, superior.† *Cleome viscosa*, *dodecandra*. *Chlora dodecandra*. *Samyda pubescens*, *ferrulata*. *Rivina octandra*. *Passerina capitata*.

DIGYNIA.

956. HELIOCARPUS. *Cor.* four-petalled. *Cal.* four-leaved. *Caps.* two-celled, one-seeded, compressed and radiate.957. AGRIMONIA. Agrimony. *Cor.* five-petalled: petals inserted into the calyx. *Cal.* five-cleft. *Seeds* two, at the bottom of the calyx.

TRIGYNIA.

958. RESEDA. Dyer's-weed. Mignonette. *Petals* many-cleft. *Cal.* parted. *Caps.* one-celled, gaping.960. VISMEA. *Pet.* elliptic. *Cal.* five-leaved. *Nut.*959. EUPHORBIA. Spurge. *Nect.* peltate. *Cal.* ventricose. *Caps.* trilocular, pedicelled.

TETRAGYNIA.

962. APOCYNUM. *Cor.* none. *Cal.* none. *Caps.* four.961. CALLIGONUM. *Cor.* none. *Cal.* five-parted. *Nut.* one-seeded.† *Tormentilla erecta*. Some *Resedas*.

PENTAGYNIA.

963. GLINUS. *Cor.* none, except bristles. *Cal.* five-leaved. *Caps.* five-celled.964. BLACKWELLIA. *Cor.* fifteen-petalled. *Cal.* five-cleft. *Caps.* one-celled, many-seeded.† *Reseda purpurascens*.

DODECAGYNIA.

965. SEMPERVIVUM. Houseleek. *Cor.* twelve petalled. *Cal.* twelve-parted. *Caps.* twelve. *Plate* 4. *f.* 1.† *Alisma cordifolia*.

CLASS XII.

ICOSANDRIA.

MONOGYNIA.

*Calyx superior.*966. CACTUS. Melon Thistle. Torch Thistle. *Cereus*. Indian Fig. *Cal.* one-leaved. *Cor.* many-cleft. *Berry* one-celled, many-seeded.972. EUGENIA. *Cal.* four-parted. *Cor.* four-petalled. *Berry* one-celled, one-seeded.967. PHILADELPHUS. Syringa. *Cal.* five or four-parted. *Cor.* five or four-petalled. *Stigma* four-cleft. *Caps.* five or four-celled, many-seeded.968. LEPTOSPERMUM. *Cal.* five-cleft. *Petals* five, clawed, longer than the stamens. *Stigma* headed. *Caps.* four or five-celled.969. FABRICIA. *Cal.* five-cleft. *Pet.* five, sessile. *Stigma* headed. *Caps.* many-celled.970. METROSIDEROS. *Cal.* five-cleft. *Pet.* five. *Stam.* very long, exserted. *Stigma* simple. *Caps.* three or four-celled. *Pl.* 4. *f.* 6.971. PSIDIUM. Guava. *Cal.* five-cleft. *Cor.* five-petalled. *Berry* one-celled, many-seeded.973. MYRTUS. Myrtle. *Cal.* five-cleft. *Cor.* five-petalled. *Berry* three-celled, many-seeded.980. PUNICA. Pomegranate. *Cal.* five-cleft. *Cor.* five-petalled. *Pome* ten-celled, many-seeded.985. ROBINSONIA. *Cal.* five-toothed. *Petals* five. *Berry* striated, seven-celled.974. CALYPTRANTHES. *Cal.* truncate, covered with a lid. *Cor.* none. *Berry* one-celled, one to four-seeded.975. EUCALYPTUS. *Cal.* truncate, covered with a lid: *Cor.* none. *Caps.* four-celled, many-seeded.978. FOETIDIA. *Cal.* four-cleft. *Cor.* none. *Caps.* four-celled, woody.*Calyx inferior.*986. SONNERATIA. *Cal.* six-cleft. *Pet.* six. *Berry* many-celled: cells many-seeded.981. AMYGDALUS. Almond. Peach. Nectarine. *Cal.* five-cleft. *Drupe* with a perforated nucleus.982. PRUNUS. Plum. Cherry. Apricot. Laurel. *Cal.* five-cleft. *Cor.* five-petalled. *Drupe* with an entire nucleus.984. CHRYSOBALANUS. Cocoa Plum. *Cal.* five-cleft. *Cor.* five-petalled. *Drupe* with a furrowed nucleus.983. PLINIA. *Cal.* four or five-parted. *Cor.* four or five-petalled. *Drupe* grooved.976. BANARA. *Cal.* four-cleft. *Pet.* four. *Berry* one-celled, many-seeded.977. ANTHERYLIUM. *Cal.* four-parted. *Pet.* four. *Caps.* one-celled, three-valved, many-seeded.979. SCOLOPIA. *Cal.* three or four-parted. *Pet.* three or four. *Berry* one-celled. *Seeds* arilled.† *Cleome icofandra*. *Mespilus f. Crataegus Oxyacantha*.

DIGYNIA.

987. CRATÆGUS. Hawthorn. *Cal.* superior, five-cleft. *Cor.* five-petalled. *Berry* two-seeded.988. WALDSTEINIA. *Cal.* ten-cleft, with alternate segments. *Pet.* five. *Seeds* two, obovate.

TRIGYNIA.

989. SORBUS. Service. *Cal.* superior, five-cleft. *Cor.* five-petalled. *Berry* three-seeded.990. SESUVIUM. *Cal.* inferior, five-cleft. *Cor.* none. *Caps.* three-celled, opening horizontally.† *Spiraea opulifolia*.

TETRAGYNIA.

Some *Tetragonias*: *Mesembryanthemum*.

PENTAGYNIA.

993. TETRAGONIA. *Cal.* superior, five or four-cleft. *Cor.* none. *Peric.* with a five or four-celled nucleus.991. MESPILUS. Medlar. *Cal.* superior, five-cleft. *Cor.* five-petalled. *Berry* five-seeded. [*Drupe* with from two to five two-seeded nuts.]992. PYRUS. Pear Apple. Quince. *Cal.* superior, five-cleft. *Cor.* five-petalled. *Pome* five-celled, many-seeded. *Pl.* 4. *f.* 4, 5.994. MESEMBRYANTHEMUM. Fig Marygold. *Cal.* superior, five-cleft. *Cor.* many-cleft. *Caps.* fleshy, celled, many-seeded.995. AIZOON. *Cal.* inferior, five-cleft. *Cor.* none. *Caps.* five-celled, many-seeded.996. SPIRÆA. *Cal.* inferior, five-cleft. *Cor.* five-petalled. *Caps.* two-valved, many-seeded.

OCTOGYNIA.

† *Mesembryanthemum calamiforme*.

DECAGYNIA.

† Some species of *Mesembryanthemum*.

POLYGYNIA.

997. ROSA. Rose. *Cal.* five-cleft, pitcher-shaped, becoming berried, many-seeded.998. RUBUS. Bramble. Raspberry. *Cal.* five-cleft. *Cor.* five-petalled. *Berry* superior, compound, with a single seed in each division. *Pl.* 4. *f.* 7.1001. TORMENTILLA. Septfoil. *Cal.* eight-cleft. *Cor.* four-petalled. *Seeds* naked, awnless.1003. DRYAS. Mountain Avens. *Cal.* eight or ten-cleft. *Pet.* five to eight. *Seeds* many, tailed, feathered.999. FRAGARIA. Strawberry. *Cal.* ten-cleft. *Cor.* five-petalled. *Seeds* naked, smooth, placed on the outer surface of a deciduous berried receptacle.1000. POTENTILLA. Cinquefoil. *Cal.* ten-cleft. *Cor.* five-petalled. *Seeds* naked, wrinkled, awnless.1002. GEUM. Avens. *Cal.* ten-cleft. *Cor.* five-petalled. *Seeds* with a jointed awn. *Recept.* columnar.1004. COMARUM. Marsh Cinquefoil. *Cal.* ten-cleft. *Cor.* five-petalled. *Seeds* naked, smooth, fastened to an ovate spongy, villous, permanent receptacle.1005. CALYCANTHUS. All-spice. *Cal.* scaly, corolline. *Cor.* none. *Seeds* tailed, in a succulent calyx*.† *Spiraea Filipendula*, *Ulmaria*. *Phytolacca icofandra*. Some species of *Mesembryanthemum*.

CLASS XIII.

POLYANDRIA.

MONOGYNIA.

1. One-petalled.

1054. SWARTZIA. *Cal.* four-parted. *Pet.* flat, lateral. *Legume*.1006. MARCGRAVIA. *Cal.* six-leaved, imbricate. *Cor.* one-petalled, closed. *Berry* many-celled, many-valved.

* The number of Styles varies in the orders Digynia, Trigynia and Pentagynia from two to five. Many of them are in the natural order of *Fonaceæ*. *Mesembryanthemum*, *Aizoon* and *Tetragonia* are with *Cassia* among the *Succulentæ*.—Of the first order, *Eugenia*, *Philadelphus*, *Psidium*, *Myrtus*, *Calyptanthus*, are in the *Hesperideæ*.—*Punica*, *Amygdalus*, *Prunus*, *Chrysobalanus*, belong to the *Pomaceæ*. The order Polygynia will be found in the natural order of *Sciticeæ*. Jussieu has made a separate order of *Cassia*, accompanied with *Ribes* only.—The next genera to *Sonneratia* inclusive are in his order of *Myrti*. The four next genera are among the *Resaceæ*. *Banara* is among his *Tiliaceæ*. The fruiting trees and shrubs of the other orders, with *Rosa*, *Spiraea*, *Tormentilla*, and the rest of the last order, belong to the *Resaceæ*.—*Sesuvium*, *Tetragonia*, *Mesembryanthemum*, *Aizoon*, are in his order *Ficoideæ*.

1007. TERNSTROEMIA. Cal. five-parted. Cor. wheel-form, with a bell-form, five-parted limb. Berry juiceless, two-celled.
2. Three-petalled.
1003. TRILIX. Cal. three-leaved. Berry five-celled, many-seeded.
† *Sterbeckia lateriflora*, and some *Tetraceras*.
3. Four-petalled.
1023. MAMMEA. Cal. two-leaved. Berry one-celled. Seeds callous.
1015. PAPAVER. Poppy. Cal. two-leaved. Caps. one-celled, crowned with the stigma, under which it opens with pores. Pl. 4. f. 11, 12.
1014. CHELIDONIUM. Celandine. Cal. two-leaved. Silique one-celled. Seeds crested.
GLAUCIUM. Horned Poppy. Cal. two-leaved. Silique two-celled. Seeds dotted.
1027. SPARRMANNIA. Cal. four-leaved. Caps. five-cornered, five-celled: cells two-seeded.
1010. CAPPARIS. Capers. Cal. four-leaved. Berry pedicelled, corticose. Pl. 4. f. 8.
1011. ACTÆA. Herb Christopher. Bane-berries. Cal. four-leaved. Berry one-celled. Seeds flat, in a double row.
1026. CALOPHYLLUM. Cal. four-leaved. Drupe globose. Nucleus subglobose.
1025. GRIAS. Cal. four-cleft. Drupe one-seeded. Nucleus eight-grooved.
† *Vallea stipularis*. *Legnotis elliptica*. *Cleome Chelidonii*, *felina*, *Tetracera nitida*.
4. Five-petalled.
1044. STERBECKIA. Caps. cylindrical, corticose. Seeds imbricate nestling in pulp.
1043. LOASA. Caps. half-inferior, one-celled, half three-valved, many-seeded.
1042. MENTZELIA. Caps. inferior, one-celled, three-valved, many-seeded.
1049. VALLEA. Caps. superior, four or five-cornered, one-celled, many-seeded.
1050. BONNETIA. Caps. superior, three-celled, three-valved, many-seeded. Cal. five-parted.
1036. LEGNOTIS. Caps. superior, three-celled, three-valved. Seeds solitary. Cal. five-cleft.
1046. FREZIERA. Berry juiceless, three-celled. Cal. five-leaved.
1034. MARILA. Caps. four-celled, four-valved, many-seeded. Caps. five-leaved.
1048. CISTUS. Caps. three-valved, opening at top. Cal. five leaved, with two of the leaves smaller.
1038. LEMNISCIA. Peric. five-celled. Cal. five-toothed. Nect. goblet-shaped.
1037. MYRODENDRUM. Peric. five-celled. Cal. five-toothed. Nect. none.
1052. CORCHORUS. Caps. five-celled. Cal. five-leaved, length of the corolla, deciduous.
1018. SARRACENIA. Caps. five-celled. Stigma shield-form. Cal. outer three-leaved: inner five-leaved.
1028. TILIA. Lime-tree. Caps. five-valved, opening at the base, coriaceous. Cal. five-parted, deciduous.
1022. AUBLETIA. Caps. echinate, ten-celled, many-seeded. Cal. coloured.
1024. OCHINA. Berries five in a fleshy receptacle. Petals with elongated claws.
1039. ASCIUM. Berry one-celled, many-seeded. Cal. five-leaved.
1031. GREWIA. Drupe four-lobed, four-celled. Cal. five-leaved.
1017. MUNTINGIA. Berry five-celled, umbilicate. Cal. parted.
1035. ELÆOCARPUS. Drupe with a curled nut. Petals lacinate.
1033. MICROCOS. Drupe with a three-celled nut. Petals linear.
† *Delphinium Consolida*, *Ajaxis*, *Aconiti*. *Lætia completa*.
5. Six-petalled.
1016. ARGEMONE. Prickly Poppy. Cal. three-leaved. Caps. one-celled, half-valved.
1045. LAGERSTROEMIA. Cal. six-cleft. Stam. six, the outer ones larger. Caps. six-celled, many-seeded.
1041. ALANGIUM. Cal. six to ten-toothed, superior. Pet. six to ten. Berry corticose, two or three-seeded.
1047. THEA. Tea-tree. Cal. five or six-leaved. Pet. six to nine. Caps. three-celled. Seeds solitary.
1040. LECYTHIS. Cal. six-leaved. Nect. tongue-shaped, bearing the stamens. Caps. opening horizontally.
† *Ternstroemia meridionalis*.
6. Eight-petalled.
1012. SANGUINARIA. Puccoon. Cal. two-leaved. Caps. two-valved, many-seeded.
7. Nine-petalled.
1013. PODOPHYLLUM. Duck's-foot or May-apple. Cal. three-leaved. Berry one-celled, crowned.
† *Thea*.
8. Ten-petalled.
1020. BIXA. Anotta. Cal. five-toothed. Cor. five-petalled, double. Caps. two-valved.
- † *Alangium decapetalum*.
9. Many-petalled.
1019. NYMPHÆA. Water Lily. Berry many-celled, corticose. Cal. larger than the petals.
10. Apetalous.
1051. PROCKIA. Cal. three-leaved. Peric. five-celled.
1032. MÆRUA. Cal. four-cleft with a nectariferous tube. Peric. pedicelled.
1009. LUDIA. Cal. four to nine parted. Peric. one-celled, many-seeded.
1021. SLOANEA. Cal. five to nine-cleft. Peric. echinate, three to six-celled, three to six-valved. Seeds arilled.
1030. RYANIA. Cal. five-leaved. Peric. one-celled, many-seeded. Seeds arilled.
1029. LÆTIA. Cal. five-leaved. Peric. one-celled, three-valved, many-seeded.
1053. SEGUIERIA. Cal. five-leaved. Peric. one-seeded, winged.
† *Cratæva Marmelos*. *Tetracera sarmentosa*.
- DIGYNIA.
1057. FOTHERGILLA. Cal. quite entire. Cor. none. Caps. two-celled. Seeds two in each cell.
1056. CURATELLA. Cal. five-leaved. Cor. four-petalled. Caps. two-parted, two-seeded.
1055. PÆONIA. Peony. Cal. five-leaved. Cor. five-petalled. Caps. many-seeded. Seeds coloured.
1058. TRICHOCARPUS. Cal. four or five-parted. Cor. none. Caps. bristly, many-seeded.
1059. LACIS. Cal. none. Cor. none. Caps. two-valved, many-seeded.
† *Tetracera lævis*.
- TRIGYNIA.
1061. DELPHINIUM. Larkspur. Cal. none. Cor. five-petalled: the upper petal horned. Nect. bifid, sessile.
1062. ACONITUM. Wolf's-bane. Cal. none. Cor. five-petalled, the upper petal arched like a helmet. Nect. two, pedicelled.
1050. HOMALIUM. Cal. six or seven-parted. Cor. six or seven-petalled. Stam. in threes aggregate.
† *Reseda Luteola*. *Corchorus æstuans*. *Helleborus*.
- TETRAGYNIA.
1063. WINTERA. Cal. entire. Cor. six-petalled. Berries four, four-seeded.
1067. CIMICIFUGA. Cal. four-leaved. Cor. with four pitcher-shaped nectaries. Caps. four. Seeds scaly.
1066. WAHLBOMIA. Cal. four-leaved. Cor. four-petalled. Peric. four, beaked.
1064. TETRACERA. Cal. six-leaved. Caps. four, one-seeded. Stam. widened, antheriferous on each side.
1065. CARYOCAR. Cal. five-parted. Cor. five-petalled. Drupe with four nuts.
† *Elæocarpus Dicera*.
- PENTAGYNIA.
1068. AQUILEGIA. Columbine. Cal. none. Cor. five-petalled. Nect. five, horned below.
1069. NIGELLA. Fennel-flower. Cal. none. Cor. five-petalled. Nect. eight, two-lipped at top.
1070. REAUMURIA. Cal. five-leaved. Cor. five-petalled: with ten, adnate, ciliate nectaries. Caps. five-celled, many-seeded.
† Some species of *Aconitum* and *Delphinium*.
- POLYGYNIA.
1091. HYDRASTIS. Yellow-root. Cal. none. Cor. three-petalled. Berry compound, with one seed in each division.
1082. ATRAGENE. Cal. none. Cor. outer four-petalled, larger: inner many-petalled. Seeds very many, crested.
1083. CLEMATIS. Virgin's Bower. Cal. none. Cor. four to six-petalled. Seeds very many, tailed. Recept. headed.
1084. THALICTRUM. Meadow Rue. Cal. none. Cor. four or five-petalled. Seeds very many, tailless.
1088. ISOPYRUM. Cal. none. Cor. five-petalled, deciduous. Nect. five. Caps. many-seeded.
1089. HELLEBORUS. Hellebore. Cal. none. Cor. five-petalled, permanent. Nect. tubular, two lipped. Caps. many-seeded. Pl. 4. f. 9, 10.
1090. CALTHA. Marsh Marygold. Cal. none. Cor. five-petalled. Nect. none. Caps. many.
1081. ANEMONE. Cal. none. Pet. five to nine. Seeds very many.
1076. MICHELIA. Cal. truncate. Cor. eight-petalled. Berries four-seeded, glomerate.
1087. TROLLIUS. Globe-flower. Cal. none. Cor. four-teen-petalled. Nect. flattened, linear. Caps. many-seeded.
1079. XYLOPIA. Cal. three-leaved. Cor. six-petalled. Caps. one or two-seeded in a hemispherical receptacle.
1080. UNONA. Cal. three-leaved. Cor. six-petalled. Berries moniliform, two-seeded, in a hemispherical receptacle.
1077. UVARIA. Cal. three-leaved. Cor. six-petalled. Berries many seeded, fastened to a long receptacle.
1078. ANNONA.

1078. ANNONA. Custard Apple. *Cal.* three-leaved. *Cor.* six-petalled. *Berry* many-seeded, with a scaly bark.
1073. LIRIODENDRON. Tulip tree. *Cal.* three-leaved. *Cor.* six-petalled. *Samaras* very many, lanceolate, imbricate, forming a strobile.
1074. MAGNOLIA. *Cal.* three-leaved. *Cor.* nine-petalled. *Caps.* glomerate, two-valved. *Seeds* pendulous.
1075. NELUMBIUM. *Cal.* four or five-leaved: *Cor.* many-petalled. *Nuts* one-seeded immersed in the receptacle.
1071. DILLENIA. *Cal.* five-leaved. *Cor.* five-petalled. *Caps.* several, connate, in a fleshy receptacle.
1086. RANUNCULUS. Crowfoot. *Cal.* five-leaved: *Cor.* five-petalled, with a nectariferous gland at the claw of each. *Seeds* very many, naked.
1072. ILLICIUM. Aniseed-tree. *Cal.* six-leaved. *Pet.* twenty-seven. *Caps.* one-seeded, in a ring.
1085. ADONIS. *Cal.* five-leaved. *Cor.* five to ten-petalled; without any nectary. *Seeds* very many, naked *.
- † Some *Nigellas*.

CLASS XIV.

DIDYNAMIA.

Gymnospermia.

1. Calyxes subquinquefid.

1103. PERILLA. *Styles* two. *Stam.* distant.
1105. GLECOMA. Ground Ivy. *Anthers* each pair forming a little cross.
1096. HYSSOPUS. Hyssop. *Filam.* distant, straight! *Cor.* ringent, with the lower lip three-parted, and somewhat notched.
1098. ELZHOLTZIA. *Filam.* distant, straight! *Cor.* ringent, with the lower lip undivided.
1101. BYSTROPOGON. *Filam.* distant, straight. *Cor.* ringent, with the lower lip three-lobed.
1102. MENTHA. Mint. *Filam.* distant, straight! *Cor.* almost equal.
1104. HYPTIS. *Filam.* declining! *Cor.* ringent, with the upper lip bifid, the lower trifid, and the middle segment concave.
1100. SIDERITIS. Ironwort. *Stigma* one sheathing the other.
1099. LAVANDULA. Lavender. *Cor.* resupine.
1093. TEUCRIUM. Germander. *Cor.* upper lip none, but a fissure instead of it. *Pl.* 5. f. 3.
1092. AJUGA. Bugle. *Cor.* upper lip very small.
1113. PHLOMIS. *Cor.* upper lip rough-haired compressed.
1112. LEONURUS. Motherwort. *Cor.* upper lip erect, undivided, flat. *Stam.* longer than the throat. *Anth.* with bony dots scattered over them.
1108. BETONICA. Betony. *Cor.* upper lip flat, ascending: tube cylindrical. *Stam.* length of the throat.
1106. LAMUM. Archangel. *Cor.* with a tooth on each side of the throat!
1107. GALEOPSIS. Hemp-nettle. *Cor.* lower lip two-toothed above!
- GALEOBDOLO. Yellow Dead-nettle. *Cor.* lower lip trifid, with acute segments.
1109. STACHYS. Wound-wort. *Cor.* lower lip bent back at the sides. *Stam.* when past flowering bent back to the sides. *Pl.* 5. f. 2.
1097. NEPETA. Cat-mint. *Cor.* lower lip crenate: throat bent back at the edge.
1094. SATUREIA. Savory. *Cor.* segments nearly equal. *Stam.* remote.
1110. BALLOTA. Black Horehound. *Cal.* ten-freaked. *Cor.* upper lip arched.
1111. MARRUBIUM. White Horehound. *Cal.* ten-freaked. *Cor.* upper lip straight, bifid.
1114. MOLUCCELLA. Mollucca Balm. *Cal.* bell-form, wider than the corolla, with spiny teeth.
- † Some species of *Verbena*. *Monarda didyma*.

2. Calyxes two-lipped.

1124. SCUTELLARIA. Skull-cap. *Cal.* fruiting covered with a lid.
1117. THYMUS. Thyme. *Cal.* at the throat closed with villous hairs!
1122. PLECTRANTHUS. *Cor.* resupine, spurred upwards at the base! *Filam.* awl-shaped.
1121. OCIMUM. Basil. *Cor.* resupine naked at the base! *Filam.* two outer having a process at the base.
1125. PRUNELLA. Self-heal. *Filam.* all forked at the tip!
1126. CLEONIA. *Stigmata* four!

* Several genera of the first order, as *Argemone*, *Chelidonium*, *Papaver*, *Sanguinaria* and *Podophyllum*, form the natural order of *Rhœadææ*.—Most of the genera in the other orders are in that of *Multiflorææ*.—Some, as *Bixa*, *Corchorus*, *Grewia*, *Muntingia*, *Thea* and *Tilia*, are to be found with the *Columniflorææ*.—*Nymphaea* is with the *Succulentææ*.—Several of the latter genera, from *Xylopi* to *Magnolia* form an order called *Cadanatææ*.—*Mammea*, *Grias*, and *Calophyllum* are in Jussieu's order of *Guttiferææ*. *Papaver*, *Chelidonium*, *Argemone*, *Sanguinaria* are among the *Papaveraceææ*. Most of the genera in the latter orders, with *Altea* and *Podophyllum* in the first, are in his natural order of *Ranunculaceææ*. *Corchorus*, *Spartmannia*, *Sloanea*, *Grewia*, *Tilia*, *Bixa*, *Lætia*, *Muntingia*, are among his *Tiliaceææ*. *Ternstroemia* and *Thea* are appended to his *Aurantiaææ*. *Nymphaea* and *Nelumbium* are with his *Hydrocharidæææ*. *Illicium*, *Mobelia*, *Magnolia*, *Liriodendrum*, *Curatella*, *Ocoba*, form the order of *Magnoliæææ*. *Annona*, *Unona*, *Uvaria*, *Xylopi*, form the next, entitled *Anonæææ*.

VOL. I.

1123. TRICHOSTEMA. *Filam.* very long!
1119. DRACOCEPHALUM. Dragon's-head. *Cor.* throat inflated and widened.
1116. ORIGANUM. Marjoram. *Strobile* collecting all the calyxes.
1115. CLINOPODIUM. Basil. *Involute* of many bristles collecting the calyxes.
1095. THYMBRA. *Cal.* keeled on each side with a ciliate line. *Style* semibifid. *Cor.* with flat lips.
1120. MELITTIS. Bastard Balm. *Cal.* tube wider than the corolla. *Cor.* upper lip flat, entire. *Anth.* cruciate. *Pl.* 5. f. 1.
1118. MELISSA. Balm. *Cal.* angular, scarious, with the upper lip ascending.
1127. PRASIMUM. *Seeds* berried.
1128. PHRYMA. *Seed* single! *Cor.* ringent.
1129. SELAGO. *Seed* single. *Cor.* border five-cleft, unequal *.

ANGIOSPERMIA.

1. Calyxes undivided.

1185. ÆGINETIA. *Caps.* many-celled. *Cor.* bell-form. *Cal.* spathaceous.
1161. TANAECIUM. *Berry* corticose. *Cor.* tubulous, almost equal. *Cal.* tubulous, truncate.
2. Calyxes bifid.
1184. OBOLARIA. *Caps.* one-celled. *Cor.* bell-form, four-cleft. *Filam.* from the divisions of the corolla.
1186. OROBANCHÆ. Broom-rape. *Caps.* one-celled. *Cor.* almost equal, four-cleft. *Gland* under the base of the germ. *Cal.* lateral leaflets lobed. *Pl.* 5. f. 6.
1172. HEBENSTREITIA. *Caps.* two-seeded. *Cor.* one-lipped, four-cleft. *Stam.* inserted into the lateral margin of the corolla.
1149. TORENIA. *Caps.* two-celled. *Cor.* personate. *Filam.* two, bifid.
1205. CASTILLEIA. *Caps.* two-celled. *Cor.* two-lipped with the lower lip very short. *Cal.* one-lipped, two-toothed.
1211. ACANTHUS. *Caps.* two-celled. *Cor.* one-lipped, trifid. *Anthers* villose.
1164. PREMNA. *Drupe* one-seeded, with a four-celled nut. *Cor.* four-cleft, unequal.
1160. CRESCENTIA. Calabash-tree. *Berry* one-celled, corticose. *Cor.* gibbous. *Germ* pedicelled.

3. Calyxes trifid.

1159. HALLERIA. *Berry* two-celled. *Cor.* four-cleft: with the upper lip longer.

4. Calyxes quadrifid.

1189. LIPPIA. *Caps.* two-seeded, two-celled. *Cor.* falver-form. *Cal.* compressed.
1134. LATHRÆA. Toothwort. *Caps.* one-celled. *Cor.* personate. *Gland* under the germ.
1130. BARTSIA. *Caps.* two-celled. *Cor.* personate. *Cal.* coloured. *Seeds* angular.
1132. EUPHRASIA. Eyebright. *Caps.* two-celled. *Cor.* personate. *Anth.* spiny on one side. *Seeds* striated.
1131. RHINANTHUS. Yellow Rattle. *Caps.* two-celled. *Cor.* personate. *Caps.* compressed. *Seeds* flat, imbricate.
1133. MELAMPYRUM. Cow-wheat. *Caps.* two-celled. *Cor.* personate. *Seeds* two in each cell, gibbous, polished.
1135. SCHWALBEA. *Caps.* two-celled? *Cor.* personate. *Cal.* upper segments gradually smaller.
1196. BARLERIA. *Caps.* two-celled. *Cor.* funnel-form. *Seeds* two in each cell. *Caps.* elastic.
1168. LOESELIA. *Caps.* three-celled. *Cor.* with segments directed one way. *Stam.* adverse to the petal.
1162. GMELENA. *Drupe* with a two-celled nut. *Anthers* two together, thicker, two-parted.
1165. LANTANA. *Drupe* with a two-celled nut. *Cor.* falver-form. *Stigma* hooked.

5. Calyxes five-cleft.

Capsule one-celled.

1209. AVICENNIA. *Caps.* coriaceous. *Cor.* with the upper lip squared. *Seed* single.
1136. TOZZIA. *Cor.* falver-form. *Seed* single.
1179. PHAYLOPSIS. *Cor.* ringent, with the upper lip very small. *Seeds* four.
1178. LIMOSELLA. Mudwort. *Caps.* half two-celled. *Cor.* bell-form, almost equal. *Seeds* very many.
1175. BROWALLIA. *Cor.* falver-form. *Seeds* numerous.
1151. BRUNFELSIA. *Caps.* berried. *Cor.* funnel-form.
1193. HOLMSKIOLDIA. *Cor.* ringent. *Cal.* widening.
1170. LINDERNIA. *Cor.* ringent. *Stam.* lower with a terminating tooth.
1182. CONOBEA. *Cor.* ringent. *Style* hairy.
1210. COLUMNÆA. *Cor.* ringent, gibbous above the base. *Anth.* connected.
1180. VANDELLIA. *Cor.* ringent. *Stam.* lower springing from the disk of the lip.
1181. RUSSELLIA. *Cor.* bilabiate. *Capsule* two-celled.

* The first order forms a class strictly natural; the *Verticillatæææ* of Linneus and others; with the exception of the two last species, *Phryma* which is among the *Personatæææ*, and *Selago* which is among the *Aggregatæææ*. The *Labiataæææ* of Jussieu has all these plants, except *Selago* which is among his *Policesæææ*. Both authors include the *Labiataæææ* of the class *Dianthiaæææ*.

1143. ALECTRA. *Caps.* twin. *Cor.* funnel-form. *Filam.* bearded. *Seeds* solitary.
1143. GESNERIA. *Cor.* superior, curved inwards.
1144. CYRILLA. *Cor.* superior, declining. *Rudiment* of a fifth filament.
1152. SCROPHULARIA. Figwort. *Cor.* resupine. *Lip* having the middle segment within.
1183. STEMODIA. *Cor.* unequal. *Stam.* bifid. *Anth.* double.
1190. ACHIMENES. *Cor.* almost equal, four-cleft. *Anth.* connected.
1153. CELSIA. *Cor.* wheel-form. *Filam.* woolly.
1154. HEMIMERIS. *Cor.* wheel-form, ringent.
1177. SIBTHORPIA. *Cor.* wheel-form. *Stam.* approximating in pairs. *Caps.* partitions transverse.
1169. CAPRARIA. *Cor.* bell-form. *Stigma* cordate, two-valved.
1155. DIGITALIS. Fox-glove. *Cor.* bell-form, ventricose beneath. *Stam.* declining.
1157. BIGNONIA. *Cor.* bell-form. *Seeds* winged, imbricate. *Rudiment* of a fifth filament.
1156. INCARVILLEA. *Cor.* funnel-form. *Seeds* winged. *Rudiment* of a fifth filament none.
1195. RUELLIA. *Cor.* bell-form. *Stam.* approximating in pairs.
1174. BUCHNERA. *Cor.* falver-form; with the segments of the border obcordate equal.
1173. ERINUS. *Cor.* bilabiate: with the upper lip very short and bent back.
1163. PETREA. *Cor.* wheel-form, smaller than the coloured calyx. *Seeds* solitary.
1171. MANULEA. *Cor.* border five-parted: with the lower segment deeper and bent back.
1144. ANTIRRHINUM. Snapdragon. *Fluellin.* Toadflax. *Cor.* perforate, with a prominent nectary underneath. *Pl. 5. f. 4.*
1145. ANARRHINUM. *Caps.* many-valved. *Cor.* bilabiate, with the throat pervious!
1133. GERARDIA. *Cor.* falver-form, unequal. *Caps.* opening at the base.
1137. PEDICULARIS. Loufswort. *Cor.* perforate, with the helmet compressed. *Seeds* mucronate.
1194. MIMULUS. Monkey-flower. *Cor.* perforate. *Cal.* prismatic.
1188. DODARTIA. *Cor.* perforate, with the upper lip short and ascending.
1159. CHELONE. *Cor.* perforate, inflated, closed. *Rudim.* of a fifth filament smooth.
1140. PENTSTEMON. *Cor.* bilabiate, ventricose. *Rudim.* of a fifth filament bearded.
1191. SESAMUM. Oily-grain. *Cor.* bell-form, unequal. *Rudim.* of a fifth filament.
1142. GLOXINIA. *Caps.* half two-celled. *Cor.* bell-form. *Rudim.* of a fifth filament inserted with the others into the receptacle.
- Capsule four-celled.*
1147. TOURRETIA. *Caps.* hooked. *Cor.* one-lipped.
1148. MARTYNIA. *Cor.* bell-form. *Rudim.* of a fifth filament.
- Capsules two.*
1204. MAURANDIA. *Caps.* united, half five-valved at the top. *Cor.* bell-form, unequal. *Filam.* callous at the base. *Siliqua?*
1200. MILLINGTONIA. *Cor.* regular, four-cleft. *Anth.* two-parted, sheathing.
- Nut.*
1192. TORTULA. *Nuts* two, wrinkled on the outside. *Cor.* tube spiral!
1214. PEDALIMUM. *Nut* two-celled.
- Berry.*
1176. LINNEA. *Berry* three-celled, dry. *Cor.* bell-form. *Cal.* superior.
1167. CORNUTIA. *Berry* one-seeded. *Cor.* ringent. *Style* very long.
1199. OVIEDA. *Berry* four seeded. *Cor.* very long, with a trifid border. *Fruiting calyx* bell-form.
1207. AMASONIA. *Berry* four-seeded. *Cor.* almost equal.
1150. BESLERIA. *Berry* many-seeded, one-celled. *Cor.* unequal.
- Drupe.*
1208. BONTIA. *Drupe* one-seeded. *Cor.* lower lip revolute. *Seed* plaited.
1166. SPIELMANNIA. *Drupe* one-seeded, with a bilocular nut. *Cor.* falver-shaped.
1206. VITEX. *Drupe* one-seeded, with a four-celled nut. *Cor.* ringent, with the upper lip trifid.
1198. MYOPORUM. *Drupe* two-seeded, with a two-celled nut. *Cor.* bell-form, nearly equal.
1158. CITHAREXYLON. *Drupe* two-seeded, with a two-celled nut. *Cor.* funnel-form, nearly equal.
1201. VOLKAMERIA. *Drupe* two-seeded, with a two-celled nut. *Cor.* falver-form, with the segments directed one way.
1202. CLERODENDRON. *Drupe* four-seeded, with a one-celled nut. *Cor.* bilabiate.
1197. DURANTA. *Drupe* four-seeded, with a two-celled nut. *Cor.* almost equal, with a curved tube.

+ *Gratiola Monniera*.

6. *Calyx* many-cleft.

1187. HYOBANCHE. *Caps.* two-celled. *Cor.* one-lipped. *Cal.* seven-leaved.

1212. LEPIDAGATHIS. *Caps.* two-celled. *Cor.* two-lipped. *Cal.* many-leaved, imbricate.

1146. CYMBARIA. *Caps.* two-celled. *Cor.* ringent. *Cal.* ten-toothed.

1203. THUNBERGIA. *Caps.* two-celled. *Cor.* bell-form. *Cal.* double: outer two-leaved; inner twelve-toothed.

7. *Many-petalled.*

1215. MELIANTHUS. Honey-flower. *Caps.* four-celled, four-lobed. *Cor.* four-petalled, constituting the lower lip*.

CLASS XV.

TETRADYNAMIA.

SILICULOSA.

1. *Silicle* entire, not emarginate at the tip.

1225. DRABA. Whitlow-grass. *Silicle* with flattish valves, parallel to the partition. *Style* none.

1234. LUNARIA. Honesty. *Silic.* pedicelled, with the valves flat. *Style* protruded.

1224. SUBULARIA. Awlwort. *Silic.* with semi-ovate concave valves, contrary to the partition. *Style* shorter than the silicle.

1216. MYAGRUM. Gold of pleasure. *Sil.* margined, with concave valves, parallel to the partition. *Style* permanent.

1222. VELLA. Cress-Rocket. *Sil.* with the partition protruded, twice as long as the valves.

1219. CAKILE. *Sil.* lanceolate, two-jointed; joints one-seeded, the upper joint separating.

1218. PUGIONUM. *Sil.* transverse, beaked on each side, valveless, one-seeded.

1217. BUNIAS. Sea Rocket. *Sil.* sharply quadrangular, valveless, two or four-celled, wrinkled, deciduous.

1220. CRAMBE. Colewort or Sea Kale. *Sil.* globular, one-celled, valveless, coriaceous, one-seeded, deciduous.

2. *Silicle* emarginate at the tip.

1229. IBERIS. Candy-tuft. *Sil.* obcordate. *Petals* the two outer larger.

1230. ALYSSUM. Madwort. *Sil.* two-celled. *Filam.* with a tooth on the inside of some.

1231. CLYPEOLA. Treacle Mustard. *Sil.* orbicular, with flat valves, deciduous.

1232. PELTARIA. *Sil.* orbicular, compressed-flat, not opening.

1228. COCHLEARIA. Scurvy-grass. *Sil.* cordate, with obtuse gibbous valves: [turgid, wrinkled, two-valved, many-seeded.]

1226. LEPIDIUM. Pepperwort. *Sil.* elliptic, with keeled valves.

1227. THLASPI. Mithridate Mustard. Shepherd's-purse. *Sil.* obcordate, with the valves margin-keeled. *Pl. 5. f. 7.*

1221. ISATIS. Woad. *Sil.* obcordate, two-valved, one-seeded, deciduous.

1233. BISCUTELLA. *Sil.* two-lobed above and below, with a keeled margin.

1223. ANASTATICA. Rose of Jericho. *Sil.* reflex: valves longer than the mucronate partition†.

SILIKUOSA.

1. *Calyx* closed with the leaflets converging longitudinally.

1247. RAPHANUS. Radish. *Siliqua* torose, jointed.

1239. ERYSIMUM. Hedge Mustard. Winter Cress. *Siliqua* four-cornered.

1240. CHEIRANTHUS. Wall-flower and Stock Gilliflower. *Germ* with a gland on each side. *Seeds* flat.

1242. HESPERIS. Rocket. *Glands* within the shorter stamens. *Petals* oblique.

1243. ARABIS. Wall-cress. Rock-cress. *Glands* four, reflexed. *Siliqua* linear, torulose.

1245. BRASSICA. Cabbage. Rape or Coleseed. Turnep. *Glands* four, two within the shorter stamens, and two on the outside of the longer stamens. *Siliqua* roundish. *Seeds* globular. *Pl. 5. f. 3.*

1248. CORDYLOCARPUS. *Siliqua* torulose, with the uppermost seed in a separate joint!

1244. TURRITIS. Tower Mustard. *Siliqua* stiff, somewhat angular. *Cor.* upright.

1236. DENTARIA. Tooth-wort or Coral-wort. *Siliqua* bursting elastically, with the valves rolled back. *Stigma* emarginate.

1235. RICOTIA. *Siliqua* one-celled.

2. *Calyx* gaping with the leaflets distant above.

1249. CLEOME. *Siliqua* gaping, one-celled.

1237. CARDAMINE. Ladies Smock. *Siliqua* bursting elasti-

* The Genera of this second order belong mostly to the natural order of *Perfonata*. The flowers are not Perfonate however in all, or even the greater part. A few genera are among the *Lurida*, as *Brevallia*, *Celsia*, *Digitalis*, *Sesamum*, *Pedalium*.—*Hebenstretia* and *Lienaea* are placed with the *Aggregata*.—*Melanthus* is among the *Corydalis*.—In Jussieu's system the genera are dispersed among his *Scrophularia*, *Pedicularis*, *Acanthi*, *Vitices*, and *Solanæ*.

† All these plants are to be found in Linneus's *Siliquosa*, and form a class strictly natural. Tournefort called the corolla cruciform: hence Jussieu entitles the order *Crucifera*.

cally, with the valves rolled back. *Stigma* entire. *Cal.* gaping but little.

1246. *SINAPIS*. Mustard. *Siliqua* roundish, with the partition prominent. *Cal.* spreading horizontally.

1238. *SISYMBRIUM*. Water Cress. Water Rocket. Flixweed. *Siliqua* opening with straightish valves. *Cal.* patulous.

1241. *HELIOPHILA*. *Siliqua* opening. *Nectaries* two, recurved.

CLASS XVI.

MONADELPHIA.

TRIANDRIA. *Monogynia*.

1253. *GALAXIA*. *Spathe* one or two-leaved. *Cor.* one-petalled, fix-cleft.

1251. *SISYRINCHIUM*. *Spathe* two-leaved. *Petals* fix, nearly equal.

1252. *FERRARIA*. *Spathe* two-leaved. *Pet.* fix, the three outer wider. *Pl.* 6. f. 1.

1254. *APHYTEIA*. *Cal.* three-cleft. *Pet.* three. *Berry* many-seeded.

1250. *TAMARINDUS*. *Cal.* four-parted. *Pet.* three. *Legume*.

PENTANDRIA.

Monogynia.

1263. *ERODIUM*. Stork's-bill. *Fruit* pentacoccus, beaked: beaks spiral, bearded within. *Cal.* five-leaved. *Cor.* five-petalled.

1256. *SYMPHONIA*. *Berry* five-celled, five-seeded. *Cal.* five-leaved. *Cor.* five-petalled.

1255. *OZOPHYLLUM*. *Caps.* 2 five-celled. *Cal.* five-toothed. *Cor.* five-petalled, funnel-form.

1261. *OCHROMA*. *Caps.* five-celled. *Cal.* double. *Cor.* five-petalled. *Anthers* anfractuose.

1257. *LERCHEA*. *Caps.* three-celled, many-seeded. *Cal.* five-cleft. *Cor.* one-petalled.

1258. *WALTHERIA*. *Caps.* one-celled, one-seeded. *Cal.* double. *Cor.* five-petalled.

Trigynia.

1262. *PASSIFLORA*. Passion-flower. *Berry* or *Pompion* pedicelled. *Cal.* five-parted. *Cor.* five-petalled inserted into the calyx. *Nect.* filamentose. *Pl.* 7. f. 18.

Pentagynia.

1259. *HERMANNIA*. *Caps.* five-celled. *Cal.* five-cleft. *Petals* five, cowled, oblique. *Filam.* widened.

1260. *MELOCHIA*. *Caps.* five-celled, one-seeded. *Cal.* double. *Pet.* five, spreading. *Filam.* awl-shaped.

HEPTANDRIA.

1264. *PELARGONIUM*. *Style* one. *Fruit* pentacoccus, beaked: beaks spiral, bearded within. *Cal.* five-parted. *Cor.* five-petalled, irregular.

OCTANDRIA.

1266. *AITONIA*. *Style* one. *Berry* dry, one-celled. *Cal.* four-parted. *Pet.* four.

1265. *PISTIA*. *Style* one. *Caps.* one-celled. *Cal.* spathaceous, one-leaved. *Cor.* none.

† *Erica monadelpha*. *Guarea*. *Perfoonia*.

DECANDRIA.

1271. *GERANIUM*. Crane's-bill. *Style* one. *Fruit* pentacoccus, beaked: beaks simple, naked, recurved; but neither spiral nor bearded. *Cal.* five-leaved. *Cor.* five-petalled, regular. *Pl.* 6. f. 3, 4.

1270. *SENNEA*. *Style* one. *Caps.* five-celled. *Cal.* double. *Cor.* five-petalled.

1267. *CRINODENDRUM*. *Style* one. *Caps.* one-celled, three-seeded. *Cal.* none. *Cor.* fix-petalled.

1268. *CONNARUS*. *Style* one. *Caps.* one-seeded. *Cal.* five-parted. *Cor.* five-petalled.

1269. *HUGONIA*. *Styles* five. *Drupe* one-seeded. *Cal.* five-parted, irregular. *Cor.* five-petalled.

† *Oxalis* and some *Papilionaceæ*. *Gartneria*. *Trichilia*. *Turraea*. *Sandoricum*. *Swietenia*. *Strigilia*. *Melia*. *Samyda*. *Casearia*. *Erythroxylon*. *Malpighia*. *Banisteria*. *Hiraa*. *Triopteris*. *Averrhoa*.

ENDECANDRIA.

1272. *BROWNEA*. *Style* one. *Cal.* bifid. *Cor.* outer five-cleft: inner five-petalled. *Legume* *.

DODECANDRIA.

1274. *MONSONIA*. *Cal.* simple, five-leaved. *Cor.* five-petalled, toothed. *Arils* five, one-seeded, at the base of a beaked receptacle.

1276. *HELICTERES*. Screw-tree. *Cal.* single, five-cleft. *Cor.* five-petalled or none. *Caps.* five, spiral.

1275. *PLAGIANTHUS*. *Cal.* single, five-cleft. *Cor.* five-petalled. *Berry*.

* The natural genus of *Geranium*, being very numerous, and differing in the number of fertile stamens, is now commodiously divided into three genera.

Brocnea is the only plant known, which has eleven stamens, but it does not constitute a class, because the stamens are monadelphous.

1273. *ACIA*. *Cal.* single, five-parted. *Cor.* five-petalled. *Drupe*.

1281. *PTEROSPERMUM*. *Cal.* single. *Cor.* five-petalled. *Caps.* five-celled. *Seeds* winged.

1277. *CIENTUEGIA*. *Cal.* double. *Cor.* five-petalled. *Caps.* three-celled, three-seeded.

1280. *PENTAPETES*. *Cal.* double. *Cor.* five-petalled. *Caps.* five-celled, with partitions contrary!

1279. *DOMBEYA*. *Cal.* double. *Cor.* five-petalled. *Caps.* five, two-valved, united.

1278. *ASSONIA*. *Cal.* double. *Cor.* five-petalled. *Caps.* five, two-valved, united.

All the genera of this order have one style, except the last, which has five styles.

† *Halesia*. *Styrax*. *Sterculia*. *Kleinbofia*.

POLYANDRIA.

1282. *CAROLINEA*. *Style* one. *Cal.* single, subtruncate. *Caps.* woody, one-celled, many-seeded.

1301. *GORDONIA*. *Style* one. *Cal.* single, five-leaved. *Caps.* five-celled. *Seeds* two in a cell, winged.

1305. *MORISONIA*. *Style* one. *Cal.* single, bifid. *Berry* capsular, pedicelled. *Petals* four.

1307. *CROSSOSTYLIS*. *Style* one. *Cal.* single, four-parted. *Berry* one-celled, many-seeded.

1309. *GUSTAVIA*. *Style* one. *Cal.* single, four or fix-cleft. *Berry* dry, four or five-celled, many-seeded. *Petals* four or fix.

1304. *MYRODIA*. *Style* one. *Cal.* single, bursting. *Drupe* two or three-celled. *Pet.* five.

1308. *BARRINGTONIA*. *Style* one. *Cal.* single, two-leaved. *Drupe* with a four-cornered nut. *Pet.* four.

1303. *MESUA*. *Style* one. *Cal.* single, four-leaved. *Nut* four-cornered, one-seeded. *Pet.* four.

1306. *POURRETIA*. *Style* one. *Cal.* single, five-parted. *Drupe* dry, one-seeded, five-winged. *Pet.* five.

1300. *STUARTIA*. *Styles* five. *Cal.* single, spreading. *Caps.* five-celled. *Seeds* solitary.

1287. *PALAVIA*. *Style* one. *Cal.* single, five-cleft. *Caps.* one-seeded, conglomerate without order.

1285. *LAGUNEA*. *Style* one. *Cal.* single, five-cleft. *Caps.* five-celled with partitions contrary!

1286. *SIDA*. *Style* many-parted. *Cal.* single, angular. *Caps.* many-celled, with one seed in each cell.

1284. *BOMBAX*. Silk Cotton. *Style* one, undivided. *Cal.* single. *Caps.* five-celled, many-seeded. *Seeds* woolly.

1283. *ADANSONIA*. Sour-gourd or Monkies-bread. *Style* one. *Cal.* single. *Caps.* ten-celled, many-seeded, with a farinaceous pulp.

1296. *GOSSYPIUM*. Cotton. *Style* one. *Cal.* outer trifid. *Caps.* three or four-celled, many-seeded, coadunate.

1292. *RUZIA*. *Ten-styled*. *Cal.* outer three-leaved. *Caps.* ten, two-celled in a globose whorl.

1291. *LAVATERA*. *Many-styled*. *Cal.* outer trifid. *Caps.* one-seeded in whorls.

1288. *MALACHRA*. *Many-styled*. *Cal.* outer three-leaved. *Caps.* five, one-seeded.

1290. *MALVA*. Mallow. *Many-styled*. *Cal.* outer three-leaved. *Caps.* many, one-seeded, in whorls.

1293. *MALOPE*. *Many-styled*. *Cal.* outer three-leaved. *Caps.* one-seeded, conglomerate without order.

1295. *URENA*. *Style* one. *Cal.* outer five-cleft. *Caps.* five-celled, quinquepartite, with the cells closed.

1298. *PAVONIA*. *Style* one. *Cal.* outer eight-leaved. *Caps.* five-celled, quinquepartite, with the cells two-valved.

1297. *HIBISCUS*. *Style* one. *Cal.* outer eight-leaved. *Caps.* five-celled, many-seeded. *Pl.* 6. f. 2.

1299. *ACHANIA*. *Style* one. *Cal.* outer eight-leaved. *Berry* five-celled.

1294. *KITAIBELIA*. *Many-styled*. *Cal.* outer seven or nine-cleft. *Caps.* one-seeded, glomerate in a five-lobed head.

1289. *ALTHAEA*. Marsh Mallow. *Many-styled*. *Cal.* outer six to nine-cleft. *Caps.* one-seeded in whorls.

1302. *CAMELLIA*. Japan Rose. *One-styled*. *Cal.* outer imbricate. *Caps.* cells many-seeded. *Style* undivided *.

† *Hypericum* *Brathys*. Some *Mimosas*.

CLASS XVII.

DIADELPHIA.

PENTANDRIA.

1310. *MONNIERIA*. *Cal.* five-parted. *Cor.* ringent. *Filam.* upper with two anthers; lower with three. *Caps.* five.

HEXANDRIA.

1312. *FUMARIA*. Fumitory. *Cal.* two-leaved. *Cor.* ringent, nectariferous at the gibbous base. *Filam.* each with three anthers.

* The first genera of the class *Monadelphia*.—*Galaxia*, &c. belong to the natural order of *Ericaceæ* of Linneus, and *Andros* of Jussieu. *Tamarindus* is with the *Loasaceæ* of Linneus, and *Leguminosæ* of Jussieu. The *Gerania* with *Mercurialis* are in the *Geraniales* of Linneus, the *Gerania* of Jussieu. *Pessiflora* is with the *Cucurbitaceæ* of both authors. This with *Sisymbrium*, &c. and *Helicteres*, was placed by Linneus in his class *Gynandria*. Most of the genera in the last order, together with *Ochroma*, *Walttheria*, *Hermannia*, *Melochia*, *Pentapetes*, *Assonia*, &c. in the other orders, will be found in the natural order of *Columniferæ*; and in Jussieu's *Mala-vaceæ*, with some exceptions, as *Palisotia* and *Hermannia* in his *Tiliaceæ*.

1311. SARACA. *Cal.* none. *Cor.* four-cleft. *Filam.* on each side three connected.

OCTANDRIA.

1313. POLYGALA. Milkwort. *Cal.* two segments like wings. *Cor.* standard cylindrical. *Stam.* connected. *Legume* obcordate, two-celled. *Pl.* 6. f. 5, 6, 7.

1315. SECURIDACA. *Cal.* three-leaved. *Cor.* standard two-leaved. *Legume* one-seeded with a ligulate wing.

1314. BREDEMEYERA. *Cal.* three-leaved. *Cor.* standard two-leaved. *Drupe* with a two-celled nut.

DECANDRIA*.

1. With all the stamens connected.

1316. NISSOLIA. *Legume* one-seeded, terminated by a ligulate wing.

1320. DIPTERIX. *Legume* one-seeded, naked. *Cal.* two segments like wings.

1318. PTEROCARPUS. *Legume* leafy, sickle-shaped, valveless.

1319. AMERIMNUM. *Legume* two-valved, three or four-seeded, leafy, lanceolate.

1339. AMORPHA. Bastard Indigo. *Wings* and *Keel* none.

1328. TRIGONIA. *Keel* two-petalled. *Caps.* three-valved, one-celled, many-seeded.

1322. ERYTHRINA. Coral-tree. *Wings* and *Keel* very short. *Cal.* with a melliferous pore. *Legume* torulose.

1324. RUDOLPHIA. *Wings* and *Keel* very short. *Legume* compressed many-seeded.

1323. BUTEA. *Wings* and *Keel* very short. *Legume* leafy, one-seeded at the tip.

1321. ABRUS. *Filam.* nine, united into a sheath at bottom, but distinct above. *Seeds* spherical.

1334. LEBECKIA. *Cal.* five-parted with rounded sinuses. *Legume* cylindrical, many-seeded.

1332. SPARTIUM. Broom. *Filam.* adhering to the germ. *Stigma* aduate, villose. *Pl.* 6. f. 10.

1333. GENISTA. Broom. *Pistil* depressing the keel, with the standard reflexed. *Stigma* involute.

1335. RAFNIA. *Cal.* bilabiate. *Legume* lanceolate, compressed.

1347. LUPINUS. Lupin. *Anthers* alternately rounded and oblong. *Legume* coriaceous.

1341. TERAMNUS. *Filam.* five barren, alternate with five longer, fertile. *Legume* linear, compressed.

1343. ANTHYLLIS. Kidney Vetch. *Cal.* turgid, inclosing the legume.

1326. PISCIDIA. Jamaica Dogwood. *Legume* with four longitudinal wings.

1325. WIBORGIA. *Legume* turgid, furrowed, winged.

1337. SARCOPHYLLUM. *Legume* sabre-shaped, acute. *Cal.* five-parted, regular.

1329. BORBONIA. *Legume* mucronate. *Stigma* emarginate.

1331. OEDMANNIA. *Cal.* bilabiate: upper lip bifid, lower fetaceous.

1338. ULEX. Furze, Whins, or Gorse. *Cal.* two-leaved. *Legume* scarcely longer than the calyx.

1346. ARACHIS. Earth-nut. *Cor.* resupine. *Legume* coriaceous.

1336. ASPALATHUS. *Legume* awnless, ovate, with about two seeds.

1344. ONONIS. Rest-harrow. *Cal.* five-parted. *Legume* rhomboid, sessile. *Standard* striated.

1342. BOSSIAEA. *Legume* pedicelled, compressed. *Keel* two-petalled.

1343. CROTALARIA. *Legume* pedicelled, turgid.

1327. PLATYLOBIUM. *Legume* compressed, winged at the back.

2. Stigma pubescent. Stamens diadelphous.

1365. COLUTEA. Bladder Senna. *Legume* inflated, opening above the base.

1348. PHASEOLUS. Kidney Bean. *Keel* and *Style* spiral.

1349. DOLICHOS. *Standard* with two calluses at the base.

1354. OROBUS. Bitter Vetch. *Style* linear, roundish, villose above.

1353. PISUM. Pea. *Style* keeled and villose above.

1355. LATHYRUS. Everlasting Pea. *Style* flat and villose above. *Pl.* 6. f. 8, 9.

1356. VICIA. Vetch or Tare. *Style* bearded under the stigma.

3. Legume subbilocular. Stamens diadelphous.

1379. ASTRAGALUS. Milk Vetch. *Legume* two-celled, gibbous.

1380. BISERRULA. *Legume* two-celled, flat, toothed.

1378. PHACA. Bastard Vetch. *Legume* half two-celled.

4. Legumes one or two-seeded. Stamens diadelphous.

Twining. Phaseolus, Dolichos, Clitoria, Glycine.
Pinnate equally. Orobus, Pisum, Lathyrus, Vicia, Ervum, Arachis.
Pinnate unequally. Biserrula, Astragalus, Phaca, Hedysarum, Glycyrrhiza, Indigofera, Galega, Colutea, Amorpha, Piscidia.
TRIFOLIATE. Trifolium, Lotus, Medicago, Erythrina, Genista, Cyfus, Ononis, Trigonella, Phaseolus, Dolichos, Clitoria.

* All the plants of the order Decandria in the class Diadelphia form an order strictly natural under the title of Papilionaceae Linn. and Leguminosae Juss. Of the first orders Monnieria and Fumaria belong to the Corydalis: Polygala to the Lomnaceae. Lotus, Dorycnium, Coronilla, Ornithopus, Hippocrepis, Scorpiurus bear their flowers in a sort of umbel.

1317. DALBERGIA. *Cal.* indistinctly toothed. *Legume* leafy.
1381. DALEA. *Wings* and *Keel* inserted into the column of stamens.

1382. PSORALEA. *Keel* two-petalled. *Legume* acuminate.

1383. TRIFOLIUM. Trefoil. *Legume* scarcely longer than the calyx, one or two-seeded, not opening but falling. Flowers in a head.

1385. DORYCNium. *Cal.* five-toothed. *Legume* turgid.

1374. HALLIA. *Cal.* five-parted, regular. *Legume* compressed.

1373. STYLOSANTHES. *Cal.* tubular at the base, corolliferous.

1351. CYLISTA. *Cal.* bilabiate, longer than the corolla.

1366. GLYCYRRHIZA. Liquorice. *Cal.* bilabiate; upper lip trifid.

1340. DIMORPHA. *Cal.* four-parted. *Wings* and *Keel* none.
5. *Legume* subarticulate (Lomentum.) *Stamens* diadelphous.

1372. ÆSCHYNOMENE. *Legume* intercepted by isthmuses. *Cal.* bilabiate.

1361. MULLERA. *Legume* (or Loment) moniliform. *Cal.* four-toothed.

1375. HEDYSARUM. Saintfoin. *Legume* (or Loment) with roundish compressed joints. *Keel* very blunt.

1371. SMITHIA. *Legume* (or Loment) with the joints cohering to the lateral style. *Cal.* bilabiate.

1367. CORONILLA. *Legume* (or Loment) jointed, round, straight.

1368. ORNITHOPUS. Bird's-foot. *Legume* (or Loment) jointed, bowed.

1370. SCORPIURUS. Caterpillar. *Legume* (Loment) intercepted by isthmuses, roundish, involuted.

1369. HIPPOCREPIS. Horse-shoe Vetch. *Legume* (Loment) membranaceous-compressed, curved, having one future cut several times to the middle.

6. *Legume* one-celled, many-seeded. Diadelphous.

1386. TRIGONELLA. Fenugreek. *Standard* and *Wings* spreading, appearing three petalled. *Keel* minute.

1350. GLYCINE. *Cor.* reflecting the banner.

1352. CLITORIA. *Standard* wide, covering the wings. *Cor.* resupine.

1364. ROBINIA. *Standard* from spreading reflexed, roundish.

1376. INDIGOFERA. Indigo. *Keel* with a toothlet on each side.

1358. CICER. Chick Pea. *Cal.* having the four upper segments lying on the standard.

1357. ERVUM. Lentil. *Cal.* five-parted, almost equal, nearly the length of the corolla. [*Stigma* headed, pubescent all round.—It should therefore be placed in the second section.]

1359. LIPARIA. *Cal.* the lower segment elongated. *Wings* two-lobed below.

1330. ACHYRONIA. *Cal.* five-toothed; the lower tooth elongated, bifid.

1360. CYTISUS. *Legume* pedicelled. *Cal.* bilabiate.

1363. DIPHYSA. *Legume* linear, inflated on each side with a longitudinal adnate bladder.

1377. GALEGA. Goat's Rue. *Legume* linear, with streaks obliquely transverse.

1384. LOTUS. Bird's-foot Trefoil. *Legume* round, stuffed with cylindrical seeds. *Wings* converging longitudinally upwards.

1387. MEDICAGO. Medick. Lucern. *Legume* spiral, membranaceous, compressed. *Pistil* depressing the keel.

1362. GEOFFROYA. *Drupe* with a woody nucleus.

CLASS XVIII.

POLYADELPHIA*.

DECANDRIA.

1388. THEOBROMA. Chocolate. *Cal.* five-leaved. *Cor.* four-petalled. *Nect.* pitcher-shaped, five-horned. *Filam.* five, each bearing two anthers. *Style* one. *Stigma* five-cleft. *Caps.* five-celled. *Seeds* nestling in pulp.

DODECANDRIA.

1389. BUEBROMA. *Cal.* three-leaved. *Cor.* five-petalled. *Nect.* five-cleft. *Filam.* five, each bearing three anthers. *Style* one, with a single stigma. *Caps.* five-celled, punched with a decuple series of holes.

1390. ABROMA. *Cal.* five-leaved. *Cor.* five-petalled. *Nect.* five-cleft. *Filam.* five, each bearing three anthers. *Styles* five. *Caps.* five-winged, five-celled. *Seeds* arilled.

ICOSANDRIA.

1391. CITRUS. Orange and Lemon. *Cal.* five-toothed. *Cor.* five-petalled. *Stam.* twenty, united into cylinders. *Pist.* one. *Berry* divided into cells, with a bladdery pulp.

1392. MELALEUCA. *Cal.* five-parted, half superior. *Cor.* five-petalled. *Caps.* half clothed with a berried calyx.

POLYANDRIA.

1394. LUHEA. *Cal.* double; outer nine-leaved; inner five-parted. *Cor.* five-petalled. *Nect.* five, pencil-form. *Style* one.

1395. DURIO.

1395. *DURIO*. Cal. five-cleft, pitcher-shaped, inferior. Cor. five-petalled, im ll. Style one. Stam. phalanges five from seven. Pome five-celled.
1392. *GLABRARIA*. Cal. five-cleft, inferior. Cor. five-petalled. Style one. Stam. phalanges five from six. *Drupe*.
1396. *SYMPLOCOS*. Cal. five-cleft, inferior. Cor. five-petalled. Stam. growing to the corolla in a quadruple series.
1397. *HYPERICUM*. St. John's-wort. Cal. five-parted, inferior. Cor. five-petalled. Styles one, three or five. Caps. divided into cells. Plate 6. f. 11, 12, 13.
1398. *ASCYRUM*. Cal. two-leaved, inferior. Cor. four-petalled. Styles two. Caps. two-valved*.

CLASS XIX.

SYNGENESIA †.

POLYGAMIA.

ÆQUALIS.

1. *Semistefalofi* Tournef. with all the corollæ ligulate.

1428. *SCOLYMUS*. Golden Thistle. Recept. chaffy. Seed-down none. Cal. imbricate, spiny.
1427. *CICHORIUM*. Succory. Endive. Recept. somewhat chaffy. Seed-down many-leaved, chaffy, shorter than the seed. Cal. calyced. Pl. 7. f. 1, 2.
1426. *CATANANCHE*. Recept. chaffy. Seed-down chaffy, five-leaved: chaffs awned. Cal. imbricate, scariosæ.
1420. *SERIOLA*. Recept. chaffy. Seed-down somewhat hairy. Cal. simple, many-leaved.
1421. *HYPOCHÆRIS*. Cat's-ear. Recept. chaffy. Seed-down feathered. Cal. imbricate.
1399. *GEROPOGON*. Old man's-beard. Recept. somewhat chaffy: Seed-down of the disk feathered—of the ray five-awned. Cal. many-leaved simple or calyced.
1416. *ROTHIA*. Recept. villose, chaffy at the edge. Seed-down of the disk hairy, sessile—of the ray none. Cal. many-leaved, equal.
1415. *ANDRYALA*. Recept. villose. Seed-down hairy, sessile. Cal. many-leaved, equal.
1425. *TRIPTILION*. Recept. villose. Seed-down awned: awns feathered at the tip. Cal. imbricate.
1400. *TRAGOPOGON*. Goat's-beard. Recept. naked. Seed-down feathered, stiped. Cal. single, many-leaved.
1401. *ARNOPOGON*. Recept. naked. Seed-down feathered, stiped. Cal. one-leaved, eight-parted.
1413. *HELMINTIA*. Recept. naked. Seed-down feathered, stiped. Seeds streaked transversely. Cal. double: outer five-leaved, very large!
1410. *PICRIS*. Ox-tongue. Recept. naked. Seed-down feathered transversely. Cal. double: inner equal; outer loose.
1408. *APARGIA*. Recept. naked. Seed-down feathered, sessile. Cal. imbricate.
1402. *SCORZONERA*. Viper's-grass. Recept. naked. Seed-down feathered, stiped.
1407. *LEONTODON*. Dandelion. Recept. naked. Seed-down stiped, simple. Cal. imbricate, with loose scales.
1412. *CREPIS*. Hawk's-beard. Recept. somewhat hispid. Seed-down simple, substipid. Cal. calyced, with the scales deciduous; finally torulose.
1405. *CHONDRILLA*. Gum-Succory. Recept. naked. Seed-down simple, stiped. Cal. calyced, many-flowered.
1406. *PRENANTHES*. Recept. naked. Seed-down subsessile, simple. Cal. calyced. Florets in a single row, about five.
1404. *LACTUCA*. Lettuce. Recept. naked. Seed-down simple, stiped. Cal. imbricate, cylindrical, with the edge membranaceous.
1411. *HIERACIUM*. Hawkweed. Recept. almost naked, dotted. Seed-down simple, sessile. Cal. imbricate, ovate.
1403. *SONCHUS*. Sow-thistle. Recept. naked. Seed-down simple, sessile. Cal. imbricate, ventricose.
1423. *ZACINTHA*. Recept. naked. Seed-down very short, somewhat feathered. Seeds round the edge curved in; the central ones straight. Cal. calyced: the outer calycle membranaceous.
1422. *LAPSANA*. Nipplewort. Recept. naked. Seed-down none. Cal. calyced; with the inner leaflets equal, channelled.
1424. *RHAGADIOLUS*. Recept. naked. Seed-down none. Seeds curved in, spreading. Cal. calyced.
1419. *KRIGIA*. Recept. naked. Seed-down membranaceous, five-leaved with five bristles intermixt alternately. Cal. many-leaved, single.

* The genera of the two first orders are among the *Columnifera* in the natural orders of Linneus, and the *Malvaceæ* of Jussieu.—*Citrus* is among the *Bicornes* of Linneus: *Aurantia* Juss.—*Hypericum* and *Ascyrum* are subjoined to the *Rutaceæ* of Linneus.—*Duro* is among the *Capparides* of Jussieu.—*Symplocos* among the *Guaicaneæ*.—*Hypericum* and *Ascyrum*, with *Bratbys* constitute his whole order of *Hyperica*.

† The class *Syngenesia* forms an order strictly natural, now that it is agreed to separate the order *Monogamia* from it. Linneus includes the whole in one natural order *Compositæ*; and subdivides it into six sections. The plants of the first section here, are in the second section of the natural orders, entitled *Semistefalofi*.—Jussieu has several orders of Compound flowers. The plants above are in his *Ciboraceæ*.

1417. *HYOSERIS*. Swine's-Succory. Recept. naked. Seed-down simple or indistinct. Cal. almost equal.
1418. *HEDYPTIS*. Hawk-bit. Recept. naked, dotted. Seed-down feathered, sessile, unequal. Cal. imbricate, calyced.
1409. *THRINCHIA*. Recept. honey-combed. Seed-down difform; about the edge many-toothed, in the middle stiped, feathered. Cal. eight-leaved.
1414. *TOLPIS*. Recept. honey-combed. Seed-down difform; about the edge toothed, in the middle two or four-awned. Cal. calyced.

2. *Capitati*. Flowers in a head. All the corollæ tubular, spreading at the tip.

1438. *ATRACTYLIS*. Recept. chaffy. Seed-down feathered. Cor. radiate. Cal. imbricate.
1439. *ACARNA*. Recept. chaffy. Seed-down feathered. Cor. flosculous. Cal. imbricate, double.
1432. *SERRATULA*. Saw-wort. Recept. chaffy. Seed-down feathered, permanent. Cor. flosculous. Cal. imbricate, subcylindrical, with scales unarmed.
1445. *CARTHAMUS*. Bastard Saffron. Recept. chaffy-bristly. Seed-down chaffy-hairy or none. Cor. flosculous. Cal. imbricate, with spiny-toothed scales.
1437. *CARLINA*. Carline Thistle. Recept. chaffy. Seed-down feathered. Cor. flosculous. Cal. ventricose, with the outer scales spiny; the inner coloured, scariosæ, radiant.
1429. *ARCTIUM*. Burdock. Recept. chaffy. Seed-down bristly-chaffy. Cor. flosculous. Cal. globular, with the scales hooked at the tip, and bent in.
1459. *PTERONIA*. Recept. chaffy: chaffs many-parted. Seed-down somewhat feathered. Cor. flosculous. Cal. imbricate, with the scales keeled.
1442. *STOBÆA*. Recept. hispid, honey-combed. Seed-down chaffy. Cor. flosculous. Cal. imbricate, with tooth-spiny scales.
1461. *LACHNOSPERMUM*. Recept. villose. Seeds wrapped up in villose hairs. Cal. cylindrical, imbricate.
1443. *BARNADESIA*. Recept. villose. Seed-down of the disk bristly; of the ray feathered. Cor. radiate. Cal. imbricate, somewhat ventricose.
1436. *CYNARA*. Artichoke. Recept. bristly. Seed-down sessile, feathered. Cor. flosculous. Cal. imbricate, with fleshy, keeled scales.
1444. *JOHANNIA*. Recept. villose. Seed-down feathered. Cor. flosculous. Cal. imbricate, radiate.
1434. *CNICUS*. Recept. villose. Seed-down feathered. Cor. flosculous. Cal. imbricate, ventricose.
1433. *CARDUUS*. Thistle. Recept. hairy. Seed-down capillary, deciduous. Cor. flosculous. Cal. imbricate, ventricose, with spiny scales.
1440. *ONOSERIS*. Recept. almost naked. Seed-down hairy. Cor. radiate. Cal. imbricate.
1441. *STOKESIA*. Recept. naked. Seed-down four-bristled. Cor. flosculous, radiate. Cal. imbricate.
1431. *LIATRIS*. Recept. naked. Seed-down feathered, coloured. Cor. flosculous. Cal. oblong, imbricate.
1430. *VERNONIA*. Recept. naked. Seed-down double: outer chaffy; inner capillary. Cor. flosculous. Cal. ovate, imbricate.
1435. *ONOPORDON*. Cotton Thistle. Recept. honey-combed, somewhat chaffy. Seed-down capillary. Cor. flosculous. Cal. ventricose; with spreading, spiny scales*.
- † *Centaurea Rhapontica*, nigra.
- 3: *Discoidei*. All the corollæ tubular, erect-parallel, flattish at the tip, dense.
1460. *STHÆLINA*. Recept. chaffy. Seed-down feathered. Anth. tailed at the base. Cal. hemispherical, imbricate.
1462. *HAYNEA*. Recept. chaffy, fleshy. Seed-down hairy. Cal. ovate, imbricate.
1466. *CALEA*. Halbert-weed. Recept. chaffy. Seed-down hairy. Cal. imbricate.
1447. *BIDENS*. Bur-Marygold. Recept. chaffy, flat. Seeds four-cornered. Seed-down rough backwards. Cal. many-leaved. Cor. sometimes radiate.
1446. *SPILANTHES*. Recept. chaffy, conical. Seed-down awned. Cal. almost equal.
1470. *ATHANASIA*. Recept. chaffy. Seed-down chaffy. Cal. imbricate.
1468. *SANTOLINA*. Lavender-Cotton. Recept. chaffy. Seed-down none. Cal. imbricate, hemispherical.
1467. *CESULIA*. Recept. chaffy. Seeds rolled up in chaffs. Seed-down none. Cal. three-leaved.
1465. *TARCHONANTHUS*. African Fleabane. Recept. villose. Seeds rolled up in villose hairs. Cal. one-leaved, many-cleft.
1455. *KUHNIA*. Recept. naked. Seed-down feathered. Cal. imbricate, cylindrical.
1454. *EUPATORIUM*. Hemp Agrimony. Recept. naked. Seed-down hairy or rugged. Cal. imbricate, oblong. Style femibifid, protruded.
1464. *CHRYSOCOMA*. Goldilocks. Recept. naked. Seed-down simple. Cal. imbricate, hemispherical.

* The plants of the second section are in the first section of the natural order of *Compositæ*, entitled *Capitatae*. And in the first section of Jussieu's order of *Cnabaceæ*.

1452. MIKANIA. Recept. naked. Seed-down simple. Cal. four or six-leaved, four or six-flowered.
1450. KLEINIA. Recept. naked. Seed-down simple. Cal. single.
1449. CACALIA. Recept. naked. Seed-down simple. Cal. calyced.
1448. LAVENIA. Recept. naked. Seed-down three-awned, glandular. Cal. ovate, subimbricate.
1456. AGERATUM. Recept. naked. Seed-down chaffy. Cal. cylindrical, formed of a double row of leaves.
1457. STEVIA. Recept. naked. Seed-down awn-chaffed. Cal. cylindrical, with a single row of leaves.
1458. HYMENOPAPPUS. Recept. naked. Seed-down many-leaved, chaffy. Cal. many-leaved, spreading.
1463. CEPHALOPHORA. Recept. naked, hemispherical. Seed-down chaffy, many-leaved. Cal. many-leaved, reflexed.
1471. PENTZIA. Recept. naked. Seed-down with a membranaceous margin. Cal. imbricate, hemispherical.
1451. ETHULIA. Recept. naked. Seed-down with a membranaceous margin. Cal. equal.
1453. PIQUERIA. Recept. naked. Seed-down none. Cal. four-leaved.
1469. BALSAMITA. Recept. naked. Seed-down none. Cal. imbricate*.

SUPERFLUA†.

1. *Discoidei*. Corollets of the ray obscure or none.

1473. ARTEMISIA. Southernwood. Wormwood. Mugwort. Recept. naked or villose. Seed-down none. Cal. imbricate, with round converging scales. Corollets of the ray none, or awl-shaped and quite entire.
1478. CARPESIUM. Recept. naked. Seed-down none. Cor. of the ray five-cleft.
1472. TANACETUM. Tanfy. Recept. naked. Seeds crowned. Cal. imbricate, hemispherical. Cor. of the ray trifid, indistinct, or sometimes none.
1515. COTULA. Recept. almost naked. Seeds crowned. Cor. of the disk four-cleft.
1479. BACCHARIS. Recept. naked. Seed-down simple. Cor. female mixed with the hermaphrodites.
1480. CONYZA. Fleabane. Recept. naked. Seed-down simple. Cor. of the ray trifid.
1474. GNAPHALIUM. Cudweed. Recept. naked. Seed-down rugged or feathered. Cal. imbricate, with scariose coloured scales. Cor. of the ray awl-shaped.
1476. ELICHRYSUM. Recept. naked. Seed-down simple or feathered. Cal. imbricate, radiate; with the ray coloured.
1475. XERANTHEMUM. Recept. chaffy. Seed-down chaffy-bristly. Cal. scariose, with the ray spread out flat.
1516. ANACYCLUS. Recept. chaffy. Seed-down none. Seeds margined, emarginate.

† *Tussilago hybrida*, *Petasites*.2. *Semistofculi*, *jubbilabiati*.

1477. DENEKIA. Recept. naked. Seed-down none. Cal. imbricate.
1495. PERDICIUM. Recept. naked. Seed-down simple. Cor. trifid, outer one larger, three-lobed.

3. *Radiati*. Corollets of the disk floscular; of the ray ligulate.

1481. MADIA. Recept. naked. Seed-down none. Cal. equal, with a double row of leaves.
1497. BELLIS. Daisy. Recept. naked, conical. Seed-down none. Cal. hemispherical, with equal scales. Seeds obovate. Pl. 7. f. 3-6.
1512. MATRICARIA. Recept. naked, conical. Seed-down none. Cal. flatish, imbricate, with the scales scariose at the edge.
1514. LIDBECKIA. Recept. naked. Seed-down none. Cal. many-parted.
1510. CHRYSANTHEMUM. Ox-eye Daisy. Corn Marygold. Recept. naked. Seed-down none. Cal. hemispherical, imbricate, with the scales widened and membranaceous at the edge.
1511. PYRETHRUM. Feverfew. Recept. naked. Seed-down margined. Cal. hemispherical, imbricate, with sharpish scales scariose at the edge.
1525. COLUMELLIA. Recept. naked. Seed-down toothed at the edge. Cal. cylindrical.
1492. DORONICUM. Leopard's-bane. Recept. naked. Seed-down simple. Seed-down in the ray none. Cal. scales in two rows, equal, longer than the disk.
1491. ARNICA. Recept. naked. Seed-down simple. Stam. of the ray without anthers!
1489. INULA. Elecampane. Fleabane. Recept. naked. Seed-

down simple. Cal. imbricate. Corollets of the ray very numerous, linear. Anthers two-bristled at the base.

1482. ERIGERON. Fleabane. Recept. naked. Seed-down simple. Cal. imbricate. Corollets of the ray linear, very narrow, numerous.
1486. SOLIDAGO. Golden-rod. Recept. naked, excavated. Seed-down simple. Cal. imbricate with converging scales. Cor. of the ray about five remote.
1488. CINERARIA. Fleawort. Recept. naked. Seed-down simple. Cal. single, many-leaved, equal, cylindrical.
1484. SENEIO. Groundel. Ragwort. Recept. naked. Seed-down simple. Cal. cylindrical, many-leaved, equal, calyced, scales mortified at the tip.
1483. TUSSILAGO. Recept. naked. Seed-down simple. Cal. single, many-leaved, equal, somewhat membranaceous, ventricose at the base.
1485. ASTER. Starwort. Recept. naked. Seed-down simple. Cal. imbricate, with the lower scales spreading. Florets of the ray more than ten.
1501. BOEBERA. Recept. naked. Seed-down simple. Cal. double.
1487. MUTISIA. Recept. naked. Seed-down feathered. Cal. cylindrical, imbricate.
1498. BELLUM. Recept. naked. Seed-down awned, and eight-leaved. Cal. single.
1520. ACTINEA. Recept. naked. Seed-down chaffy, many-leaved. Cal. single.
1502. TAGETES. French and African Marygold. Recept. naked. Seed-down awned. Cal. one-leaved. Ray five-flowered.
1496. HELENIUM. Recept. half naked. Seed-down five-awned. Cal. many-parted. Cor. with trifid rays.
1505. PECTIS. Recept. naked. Seed-down awned. Cal. five-leaved. Ray five-flowered.
1504. SCHKUHRIA. Recept. naked. Seed-down five-leaved, chaffy. Cal. five-leaved. Cor. of the ray solitary.
1503. HETEROSPERMUM. Recept. naked. Seeds round the edge naked, winged; in the centre two-awned. Cal. double.
1513. BOLTONIA. Recept. honey-combed. Seed-down tooth-awned.
1506. LEYSERA. Recept. half-chaffy. Seed-down feathered. Cal. scariose.
1527. SIEGESBECKIA. Recept. chaffy. Seed-down none. Ray halved.
1526. ECLIPTA. Recept. chaffy. Seed-down none. Corollets of the disk five-cleft.
1517. ANTHEMIS. Chamomile. Recept. chaffy. Seed-crown a slight rim. Cal. hemispherical, with the scales almost equal. Florets of the ray more than five, oblong.
1519. ACHILLEA. Milfoil. Recept. chaffy. Seed-down none. Cal. ovate, imbricate, unequal. Florets of the ray five to ten, obcordate-roundish.
1493. TETRAGONOTHECA. Recept. chaffy. Seed-down none. Cal. four-cornered, four-parted.
1494. XIMENESIA. Recept. chaffy. Seed-down none. Seeds in the centre winged; round the edge emarginate. Cal. almost equal.
1528. PHAETHUSA. Recept. chaffy. Seed-down none. Seeds hispid. Cal. imbricate. Cor. of the ray one to three.
1499. GEORGINA. Recept. chaffy. Seed-down none. Cal. double.
1508. RELHANIA. Recept. chaffy. Seed-down membranaceous, short. Cal. imbricate, scariose.
1531. PASCALIA. Recept. chaffy. Seed-crown a toothed rim. Cal. imbricate.
1532. BUPHTHALMUM. Ox-eye. Recept. chaffy. Seed-crown margined. Seeds of the ray margined.
1490. RHANTERIUM. Recept. chaffy. Seed-down four or six-bristled; the bristles feathered at the tip. Cal. cylindrical, imbricate. Seeds of the ray naked.
1518. SANVITALIA. Recept. chaffy. Seed-down of the ray three-awned; of the disk none. Cal. imbricate.
1523. AMELLUS. Recept. chaffy. Seed-down simple. Cal. imbricate.
1521. TRIDAX. Recept. chaffy. Seed-down simple. Cor. of the ray three-parted.
1507. ROSENIA. Recept. chaffy. Seed-down capillary-chaffy. Cal. imbricate, scariose.
1529. VERBESINA. Recept. chaffy. Seed-down awned. Florets of the ray about five.
1500. SCHLECHTENDALIA. Recept. chaffy. Seed-down awned. Cal. double.
1530. GALINSOGEA. Recept. chaffy. Seed-down many-leaved, chaffy. Cal. imbricate.
1509. ZINNIA. Recept. chaffy. Seed-down awned. Ray five-flowered, permanent. Cal. imbricate.
1522. BALBISIA. Recept. chaffy. Seed-down feathered, sessile. Cal. eight-leaved.
1524. STARKEA. Recept. hirsute. Seed-down simple, sessile. Cal. imbricate.

† *Bidens cernua*.

FRUSTRANEA.

1545. GORTERIA. Recept. naked. Seed-down woolly. Corollets

* The greater part of the plants in the third section are in the *Discoideæ* of Linneus's natural orders. *Spilanthus* and *Bidens* are among the *Oppositifoliae*; and *Taraxacum* among the *Nucamentaceæ*.—They are in the first sections of Jussieu's *Corymbiferae*.

† Most of the genera in this second order *Superflua*, are in the third section of the *Compositæ*, named *Discoideæ*. Though the greater part is *Radiate* not *Discoideæ*. *Artemisia* is among the *Nucamentaceæ*.—They are all to be found in Jussieu's *Corymbiferae*.

- rellets of the ray ligulate. *Cal.* one-leaved, covered with scales.
1548. CENTAUREA. Centaury. Knobweed, Blue-bottle, Star-thistle. *Recept.* bristly. *Seed-down* simple. *Cor.* of the ray funnel-form, longer, irregular. *Pl.* 7. f. 7, 8.
1547. ZOGEA. *Recept.* bristly. *Seed-down* bristle-shaped. *Cor.* of the ray ligulate.
1544. MUSSINIA. *Recept.* bristly. *Seed-down* simple. *Cal.* one-leaved, cylindrical, toothed.
1543. DIDELTA. *Recept.* bristly. *Seed-down* chaffy. *Cal.* double.
1336. RUDBECKIA. *Recept.* chaffy. *Seed-down* margined. *Cal.* in a double row.
1540. LAPEYROUSIA. *Recept.* rugged with little warts. *Seed-down* none. *Cor.* discoid.
1546. BERCKHEYA. *Recept.* chaffy. *Seed-down* chaffy. *Cal.* imbricate.
1535. TITHONIA. *Recept.* chaffy. *Seed-down* chaffy. *Cal.* many-leaved, cylindrical.
1534. GALARDIA. *Recept.* chaffy. *Seed-down* chaffy. *Cal.* many-leaved, flat.
1538. COREOPSIS. *Recept.* chaffy. *Seed-down* awned. *Cal.* calyced, many-leaved.
1537. COSMEA. *Recept.* chaffy. *Seed-down* awned. *Cal.* calyced, one-leaved.
1533. HELIANTHUS. Sun-flower. *Recept.* chaffy. *Seed-down* awned. *Cal.* squarrose.
1539. OSMITES. *Recept.* chaffy. *Seed-down* indistinct. *Cal.* imbricate.
1542. SCIEROCARPUS. *Recept.* chaffy. *Seed-down* none. *Cal.* double.
1541. PALLASIA. *Recept.* chaffy. *Seed-down* none. *Cal.* imbricate*.

NECESSARIA.

1550. MILLERIA. *Recept.* naked. *Seed-down* none. *Female* *fl.* subfolitary.
1551. BALTIMORA. *Recept.* naked. *Seed-down* none. *Cal.* cylindrical. *Ray* five-flowered.
1563. OTHONNA. African Ragwort. *Recept.* naked. *Seed-down* simple. *Cal.* one-leaved.
1565. PSIADIA. *Recept.* naked. *Seed-down* simple. *Cal.* imbricate.
1558. UNXIA. *Recept.* naked. *Seed-down* none. *Cal.* five-leaved.
1564. HIPPIA. *Recept.* naked. *Seed-down* none. *Seeds* smooth, compress-margined. *Ray* indistinct.
1562. OSTEOSPERMUM. *Recept.* naked. *Seed-down* none. *Seeds* globose, bony.
1559. CALENDULA. Marygold. *Recept.* naked. *Seed-down* none. *Seeds* membranaceous.
1560. ARCTOTIS. *Recept.* somewhat hairy. *Seed-down* five-leaved. *Seeds* tomentose.
1566. ERIOCEPHALUS. *Recept.* villose. *Seed-down* none. *Florets* of the ray five.
1568. IVA. *Recept.* hairy. *Seed-down* none. *Cal.* three-leaved.
1569. FILAGO. Cudweed. *Recept.* chaffy. *Seed-down* none. *Female* *fl.* between the scales of the calyx.
1570. MICROPUS. *Recept.* chaffy. *Seed-down* none. *Female* *fl.* sheathed by the scales of the calyx.
1553. WEDELIA. *Recept.* chaffy. *Seed-down* four or ten-toothed. *Cal.* single, four or five-leaved.
1549. ACICARPHA. *Recept.* chaffy. *Seed-down* none. *Cal.* five-parted.
1554. POLYMNIA. *Recept.* chaffy. *Seed-down* none. *Cal.* double, the outer five-leaved.
1557. MELAMPODIUM. *Recept.* chaffy. *Seed-down* one-leaved. *Cal.* five-leaved.
1567. PARTHENIUM. *Recept.* chaffy. *Seed-down* none. *Cal.* five-leaved.
1561. ARCTOTMECA. *Recept.* chaffy. *Seed-down* none. *Cal.* imbricate.
1555. TRIXIS. *Recept.* chaffy. *Seed-down* none. *Seeds* villose at the tip. *Corollets* of the ray trifid. *Cal.* imbricate.
1552. SILPHIUM. *Recept.* chaffy. *Seed-down* two-awned. *Cal.* squarrose.
1556. CHRYSOGONUM. *Recept.* chaffy. *Seed-down* three-awned. *Seeds* in their proper calyces†.

SEGREGATA †.

1584. TETRANTHUS. *Perianth* one-flowered, oblique. *Seed-down* none. *Syngenesia* æqualis.
1581. ROLANDRA. *Per.* one-flowered, two-valved. *Seed-down* none. *Syngenesia* æqualis.
1575. NAUENBURGIA. *Per.* one-flowered, two-valved. *Seed-down* none. *Syngenesia* superflua.

* The three first genera of the third order *Frustranea* are among the *Capitata*; the rest are in the *Oppositifolia* of Linneus.—*Centaurea* and *Zoggia* are among the *Cinarocephalæ* of Jussieu: the others are in his order of *Corymbifera*.

† The plants of the order *Necessaria* are divided among the three last sections of the *Compositæ*. They are all among the *Corymbifera* of Jussieu.

‡ Some of the *Segregata* are among the *Capitata*, and others in the *Oppositifolia*. Most of them are in the *Cinarocephalæ* of Jussieu: but some in his *Corymbifera*.

1583. CALYCERA. *Per.* one-flowered, five-rayed. *Seed-down* none. *Syngenesia* frustranea.
1576. NOCCÆA. *Per.* one-flowered, five-toothed. *Recept.* honey-combed.
1582. BOOPIS. *Per.* one-flowered, many-toothed. *Recept.* chaffy.
1586. STOEBEA. *Per.* one-flowered. *Seed-down* feathered. *Syngenesia* æqualis.
1573. OEDERA. *Recept.* chaffy. *Seed-down* chaffy. *Perianth* proper with tubulous and ligulate florets.
1580. BROTERA. *Per.* one-flowered, many-leaved. *Recept.* naked. *Syngenesia* æqualis.
1579. ECHINOPS. Globe Thistle. *Per.* one-flowered. *Seed-down* pubescent. *Syngenesia* æqualis. *Pl.* 7. f. 10, 11.
1571. ELEPHANTOPUS. Elephant's-foot. *Per.* four-flowered. *Seed-down* bristly. *Syngenesia* æqualis.
1578. NASSAUVIA. *Per.* four-flowered. *Seed-down* four or five-bristled. *Syngenesia* æqualis.
1572. JUNCIA. *Per.* many-flowered. *Seed-down* feathered. *Syngenesia* æqualis.
1585. GUNDELIA. *Recept.* five-flowered. *Seed-down* none. *Syngenesia* frustranea.
1577. SPHÆRANTHUS. *Recept.* many-flowered. *Seed-down* none. *Syngenesia* necessaria.
1574. CRASPEDIA. *Recept.* many-flowered. *Seed-down* feathered. *Syngenesia* æqualis.

MONOGAMIA.

The plants of this Order are removed, by general consent into the class *Pentandria*, to which they properly belong. Here they spoil a class; otherwise truly natural. See *Lobelia*, t. 7. f. 12, 13.

Strumpfia and *Seriphium* are among the *Nucamentacea* of the *Compositæ* in Linneus's natural orders. *Corymbium* is in section 3 of the same order.—*Jasione*, *Lobelia* and *Viola* are in the order of *Campanaceæ*: and *Impatiens* is among the *Corymbales*.—In Jussieu's natural orders, *Seriphium* is among the *Corymbifera*: *Corymbium* among the *Cinarocephalæ*: *Jasione* and *Lobelia* are with his *Campanulaceæ*: *Viola* with his *Cisti*: and *Impatiens* with his *Gerania*.

CLASS XX.

GYNANDRIA.

MONANDRIA.

1. Orchideæ with spurs.

1587. ORCHIS. *Spur* from the base of the lip. *Style* thick. *Anther* terminating, adnate. *Pl.* 7. f. 14, 15, 16.
1589. HABENARIA. *Spur* from the base of the lip. *Style* thick. *Anther* terminating, adnate. *Horns* two, flaminiform, straight, at the base of the anther.
1588. BONATEA. *Spur* from the base of the lip. *Style* winged. *Anthers* with separate cells at the margin of the wing of the style.
1608. LIMODORUM. *Lip* produced into a spur. *Anth.* lidded, deciduous.
1590. DISA. *Upper petal* produced into a spur. *Lip* spurless. *Anther* terminating, adnate.
1591. SATYRIUM. *Upper petal* two-spurred at the base. *Anther* under the stigma on the elongated style.

2. Orchideæ without spurs.

1592. PTERYGODIUM. *Cor.* subringent. *Lip* in the middle of the style between the remote cells, inserted into the anther. *Stigma* posterior.
1593. DISPERIS. *Cor.* ringent. *Lip* from the base of the style, erect, connected with the genitals. *Anther* covered with a spiral veil.
1594. CORYCIUM. *Cor.* ringent, four-petalled. *Lip* inserted at the apex of the style above the anther.
1595. OPHRYS. *Cor.* subringent, spreading. *Lip* from the base of the style, spreading. *Anther* terminating, adnate.
1596. SERAPIAS. Helleborine. *Cor.* with petals converging. *Lip* flat, bent down. *Anther* adnate to the elongated style.
1597. NEOTTIA. *Cor.* ringent, with the outer petals connected round the ventricose base. *Anther* parallel to the style, inserted posteriorly.
1598. CRANICHIS. *Cor.* resupine, subringent. *Lip* arched. *Anther* parallel to the style, inserted posteriorly.
1599. THELYMITRA. *Cor.* almost regular, spreading. *Lip* of the same form with the petals. *Genitals* surrounded by a two-pencilled cowl.
1600. DIURIS. *Cor.* seven-petalled. *Anther* parallel to the style, inserted posteriorly.
1601. ARETHUSA. *Cor.* subringent. *Anther* lidded, permanent.
1602. EPIPACTIS. *Cor.* from erect, spreading. *Anther* lidded, permanent.
1603. MALAXIS. *Cor.* spreading, resupine. *Anther* lidded.
1604. CYMBIDIUM. *Cor.* erect or spreading. *Lip* concave at the base. *Anther* lidded, deciduous.
1605. ONCIDIUM. *Cor.* spreading. *Lip* flat, tubercled at the base. *Anther* lidded, deciduous.
1606. EPIDENDRUM. *Cor.* spreading. *Lip* tubulous at the base, fastened to the style in front. *Anther* lidded, deciduous.

1607. *VANILLA*. Cor. spreading. Lip somewhat cowed at the base with the border spreading. Anther lidded, deciduous. Capsule filique-form, fleshy. Seeds naked.
1609. *AERIDES*. Cor. spreading. Lip with its border bagged. Anther lidded, deciduous.
1610. *DENDROBIUM*. Cor. from erect spreading, sometimes resupine. Petals the outer lateral ones converging about the base or connate. Anther lidded, deciduous.
1611. *STELIS*. Cor. subduple, with the outer petal united at the base; inner petals of the same form with the lip. Anther lidded, deciduous.
1612. *LEPANTHES*. Cor. subpentapetalous, spreading: outer petals subcoalescent; inner difform. Lip none. Style winged at the base or apex. Anther lidded, deciduous.

DIANDRIA.

1613. *CYPRIPEDIUM*. Ladies Slipper. Cor. four-petalled. Lip ventricose-inflated, oblique. Caps. three-valved, one-celled, many-seeded.
1614. *STYLIDIUM*. Cal. two-lipped, superior. Cor. one-petalled, five or six-cleft, irregular, with the lower segment minute, three-parted. Caps. two-celled, many-seeded.
1615. *FORSTERA*. Cal. double: outer two or three-leaved; inner three or six-leaved. Cor. tubulous, bell-form, five or six-cleft. Caps. one-celled, many-seeded.
1616. *GUNNERA*. Cal. two-toothed, superior. Cor. none. Drupe one-seeded.

TRIANDRIA.

1617. *SALACIA*. Cal. five-parted. Cor. one-petalled. Style one.
1618. *RHOPIUM*. Cal. six-parted. Cor. none. Styles three. Caps. tricoccous.

HEXANDRIA.

1619. *ARISTOLOCHIA*. Birthwort. Cal. none. Cor. one-petalled tubulous-ligulate. Style none. Caps. six-celled, many-seeded. Pl. 7. f. 17.

The other genera, which Linneus placed in this class, have been removed to other classes, to which, according to the opinion of the best judges, they more properly belong.—*Pothos* to *Tetrandria*. *Gluta* and *Ayenia* to *Pentandria*. *Dracontium* and *Calla* to *Heptandria*. *Grewia* and *Xylopia* to *Polyandria*. *Sisyrinchium*, *Ferraria*, *Passiflora*, *Pistia* and *Helicteres* to *Monadelphia*. *Cytinus*, *Arum*, *Ambrosinia* and *Zostera* to *Monoechia*. The last of these is placed by Dr. Smith in *Monandria*. *Nepenthes* is in the *Diocia* class.

These plants form the natural order of *Orchideæ*, both in Linneus and Jussieu. *Aristolochia* is among the *Sarmentaceæ* of Linneus. *Gunnera* is among the *Urticæ* of Jussieu. *Aristolochia* is with *Cytinus* among his *Aristolochiæ*.

CLASS XXI.

MONOECIA.

MONANDRIA.

1624. *CAULINIA*. Male. Cal. none. Cor. none. Anth. sessile. Female. Cal. none. Cor. none. Style filiform. Stigma bifid. Caps. one-seeded.
1625. *CHARA*. Male. Cal. none. Cor. none. Female. Cal. none. Cor. none. Stigmas five. Berry many-seeded.
1623. *ZANNICHELLIA*. Male. Cal. none. Cor. none. Female. Cal. one-leaved. Cor. none. Pist. four. Seeds four.
1626. *CERATOCARPUS*. Male. Cal. two-parted. Cor. none. Female. Cal. one-leaved, two-horned. Cor. none. Styles two. Seed one, covered by the calyx.
1621. *AMBROSINIA*. Male. Spathe one-leaved divided by a partition. Cal. none. Cor. none. Anther sessile. Female in the anterior chamber of the spathe. Cal. none. Cor. none. Caps. many-seeded.
1622. *ZOSTERA*. Male in a unilateral spadix. Cal. none. Cor. none. Anther sessile. Female alternate with the males. Cal. none. Cor. none. Style bifid. Caps. one-seeded.
1630. *ELATERIUM*. Male. Cal. none. Cor. salver-form. Female. Cal. none. Cor. salver-form. Caps. inferior, pulpy, one-celled, many-seeded.
1629. *ÆGOPRICON*. Male. Ament Involucre trifid. Cal. three-toothed. Cor. none. Female. Cal. trifid. Cor. none. Styles three, united at the base. Caps. tricoccous.
1628. *CASUARINA*. Male. Ament. Cal. two-leaved. Cor. none. Female. Ament. Cal. a scale. Cor. none. Caps. two-valved, one-seeded. Seed winged.
1620. *CYNOMORIUM*. Male. Ament. Cal. four-leaved. Cor. none. Female. Cal. four-leaved, superior. Cor. none. Style one. Seed one, roundish.
1627. *ARTOCARPUS*. Bread-fruit. Male. Ament. Cal. none. Cor. two-petalled. Female. Cal. none. Cor. none. Germs collected into a ball. Drupe compound.

† *Callitriche*.

DIANDRIA.

1631. *ANGURIA*. Male. Cal. five-cleft. Cor. five-petalled. Female. Cal. five-cleft. Cor. five-petalled. Pome two-celled, many-seeded.

1632. *LEMNA*. Duck-weed. Male. Cal. one-leaved. Cor. none. Female. Cal. one-leaved. Cor. none. Style one. Caps. one-celled, two-seeded.
1633. *PODOSTEMUM*. Male. Cal. none. Cor. none. Stam. two, fastened to a pedicel. Female. Cal. none. Cor. none. Stigmas two, sessile. Caps. two-celled, many-seeded.

TRIANDRIA.

1636. *ZEÆ*. Mays or Indian Corn. Male. Glume two-flowered. Glume two-valved. Female. Glume one-flowered. Glume two-valved. Style one. Seed one, naked, roundish.
1637. *TRIPSACUM*. Male. Glume two-flowered. Glume two-valved. Female. Glume one-flowered, covered with an involucre. Glume two-valved. Styles two. Seed one, in the glume perforated with a sinus.
1638. *COIX*. Job's-tears. Male. Glume two-flowered. Glume two-valved. Female. Glume two-flowered. Glume two-valved. Style bifid. Seed one, covered with a nut.
1640. *OLYRA*. Male. Glume one-flowered. Cor. none. Female. Glume one-flowered. Glume two-valved. Style bifid. Seed one, naked.
1639. *ZEUGITES*. Cal. Glume two-valved, three-flowered, the middle flower female. Male. Cal. none. Cor. two-valved. Female. Cal. none. Cor. one-valved. Style bifid. Seed one, oblong.
1641. *KOBRESIA*. Male. Ament. Cal. a scale. Cor. none. Female. Ament. Cal. a scale. Cor. none. Stigmas three. Seed three-sided.
1642. *CAREX*. Sedge. Male. Ament imbricate. Cal. a scale or one-valved glume. Cor. none. Female. Ament and Cal. the same. Cor. none. Stigmas two, or three. Seed covered with a ventricose aril.
1643. *SCLERIA*. Male. Cal. two or six-valved, many-flowered. Cor. awnless. Female. Cal. two or six-valved, one-flowered. Cor. none. Stigmas one to three. Nut coloured.

1635. *SPARGANIUM*. Bur-reed. Male. Cal. three-leaved. Cor. none. Female. Cal. three-leaved. Cor. none. Stigma one or two. Drupe juiceless, one-seeded.

1634. *TYPHA*. Cat's-tail or Reed-mace. Male. Ament cylindrical, hairy. Anthers about three (one to four) on a common filament. Female Ament cylindrical. Seed one, on a pappose pedicel.

ERIOCAULON. Pipewort. (See *Triandria Trigynia*) Cal. common many-leaved: proper two or three-leaved. Corollets two or three-parted. Male-flowers in the middle: Females in the ray. Stigmas two or three. Caps. dicoccous or tricoccous. Seeds solitary.

1644. *COMPTONIA*. Male. Ament. Cal. a scale. Cor. two-petalled. Filam. forked. Female. Ament. Cal. a scale. Cor. six-petalled. Styles two. Nut ovate.

1647. *ACHARIA*. Male. Cal. two-leaved. Cor. trifid. Female. Cal. two-leaved. Cor. trifid. Caps. one-celled, three-valved, one-seeded.

1645. *AXYRIS*. Male. Cal. three-parted. Cor. none. Female. Cal. five-leaved. Cor. none. Styles two. Seed one, roundish.

1646. *TRAGIA*. Male. Cal. three-parted. Cor. none. Female. Cal. five-parted. Cor. none. Style trifid. Caps. tricoccous.

1648. *HERNANDIA*. Male. Cal. three-parted. Cor. three-petalled. Female. Cal. truncate. Cor. six-petalled. Drupe excavated.

† *Various Amaranths*.

TETRANDRIA.

1663. *DIOTIS*. Male. Cal. four-leaved. Cor. none. Female. Cal. one-leaved, two-horned. Style bifid. Seed one, villose, inclosed by the calyx.

1662. *URTICA*. Male. Cal. four-leaved. Cor. none. Rudiment of a germ goblet-shaped. Female. Cal. two-leaved. Cor. none. Seed one, superior, shining.

1660. *BOEHMERIA*. Male. Cal. four-parted. Cor. none. Nect. none. Female. Cal. none. Cor. none. Seed one.

1661. *PROCRIS*. Male. Cal. four-parted. Cor. none. Nect. none. Female. Cal. none? Cor. none. Caps. one-seeded, half immersed in a berried receptacle.

1664. *MORUS*. Mulberry. Male. Cal. four-parted. Cor. none. Female. Cal. four-leaved. Cor. none. Styles two. Seed one, berried.

1637. *BUXUS*. Box. Male. Cal. three-leaved. Cor. two-petalled. Rudiment of a germ. Female. Cal. four-leaved. Cor. three-petalled. Styles three. Caps. three-beaked, three-celled. Seeds two.

1658. *TRICERA*. Male. Cal. four-parted. Cor. none. Female. Cal. five-leaved. Cor. none. Styles three, connate. Caps. three-celled.

1659. *PACHYSANDRA*. Male. Cal. four-leaved. Cor. none. Female. Cal. four-leaved. Cor. none. Styles three. Caps. three-celled.

1654. *EMPLEURUM*. Male. Cal. four-cleft. Cor. none. Female. Cal. four-cleft. Cor. none. Caps. one-seeded, opening at the side.

1656. *ALNUS*. Alder. Male. Ament three-flowered. Cor. four-parted. Female. Ament two-flowered. Cor. none. Styles two. Seed one, ovate.

1652. *NAJAS*.

1652. NAJAS. Male. *Cal.* two-lobed. *Cor.* four-cleft. *Anth.* sessile, cohering. Female. *Cal.* none. *Cor.* none. *Style* one. *Stigma* bifid or trifid. *Caps.* one-seeded or four-seeded.

1650. SERPICULA. Male. *Cal.* four-toothed. *Cor.* four-petalled. Female. *Cal.* four-leaved. *Cor.* four-petalled. *Nut* torulose.

1649. AUCUBA. Male. *Cal.* four-toothed. *Cor.* four-petalled. *Recept.* perforated. Female. *Cal.* four-toothed. *Cor.* four-petalled. *Nut* inferior, one-celled.

1651. LITTORELLA. Shore-weed. Male. *Cal.* four-leaved. *Cor.* four-cleft. *Stam.* very long. Female. *Cal.* none. *Cor.* unequally three-cleft. *Style* very long. *Nut* one-celled.

1653. CICA. Male. *Cal.* four-leaved. *Cor.* none. Female. *Cal.* four-leaved. *Cor.* none. *Styles* four. *Caps.* tetracoccus, not opening.

1655. ARGYTHAMNIA. Male. *Cal.* four-leaved. *Cor.* four-petalled. Female. *Cal.* five-leaved. *Cor.* none. *Styles* three, dichotomous. *Caps.* tricoccus.

PENTANDRIA.

1672. CROTONOPSIS. Male. *Cal.* five-parted. *Cor.* five-petalled. Female. *Cal.* five-parted. *Cor.* none. *Style* one. *Stigmas* three. *Caps.* one-celled, one-seeded, not opening.

1674. POLYCHROA. Male. *Cal.* bell-form, five-cleft. *Cor.* none. Female. *Cal.* five-parted. *Cor.* none. *Style* none. *Stigma* obtuse. *Caps.* one-seeded.

1665. NEPHELIUM. Male. *Cal.* five-toothed. *Cor.* none. *Anth.* bifid. Female. *Cal.* four-toothed. *Cor.* none. *Styles* two between the germs.

1671. LUFFA. Male. *Cal.* five-parted. *Cor.* five-petalled. *Stam.* inserted into the calyx. Female. *Cal.* five-parted. *Cor.* five-petalled. *Stigmas* three or four, clubbed. *Pompion* three-celled, lidded. *Seeds* arilled.

1667. XANTHIUM. Male. *Cal.* common imbricate. *Cor.* monopetalous, funnel-form, five-cleft. *Recept.* chaffy. Female. *Cal.* two-leaved, two-flowered. *Cor.* none. *Drupe* dry, muricate, bifid. *Nucleus* two-celled.

1668. AMBROSIA. Male. *Cal.* common, one-leaved. *Cor.* five-cleft. Female. *Cal.* one-flowered, two-leaved. *Cor.* none. *Style* one. *Nut* five-toothed.

1669. FRANSERIA. Male. *Cal.* common one-leaved. *Cor.* five-cleft. Female. *Cal.* many-leaved. *Styles* four. *Drupe* four-celled, bristly.

1670. CLIBADIUM. Male. *Cal.* common, imbricate. *Cor.* of the disk five-cleft. Female. *Cal.* same with the male. *Cor.* of the ray trifid. *Drupe* umbilicate.

1673. AMARANTHUS. Male. *Cal.* three-leaved or five-leaved. *Cor.* none. *Stam.* three or five. Female. *Cal.* the same. *Cor.* none. *Styles* three. *Caps.* one-celled, opening horizontally. *Seed* one.

1666. SCHISANDRA. Male. *Cal.* nine-leaved. *Cor.* none. *Anth.* sessile, cohering at the tip. Female. *Cal.* nine-leaved. *Cor.* none. *Pist.* numerous. *Berries* one-seeded, inserted into the filiform elongated receptacle.

+ *Diosma*. *Bryonia*. *Fagus sylvatica*. *Quercus*. *Atriplex portulacoides*.

HEXANDRIA.

1675. ZIZANIA. Male. *Cal.* Glume none. *Cor.* Glume two-valved. Female. *Cal.* Glume none. *Cor.* Glume two-valved. *Styles* two. *Seed* one, in the corolla which opens horizontally.

1676. PHARUS. Male. *Cal.* Glume one-flowered. *Cor.* Glume two-valved. Female. *Cal.* Glume one-flowered. *Cor.* Glume two-valved. *Style* one. *Seed* one.

1683. SAGUS. Sago. Male. *Cal.* three-leaved. *Cor.* none. *Filam.* widening. Female. *Cal.* three-leaved, with two of the leaflets bifid. *Cor.* none. *Style* very short. *Stigma* simple. *Nut* tessellate-imbricate, one-seeded.

1680. COCOS. Coco. Male. *Cal.* three-leaved. *Cor.* three-petalled. Female. *Cal.* two-leaved. *Cor.* six-petalled. *Style* one, very short. *Drupe* fibrous. *Nut* one-celled.

1682. ELATE. Male. *Cal.* three-toothed. *Cor.* three-petalled. Female. *Cal.* three-toothed. *Cor.* three-petalled. *Style* awl-shaped. *Stigmas* three. *Drupe* acuminate, one-seeded.

1681. BACTRIS. Male. *Cal.* three-parted. *Cor.* trifid. Female. *Cal.* bell-form, three-toothed. *Cor.* three-toothed. *Style* very short. *Stigma* headed. *Drupe* fibrous, one-seeded.

1679. GUETTARDA. Male. *Cal.* bell-form, *Cor.* funnel-form, six or nine-cleft. Female. *Cal.* bell-form. *Cor.* funnel-form, six or nine-cleft. *Style* filiform. *Drupe* with a four or six-celled nut.

1677. EPIBATERIUM. Male. *Cal.* double; outer six-leaved, inner three-leaved. *Cor.* six-petalled. Female. *Cal.* double; outer six-leaved, inner three-leaved. *Cor.* six-petalled. *Pist.* three. *Drupe* three, one-seeded.

1678. POMERIA. Male. *Cal.* four or six-parted. *Cor.* four or six-petalled. Female. *Cal.* four or six-parted. *Cor.* four or six-petalled. *Stigma* bifid. *Berry* one-seeded.

+ *Rumices*. *Quercus*.

POLYANDRIA.

Having more Stamens than seven.

1705. ARUM. *Spath.* one-leaved. *Cor.* none. *Spadix* andro-

gynous, with stamens in the middle, and germs at the base. *Anth.* sessile. *Styles* none. *Berries* one-celled.

1706. CALADIUM. Male. *Cal.* none. *Cor.* none. *Anth.* peltate, many-celled, disposed in a spiral at the apex of the spadix. Female. *Cal.* none. *Cor.* none. *Germ.* inserted at the base of the spadix. *Style* none. *Berry* one-celled, many-seeded.

1704. THOA. Male. *Cal.* none. *Cor.* none. Female. *Cal.* none. *Cor.* none. *Style* scarcely any. *Stigma* trifid or quadrifid. *Caps.* ? brittle, one-celled, one-seeded.

1700. SALISBURIA. Ginkgo, or Maidenhair Tree. Male. *Ament* naked. *Cal.* none. *Cor.* none. *Anth.* imbricate. Female. *Cal.* four-cleft. *Drupe* with a three-fided nut.

1703. HEDYOSMUM. Male. *Ament* naked. *Cal.* none. *Cor.* none. *Anth.* imbricate. Female. *Cal.* three-toothed. *Cor.* none. *Berry* three-cornered, one-seeded.

1688. BEGONIA. Male. *Cal.* none. *Cor.* four-petalled. Female. *Cal.* none. *Cor.* four-petalled. *Styles* three, bifid. *Caps.* inferior, three-celled, many-seeded, winged.

1687. SAGITTARIA. Arrow-head. Male. *Cal.* three-leaved. *Cor.* three-petalled. *Stam.* about twenty-four. Female. *Cal.* and *Cor.* as in the male. *Pist.* numerous (100.) *Caps.* numerous, ventricose, one-seeded.

1686. MYRIOPHYLLUM. Water Milfoil. Male. *Cal.* four-leaved. *Cor.* four-petalled. *Stam.* eight. Female. *Cal.* four-leaved. *Cor.* four-petalled. *Stigmas* four, sessile. *Seeds* four, corticate.

1685. CERATOPHYLLUM. Hornwort. Male. *Cal.* many-parted. *Cor.* none. *Stam.* sixteen to twenty. Female. *Cal.* many-parted. *Cor.* none. *Stigma* subsessile. *Seed* one, corticate.

1690. THELYGONUM. Male. *Cal.* bifid. *Cor.* none. *Stam.* about twelve. Female. *Cal.* bifid. *Cor.* none. *Pist.* one. *Seed* one, corticate.

1691. POTERIUM. Burnet. Male. *Cal.* four-leaved. *Cor.* four-parted. *Stam.* thirty to forty. Female. *Cal.* four-leaved. *Cor.* four-parted. *Pist.* two. *Nut* two-celled, corticate.

1689. ACIDOTON. Male. *Cal.* five-leaved. *Cor.* none. *Stam.* thirty-five to forty. Female. *Cal.* six-leaved. *Cor.* none. *Style* trifid. *Caps.* tricoccus.

1684. MABEA. Male. *Cal.* five-toothed. *Cor.* none. *Stam.* nine to twelve, inserted into the calyx. Female. *Cal.* five-toothed. *Cor.* none. *Style* long. *Stigmas* three. *Caps.* tricoccus.

1707. PARIANA. Male. *Cal.* two-valved. *Cor.* two-valved. *Stam.* forty. Female. *Cal.* two-valved. *Cor.* two-valved. *Style* hairy. *Stigmas* two. *Seed* one, three-fided.

1708. GARCIA. Male. *Cal.* two-parted. *Cor.* ten or eleven-petalled. *Nest.* two glands at the base of each filament. Female. *Cal.* two-parted. *Cor.* seven to nine-petalled. *Nest.* a glandular rim at the base of the germ. *Caps.* tri-coccus.

1709. MANICARIA. Male. *Cal.* bell-form, jagged. *Cor.* three-petalled. *Stam.* twenty-four. Female. *Cal.* bell-form. *Cor.* three-petalled. *Drupe* juiceless?

1710. CARYOTA. Male. *Cal.* three-leaved. *Cor.* three-parted. *Style* one. *Berry* one-celled, two-seeded.

1694. FAGUS. Beech. Male. *Cal.* five-cleft, bell-form. *Cor.* none. *Stam.* about twelve. (five or six.) Female. *Cal.* four-toothed, bristly. *Cor.* none. *Germ.* two. *Nuts* two, inclosed in a coriaceous echinate calyx.

1695. CASTANEA. Chestnut. Male. *Ament* naked. *Cal.* none. *Cor.* five-petalled. *Stam.* ten to twenty. Female. *Cal.* five or six-leaved, muricate. *Cor.* none. *Germ.* three. *Styles* six. *Stigmas* pencilled. *Nuts* three, inclosed in an echinate calyx.

1692. QUERCUS. Oak. Male. *Ament* naked, *Cal.* bell-form, five-cleft. *Cor.* none. *Stam.* five to ten. Female. *Cal.* bell-form, quite entire, rugged. *Cor.* none. *Style*, one. *Stigmas* three. *Nut* superior, coriaceous, one-seeded.

1693. JUGLANS. Walnut. Male. *Ament* imbricate. *Cal.* a scale. *Cor.* six-parted. *Stam.* about eighteen. Female. *Cal.* four-cleft. *Cor.* four-cleft. *Styles* two. *Drupe* coriaceous.

1699. CORYLUS. Hazel. *Ament* imbricate. *Cal.* a trifid scale. *Cor.* none. *Stam.* eight. Female. *Cal.* bifid, jagged. *Cor.* none. *Styles* two. *Nut* ovate, smooth, covered with the coriaceous calyx.

1697. CARPINUS. Horn-beam. Male. *Ament* imbricate. *Cal.* a roundish scale. *Cor.* none. *Stam.* eight to twenty. Female. *Ament.* *Cal.* scale oblong. *Cor.* none. *Germ.* two. *Styles* two to each. *Nut* angular, one-celled.

1696. BETULA. Birch. Male. *Ament* imbricate, with peltate, three-flowered scales. *Cor.* none. *Stam.* ten to twelve. Female. *Ament* imbricate, with two-flowered scales. *Cor.* none. *Seed* one, winged.

1701. PLATANUS. Plane Tree. Male. *Ament* globose. *Cal.* none. *Cor.* none. *Anth.* growing round the filament. Female. *Ament* globose. *Cal.* many-leaved. *Cor.* none. *Style* one. *Seed* one, pappose.

1702. LIQUIDAMBAR. Male. *Ament* oblong. *Involucre* four-leaved. *Cal.* none. *Cor.* none. *Stam.* numerous. Female

Female. *Ament* globose. *Invol.* four-leaved. *Cal.* pitcher-form, two-flowered. *Cor.* none. *Caps.* two, one-celled, many-seeded.

MONADELPHIA.

1733. *HURA*. Sand-box Tree. Male. *Cal.* two-leaved. *Cor.* none. *Anth.* twenty, sessile. Female. *Cal.* cylindrical. *Cor.* none. *Pist.* one. *Caps.* decacocous.
1729. *CYTINUS*. Male. *Cal.* none. *Cor.* bell-form, four-cleft. *Filam.* connate. *Anth.* eight, two-celled. Female. *Cal.* none. *Cor.* bell-form, four-cleft. *Style* one. *Stigma* headed, eight-furrowed. *Berry* eight-celled, many-seeded.
1732. *BRADLEYA*. Male. *Cal.* none. *Cor.* six-petalled. *Stam.* three, connate. Female. *Cal.* none. *Cor.* six-parted. *Style* none. *Stigmas* six. *Caps.* six-celled.
1711. *PINUS*. Pine, Fir, Larch. Male. *Cal.* of the ament a peltate scale. *Cor.* none. *Anth.* fastened to the scales, sessile. Female. *Cal.* of the ament a two-flowered scale. *Cor.* none. *Pist.* one. *Nut* winged.
1713. *CUPRESSUS*. Cypress. Male. *Ament* imbricate. *Cal.* a scale. *Cor.* none. *Anth.* four, sessile. Female. *Ament* becoming a strobile. *Cal.* a one-flowered scale. *Cor.* none. *Stigmas* two. *Nut* angular.
1712. *THUJA*. Arbor-vitæ. Male. *Ament* imbricate. *Cal.* a scale. *Cor.* none. *Anth.* four. Female. *Ament* becoming a strobile. *Cal.* a two-flowered scale. *Cor.* none. *Pist.* two. *Nut* surrounded by a wing.
1736. *NIPA*. Male. *Cal.* none. *Cor.* six-petalled. *Filam.* single, twelve-cleft. Female. *Cal.* none. *Cor.* none. *Style* none. *Stigma* a lateral furrow. *Drupe* angular.
1735. *ARECA*. Cabbage Tree. Male. *Cal.* three-parted. *Cor.* three-petalled. *Filam.* 6, connate at the base. Female. *Cal.* three-leaved. *Cor.* three-petalled. *Nect.* six-toothed. *Styles* three, very short. *Drupe* one-seeded.
1734. *GEONOMA*. Male. *Cal.* three-parted. *Cor.* three-petalled. *Filam.* six, united into a cylinder. Female. *Cal.* three-parted. *Cor.* three-petalled. *Style* one, lateral. *Stigma* two-lobed. *Drupe* dry, one-seeded.
1717. *ACALYPHA*. Male. *Cal.* four-leaved. *Cor.* none. *Stam.* about twelve. Female. *Cal.* three-leaved. *Cor.* none. *Styles* three. *Caps.* trilococous.
1716. *DALECHAMPIA*. Male. *Cal.* six-leaved. *Cor.* none. *Nect.* lamellated. *Stam.* very many. Female. *Cal.* ten-leaved. *Cor.* none. *Style* one. *Caps.* trilococous.
1715. *PLUKENETIA*. Male. *Cal.* four-parted. *Cor.* none. *Stam.* twenty. Female. *Cal.* four-parted. *Cor.* none. *Style* one. *Caps.* tetracocous.
1727. *PHYLLANTHUS*. Male. *Cal.* six-parted. *Cor.* none. *Filam.* three, connate. Female. *Cal.* six-parted. *Cor.* none. *Nect.* a twelve-cornered rim. *Styles* three. *Caps.* trilococous.
1722. *AGYNEIA*. Male. *Cal.* six-leaved. *Cor.* none. *Filam.* columnar. *Anth.* three. Female. *Cal.* six-leaved. *Cor.* none. *Styles* three, bent back. *Caps.* trilococous, three-celled: cells two-seeded.
1724. *EPISTYLUM*. Male. *Cal.* four-leaved. *Cor.* none. *Nect.* four glands. *Filam.* columnar. *Anth.* two. Female. *Cal.* five-leaved. *Cor.* none. *Style* none. *Stigma* trifid. *Caps.* trilococous.
1728. *STILLINGIA*. Male. *Cal.* hemispherical, many-flowered. *Cor.* tubulous, erose. *Filam.* bifid. Female. *Cal.* one-flowered, inferior. *Cor.* superior. *Style* trifid. *Caps.* trilococous.
1718. *CROTON*. Tallow Tree. Male. *Cal.* five-leaved. *Cor.* five-petalled. *Stam.* fifteen. Female. *Cal.* five-leaved. *Cor.* none. *Styles* three. *Caps.* trilococous.
1720. *RICINUS*. Palma Christi. Male. *Cal.* five-parted. *Cor.* none. *Stam.* many. Female. *Cal.* three-parted. *Cor.* none. *Styles* three. *Caps.* trilococous.
1721. *SIPHONIA*. Male. *Cal.* bell-form, five-cleft. *Cor.* none. *Filam.* columnar. *Anth.* five. Female. *Cal.* bell-form, five-cleft. *Cor.* none. *Style* none. *Stigmas* three. *Caps.* trilococous.
1719. *JATROPHA*. Physic-nut. Cassava. Male. *Cal.* none. *Cor.* five-cleft. *Stam.* ten. Female. *Cal.* none. *Cor.* five-petalled. *Styles* three. *Caps.* trilococous.
1726. *SAPIUM*. Male. *Cal.* bifid. *Cor.* none. *Filam.* bifid. Female. *Cal.* three-toothed. *Cor.* none. *Style* very short. *Stigma* trifid. *Caps.* trilococous.
1723. *OMPHALEA*. Male. *Cal.* four-parted. *Cor.* none. *Nect.* a fleshy ring. *Filam.* columnar. *Anth.* two or three. Female. *Cal.* four-parted. *Cor.* none. *Style* very short. *Stigma* trifid. *Caps.* trilococous three-celled; with a single nut in each cell.
1714. *HECATEA*. Male. *Cal.* five-parted. *Cor.* none. *Anth.* three. Female. *Cal.* five-parted. *Cor.* none. *Style* one. *Stigmas* three. *Berry* three-seeded.
1725. *HIPPOMANE*. Manchineel Tree. Male. *Cal.* emarginate, bell-form. *Cor.* none. *Filam.* columnar. *Anth.* four. Female. *Cal.* three-leaved. *Cor.* none. *Style* very short. *Stigma* seven-cleft. *Drupe* with a seven-celled nut.
1730. *ALEURITES*. Male. *Cal.* trifid. *Cor.* five-petalled. *Nect.* five scales. *Filam.* columnar. *Anth.* numerous.

Female. *Cal.* trifid. *Cor.* five-petalled. *Nect.* five scales. *Style* none. *Stigmas* two. *Berry* dicoecous.

1731. *GNETUM*. Male. *Ament* from peltate calyces. *Cor.* none. *Anth.* two. Female. *Ament* the same. *Style* trifid. *Drupe* one-seeded.

1737. *MYRANTHUS*. Male. *Cal.* four-parted. *Cor.* none. *Filam.* columnar. *Anth.* three. Female. *Pompion* berries, twelve or fourteen-celled, many-seeded.

1738. *TRICHOSANTHES*. Snake Gourd. Male. *Cal.* five-toothed. *Cor.* five-cleft, ciliate. *Filam.* three, connate. Female. *Cal.* five-toothed. *Cor.* five-cleft. *Style* trifid. *Pompion* three-celled.

1739. *MOMORDICA*. Squirting Cucumber. Male. *Cal.* five-cleft. *Cor.* five-cleft. *Filam.* three, connate. Female. *Cal.* five-cleft. *Cor.* five-cleft, trifid. *Pompion* three-celled; elastic.

1741. *CUCUMIS*. Cucumber, Melon. Male. *Cal.* five-toothed. *Cor.* five-cleft. *Filam.* three, connate. Female. *Cal.* five-toothed. *Cor.* five-cleft. *Style* trifid. *Pompion* three-celled, with sharp seeds.

1740. *CUCURBITA*. Gourd, Pompion, Water-Melon. Male. *Cal.* five-toothed. *Cor.* five-cleft. *Filam.* three, connate. Female. *Cal.* five-toothed. *Cor.* five-cleft. *Style* trifid. *Pompion* three-celled, with margined seeds.

1744. *SECHUM*. Male. *Cal.* five-cleft. *Cor.* five-cleft. *Nect.* ten excavations. *Filam.* five, connate. Female. *Cal.* five-cleft. *Cor.* five-cleft. *Nect.* ten excavations. *Style* five-cleft. *Pompion* one-seeded, muricate.

1743. *CICYOS*. Male. *Cal.* five-toothed. *Cor.* five-cleft. *Filam.* three, connate. Female. *Cal.* five-toothed. *Cor.* five-cleft. *Style* trifid. *Pompion* one-seeded.

1742. *BRYONIA*. Bryony. Male. *Cal.* five-toothed. *Cor.* five-cleft. *Filam.* three. *Anth.* five. Female. *Cal.* five-toothed. *Cor.* five-cleft. *Style* trifid. *Berry* inferior, many-seeded.

† *Melothria*. Some species of *Excoecaria*.

GYNANDRIA.

1745. *ANDRACHNE*. Male. *Cal.* five-leaved. *Cor.* five-petalled. *Stam.* five. Female. *Cal.* five-leaved. *Cor.* none. *Styles* three. *Caps.* three-celled, two-seeded.

1746. *HYPHYDRA*. Male. *Cal.* three-parted. *Cor.* none. *Stam.* six. Female. *Cal.* none. *Cor.* none. *Style* one. *Stigmas* three. *Caps.* three-valved, one-seeded.

This numerous Class is distributed among various Natural Orders. The Palms were not reduced by Linneus to their proper Classes in his Artificial System, but were cast into an Appendix: many of them however belong to this Class. *Monoecia*—as *Sagus*, *Cocos*, *Elate*, *Bactris*, *Caryota* *Nipa*, *Areca*. All the Palms form the first of Linneus's Natural Orders. Of the second Order *Piperitæ*, we here find *Ambrosinia*, *Zostera*, *Arum*. Of the third Order *Calamariæ*, *Carex*, *Scleria*, *Sparganium*, *Typha*. Of the fourth *Graminæ*, many genera—*Zea*, *Tripsacum*, *Coix*, *Olyra*, *Zeugites*, *Zizania*, *Pharus*, *Pariana*. Of the fifth *Tripetaloidæ*, we have only *Sagittaria*. Of the eleventh *Sarmentaceæ*, only *Cytinus*. Of the twelfth *Holoraceæ*, there are *Ceratocarpus*, *Oxyris*, *Amaranthus*, *Begonia*. Of the fifteenth *Inundatæ*, there are several, as *Chara*, *Zannichellia*, *Najas*, *Serpula*, *Myriophyllum*, *Ceratophyllum*. Of the thirty-fourth *Cucurbitaceæ* we have yet more, as *Elaterium*, *Anguria*, *Trichosanthes*, *Momordica*, *Cucumis*, *Cucurbita*, *Sechium*, *Sicyos* and *Bryonia*. A very great number of genera may be found in the thirty-eighth order *Tricocceæ*:—as *Agopricon*, *Tragia*, *Hernandia*, *Buxus*, *Cicca*, *Argythamnia*, *Nepthelium*, *Guetarda*, *Acideton*, *Hura*, *Acalypha*, *Dalechampia*, *Plukenetia*, *Phyllanthus*, *Agyneia*, *Stillingia*, *Croton*, *Ricinus*, *Siphonia*, *Jatropha*, *Sapium*, *Hippomane*, *Aleurites*, *Andrachne*.—Of the forty-ninth Order *Compositæ*, only *Xanthium*, *Ambrosia* and *Clibadium*. Of the fifteenth *Amentaceæ* many: as *Cynomorium*, *Fagus*, *Castanea*, *Quercus*, *Juglans*, *Corylus*, *Carpinus*, *Ostrya*, *Betula*, *Platanus*; mostly timber trees. Of the fifty-first *Coniferæ-Liquidambar*, *Pinus*, *Cupressus*, *Thuja*—evergreen trees. Of the fifty-third Order *Scabridæ*, we have *Urtica*, *Bremeria*, *Morus* and *Thelygonum*.

In Jussieu's Natural Arrangement these plants are also dispersed among a variety of his Orders. In the sixth Order of his first Class, entitled, *Naiades*, we have *Chara*, *Ceratophyllum*, *Myriophyllum*, *Naias*, *Zannichellia*, *Lemna*. In the first Order of the second Class, *Aroidæ*, we have *Ambrosinia*, *Zostera*, *Arum*. In the second Order, *Typha*, we have *Typha* and *Sparganium*. In the third Order, *Cyperoidæ*, we have *Carex* and *Scleria*. In the fourth Order, *Graminæ*, we have *Zea*, *Tripsacum*, *Coix*, *Olyra*, *Zizania*, *Pharus*, *Pariana*.—In the first Order of the third Class, *Palmæ*, we have *Areca*, *Elate*, *Cocos*, *Caryota*, *Nipa*, *Sagus*, *Elais*. In third Order, *Junci*, we have *Sagittaria*.—In the fifth Class, *Aristolochiæ*, *Aristolochia* and *Cytinus*.—In the fourth Order of the sixth Class, *Lauri*, there is only *Hernandia*. In the sixth, *Atriplices*, are *Ceratocarpus*, and *Axyris*.—In the first Order of the seventh Class, stands *Amaranthus* alone: the Order is named from this genus. In the second Order of *Plantaginæ* there is only *Littorella*.—In the third Order of the tenth Class, *Corymbiferae*, we have *Nepthelium*, *Xanthium*, *Ambrosia*, *Clibadium*.—In the second Order of the eleventh Class, *Rubiocæ*, there is only *Guetarda*.—In the

the thirteenth Class, which is very large, we have only *Epibaterium* in the Order *Menispermata*: and *Empleurum* among the *Rutaceae*.—Of the fourteenth Class, in the sixth Order *Onagraceae*, we have *Serpicula*. In the tenth, *Rosaceae*, we have *Poterium*. In the Twelfth, *Terebintaceae*, we have *Juglans*. And in the thirteenth, *Rhamnii*, we have *Aucuba*. The fifteenth Class contains more genera than any other. The first Order, *Euphorbiæ* has many—*Egopricon*, *Tragia*, *Cicca*, *Argythamnia*, *Hura*, *Acalypha*, *Dalechampia*, *Plukenetia*, *Phyllanthus*, *Siphonia*, *Agyneia*, *Jatropha*, *Stillingia*, *Sapium*, *Croton*, *Omphalea*, *Ricinus*, *Hippomane*, *Alcurites*, *Sechium*, *Andrachne*. Of the second Order, *Cucurbitaceae* we have *Elaterium*, *Sicyos*, *Bryonia*, *Anguria*, *Momordica*, *Cucumis*, *Cucurbita*, *Trichosanthes*. Of the third, *Urticæ*, we have *Artocarpus*, *Morus*, *Boehmeria*, *Procris*, *Urtica*, *Buxus*, *Thoa*, *Gnetum*, *Thelygonum*, *Mabea*. Of the fourth, *Amentaceae*, we have *Betula*, *Carpinus*, *Fagus*, *Castanea*, *Quercus*, *Corylus*, *Platanus*, *Liquidambar*. Of the fifth, *Coniferae*, we have *Casuarina*, *Cupressus*, *Thuja* and *Pinus*.

CLASS XXII.

DIOECIA.

MONANDRIA.

1753. *PHUCAGROSTIS*. Male. Cal. none. Cor. none. Filam. filiform. Anther four-celled, four-cusped. Female. Cal. none. Cor. none. Germs two compressed. Seeds two.
1747. *PANDANUS*. Male. Cal. none. Cor. none. Filam. awl-shaped. Anth. cusped. Female. Cal. none. Cor. none. Style bifid. Drupe compound.
1749. *MONIMIA*. Male. Cal. none. Cor. none. Recept. four-cleft beset with stamens. Female. Involucre ovate, perruous. Cal. none. Cor. none. Pist. five. Drupes two to five, surrounded by a fleshy involucre.
1748. *ASCARINA*. Male. Ament filiform. Cal. a scale. Cor. none. Female. Ament filiform. Cal. a scale. Cor. none. Style none. Stigma three-lobed. Drupe? one-seeded.
1750. *DIDYMELES*. Male. Flowers two joined at the base. Cal. a scale. Cor. none. Anth. sessile. Female. Flowers two joined at the base. Cal. a scale. Cor. none. Style none. Stigma two-lobed. Drupe one-seeded.
1751. *DAHLIA*. Male. Cal. a scale. Petal one lanceolate, convoluted. Female. Cal. a scale. Cor. none. Style one. Caps. one-celled, four-valved, one-seeded.
1752. *PHELYPÆA*. Male. Cal. none. Cor. fix-parted. Recept. bearded. Female. Cal. none. Cor. fix-parted, inferior. Caps. seven-celled, many-seeded.
- + *Salix purpurea*, *Helix*. Some species of *Casuarina*. *Najas*. See Monoecia Tetrandria.

DIANDRIA.

1758. *CERATIOLOA*. Male. Cal. none. Cor. none. Female. Cal. none. Cor. none. Pist. one. Berry two-seeded.
1754. *VALLISNERIA*. Male. Spathe many-flowered. Cal. and Cor. three-parted. Female. Spathe one-flowered. Cal. three-parted. Cor. three-petalled. Caps. one-celled.
1755. *CECROPIA*. Male. Spathe caducous. Cal. a four-cornered scale. Cor. none. Female. Spathe caducous. Cal. a four-cornered scale. Cor. none. Pist. one Berry one-seeded.
1756. *SALIX*. Willow, Sallow, Osier. Male. Ament oblong. Cal. a scale. Cor. none. Gland at the base nectariferous. Stam. one to five. Female. Ament oblong. Cal. a scale. Cor. none. Stigmas two. Caps. superior, one-celled, two-valved. Seeds pappose.
1757. *BORYA*. Male. Cal. four-leaved. Cor. none. Stam. two to five. Female. Cal. four-leaved. Cor. none. Berry one-seeded.

TRIANDRIA.

1768. *PHOENIX*. Date Palm. Male. Cal. three-parted. Cor. three-petalled. Female. Cal. three-parted. Cor. three-petalled. Pist. one. Drupe ovate.
1759. *EMPETRUM*. Male. Cal. five-parted. Cor. three-petalled. Female. Cal. three-parted. Cor. three-petalled. Styles nine. Berry nine-seeded.
1762. *MABA*. Male. Cal. trifid. Cor. tubular, trifid. Female. Cal. inferior, trifid. Drupe two-celled, four-seeded.
1764. *HELWINGIA*. Male. Cal. three-parted. Cor. none. Stam. inserted into the calyx. Female as yet unknown.
1763. *OSYRIS*. Male. Cal. trifid. Cor. none. Female. Cal. trifid. Cor. none. Style one. Berry one-seeded.
1760. *STILAGO*. Male. Cal. tubulous, three or four-toothed. Cor. none. Stam. two or three. Female. Cal. tubulous, five-toothed. Cor. none. Nest. a ring. Drupe one-seeded.
1761. *CATURUS*. Male. Cal. none. Cor. trifid. Female. Cal. three-parted. Cor. none. Styles three. Caps. trilocular.
1765. *WILLDENOWIA*. Male. Cal. many-glumed. Cor. six-petalled. Nest. six-parted. Female. Cal. many-glumed. Cor. six-petalled, Nest. six-parted. Drupe one-seeded.

1767. *ELEGIA*. Male. Cal. fix-glumed, unequal. Cor. none. Female. Cal. fix-glumed, unequal. Cor. none. Styles two. Caps. three-celled.
1766. *RESTIO*. Male. Cal. fix-glumed. Cor. none. Female. Cal. fix-glumed. Cor. none. Styles two or three. Seed one?
- + *Valeriana dioica*. *Carex dioica*. *Davalliana sterilis*. *Salix amygdalina*, *Villarsiana*, *triandra*. *Serpicula verticillata*. *Picramnia*. Various *Xanthoxyla*. *Ruscus*. See Monadelphica.

TETRANDRIA.

1778. *HIPPOPHAE*. Sea Buckthorn. Male. Cal. two-parted. Cor. none. Female. Cal. bifid, tubulous. Cor. none. Pist. one. Berry superior, one-seeded. Seed covered with a double aril.
1773. *MONTINIA*. Male. Cal. four-toothed. Cor. four-petalled. Female. Cal. four-toothed, superior. Cor. four-petalled. Caps. two-celled, many-seeded.
1776. *BRUCEA*. Male. Cal. four-parted. Cor. four-petalled. Nest. four-lobed. Female. Cal. four-parted. Cor. four-petalled. Nest. four-lobed. Pericarp four, one-seeded.
1775. *SCHAEFFERIA*. Male. Cal. four-leaved. Cor. four-petalled or none. Female. Cal. four or five-parted. Cor. four-petalled or none. Berry two-celled, two-seeded.
1772. *CAVANILLA*. Male. Cal. four-leaved. Cor. none. Female. Cal. four-leaved, superior. Cor. none. Nut wrinkled, one-celled.
1780. *NAGEIA*. Male. Cal. four-leaved. Cor. none. Female. Cal. four-leaved, inferior. Cor. none. Drupe one-seeded.
1770. *TROPHIS*. Male. Cal. none. Cor. four-petalled. Female. Cal. none. Cor. none. Style bifid. Berry one-seeded.
1774. *VISCUM*. Mistletoe. Male. Cal. none. Pet. four, dilated at the base, connate, calycine. Anthers sessile, growing to the petals. Female. Cal. submarginate. Pet. four, dilated at the base. Style none. Berry inferior, one-seeded.
1766. *ANTHOSPERMUM*. Male. Cal. four-parted. Cor. none. Female. Cal. four-parted. Cor. none. Germ inferior. Styles two, reflexed.
1781. *KOELERA*. Male. Cal. four-parted. Cor. none. Nest. scales four. Female. Cal. four-parted. Caps.? one-seeded.
1771. *BATIS*. Male. Ament imbricate. Cal. a scale. Cor. none. Female. Invol. two-leaved. Cal. none. Cor. none. Stigma bifid. Berry four-seeded.
1779. *MYRICA*. Male. Ament oblong. Cal. a concave scale. Cor. none. Female. Ament oblong. Cal. a concave scale. Cor. none. Styles two. Berry one-seeded.
1777. *BROUSSONETIA*. Male. Ament cylindrical. Cal. four-parted. Cor. none. Female. Ament globose, composed of club-shaped receptacles. Cal. three or four-toothed. Seed one, covered by the calyx.
- + *Urtica dioica* and other nettles. Some *Boehmerias*. *Morus nigra*. *Rhamnus catharticus* and other *Rhamnii*.

PENTANDRIA.

1791. *IRESINE*. Male. Cal. two-leaved. Cor. five-petalled. Nest. five-leaved. Female. Cal. two-leaved. Cor. five-petalled. Styles two. Caps. many-seeded.
1794. *CANNABIS*. Hemp. Male. Cal. five-parted. Cor. none. Female. Cal. one-leaved. Cor. none. Styles two. Nut.
1795. *HUMULUS*. Hop. Male. Cal. five-leaved. Cor. none. Anthers two-parted at the top. Female. Cal. an oblique, entire scale of the ament. Cor. none. Styles two. Seed one, coated, winged by the calyx.
1782. *PISTACIA*. Male. Cal. five-cleft. Cor. none. Female. Cal. three-cleft. Cor. none. Styles three. Drupe dry.
1796. *ZANONIA*. Male. Cal. three-leaved. Cor. five-parted. Female. Cal. three-leaved. Cor. five-parted. Styles three. Berry inferior, three-celled.
1789. *PICRAMNIA*. Male. Cal. three or five-parted. Cor. three or five-petalled. Stam. three or five. Female. Cal. and Cor. of the male. Styles two. Berry two-celled, two-seeded.
1788. *SECURINEGA*. Male. Cal. five-parted. Cor. none. Nest. an annular toothed gland. Female. Cal.? Cor.? Style? Caps. trilocular.
1792. *SPINACIA*. Spinage. Male. Cal. five-parted. Cor. none. Female. Cal. four-cleft. Cor. none. Styles four. Seed one, calycine.
1793. *ACNIDA*. Male. Cal. five-parted. Cor. none. Female. Cal. three-parted. Cor. none. Style none. Stigmas three. Caps. one-seeded.
1790. *ANTIDESMA*. Male. Cal. five-leaved. Cor. none. Female. Cal. and Cor. of the male. Stigmas five. Berry one-seeded.
1784. *FLUGGEA*. Male. Cal. five-leaved. Cor. none. Female. Cal. and Cor. of the male. Style two-parted. Stigmas bifid. Berry four-seeded.
1798. *SAVIA*. Male. Cal. five-leaved. Cor. three or five-petalled

- petalled. *Neet.* a fleshy rim. Female. *Cal.* five-leaved. *Cor.* three or five-petalled. *Neet.* a fleshy rim. *Styles* three bifid. *Capsf.* three-celled, tricoecous.
1786. *ASTRONIUM*. Male. *Cal.* five-leaved. *Cor.* five-petalled. *Neet.* of five glands. Female. *Cal.* five-leaved. *Cor.* five-petalled. *Styles* three. *Seed* one.
1785. *MELICYTUS*. Male. *Cal.* five-toothed. *Cor.* five-tailed. *Neet.* five scales. *Anth.* five sessile. Female. *Cal.* *Cor.* and *Neet.* of the male. *Stigma* four or five-lobed. *Capsf.* one-celled, four or five-valved, five-seeded.
1787. *CANARIUM*. Male. *Cal.* two-leaved. *Cor.* three-petalled. Female. *Cal.* two-leaved. *Cor.* three-petalled. *Stigma* sessile. *Drupe*.
1788. *XANTHOXYLUM*. Male. *Cal.* five-parted. *Cor.* none. Female. *Cal.* five-parted. *Cor.* none. *Pist.* five. *Capsf.* one-seeded.
1797. *FEUILLEA*. Male. *Cal.* five-parted. *Cor.* five-cleft. *Neet.* Filaments five. Female. *Cal.* five-cleft. *Cor.* five-cleft. *Styles* five. *Berry* inferior.
- + *Phytica dioica*. *Rhamnus Alaternus*. *Ribes alpinum*. *Pimpinella dioica*. *Bryonia dioica*. *Salix pentandra*, *nigra*. *Rhus Vernix*, *radicans*, *Toxicodendron*.

HEXANDRIA.

1800. *SMILAX*. Male. *Cal.* six-leaved. *Cor.* none. Female. *Cal.* six-leaved. *Cor.* none. *Styles* three. *Berry* superior, three-celled.
1799. *TAMUS*. Black Bryony. Male. *Cal.* six-parted. *Cor.* none. Female. *Cal.* six-parted. *Cor.* none. *Style* trifid. *Berry* inferior, three-celled. *Seeds* two in a cell.
1802. *DIOSCOREA*. Yam. Male. *Cal.* six-leaved. *Cor.* none. Female. *Cal.* and *Cor.* as in the male. *Styles* three. *Capsf.* superior, three-celled.
1801. *RAJANIA*. Male. *Cal.* six-leaved. *Cor.* none. Female. *Cal.* and *Cor.* as in the male. *Styles* three. *Seed* inferior with an eared wing.
1803. *BRAUNIA*. Male. *Cal.* three-leaved. *Cor.* three-petalled. *Neet.* scales six. Female. *Cal.* three-leaved. *Cor.* three-petalled. *Neet.* none. *Stam.* six. *Styles* three.
1804. *FERREOLA*. Male. *Cal.* three-toothed. *Cor.* tubulous, trifid. Female. *Cal.* three-toothed. *Cor.* tubulous, trifid. *Style* one. *Berry* two-seeded.
1806. *CHAMÆDorea*. Male. *Cal.* three-parted. *Cor.* three-parted. Female. *Cal.* three-parted. *Cor.* three-petalled. *Neet.* scales three. *Styles* three. *Drupe* one-seeded.
1808. *MAURITIA*. Male. *Cal.* cup-form, truncated. *Cor.* three-parted. Female. *Cal.* *Cor.* *Pist.* unknown. *Drupe* one-seeded, imbricate.
1807. *BORASSUS*. Male. *Cal.* three-leaved. *Cor.* salverform with a three-parted border. Female. *Cal.* eight or nine-leaved, imbricate. *Cor.* none. *Stam.* eight monadelphous. *Style* none. *Drupe* with three stones.
1805. *ELAIS*. Male. *Cal.* six-leaved. *Cor.* six-cleft. Female. *Cal.* six-leaved. *Cor.* six-petalled. *Style* one. *Stigmas* three. *Drupe* one-seeded.
- + *Rumex Acetosa*, *Acetifolia*, *aculeatus*. *Loranthus europæus*. *Phoenix farinifera*.

OCTANDRIA.

1809. *POPULUS*. Poplar. *Ament* cylindrical. *Cal.* a jagged scale. *Cor.* turbinate, oblique, entire. *Stam.* eight to fifteen. Female. *Ament* cylindrical. *Cal.* a jagged scale. *Cor.* turbinate, entire. *Stigmas* four. *Capsf.* superior, two-celled, two-valved. *Seeds* pappose.
1811. *RHODIOLA*. Rose-root. Male. *Cal.* four-parted. *Cor.* four-petalled. *Neet.* four, emarginate. Female. *Cal.* four-parted. *Cor.* four-petalled. *Neet.* four, emarginate. *Pist.* four. *Capsf.* four, many-seeded.
1810. *COMMIPHORA*. Male. *Cal.* bell-form, four-toothed. *Cor.* four-petalled. Female unknown.
1812. *MARGARITARIA*. Male. *Cal.* four-toothed. *Cor.* four-petalled. Female. *Cal.* and *Cor.* as in the male. *Styles* four or five. *Berry* four or five-seeded in a pentacocous aril.
1813. *HERMESIA*. Male. *Cal.* two or three-leaved. *Cor.* none. *Filam.* very short. Female. *Cal.* four-leaved. *Cor.* none. *Styles* two.
- + *Laurus nobilis*. *Acer rubrum*. *Vallisneria octandra*.

ENNEANDRIA.

1814. *MERCURIALIS*. Mercury. Male. *Cal.* three-parted. *Cor.* none. *Stam.* nine to twelve. *Anth.* globular; twin. Female. *Cal.* three-parted. *Cor.* none. *Styles* two. *Capsf.* dicocous, two-celled. *Seeds* solitary.
1815. *HYDROCHARIS*. Male. *Cal.* trifid. *Cor.* three-petalled. *Filam.* the three inner ones appendicled. Female. *Cal.* trifid. *Cor.* three-petalled. *Styles* six. *Capsf.* inferior, six-celled, many-seeded.
1816. *TRIPLARIS*. Male. *Cal.* three-parted. *Cor.* three-petalled. *Stam.* nine. Female. *Cal.* three-parted. *Cor.* three-petalled. *Styles* three. *Capsf.* one-seeded, three-valved.
- + *Laurus*. *Empetrum nigrum*.

DECANDRIA.

1817. *CARICA*. Papaw Tree. Male. *Cal.* scarcely any. *Cor.* five-cleft. Female. *Cal.* five-toothed. *Cor.* five-petalled. *Stigmas* eight. *Berry* many-seeded.
1818. *GYMNOCLADUS*. Male. *Cal.* five-toothed. *Cor.* five-petalled. Female. *Cal.* five-toothed. *Cor.* five-petalled. *Style* one. *Legume* one-celled, pulpy within.
1819. *KIGGELARIA*. Male. *Cal.* five-parted. *Cor.* five-petalled. *Neet.* five glands. Female. *Cal.* five-parted. *Cor.* five-petalled. *Styles* five. *Capsf.* five-valved.
1821. *CORIARIA*. Male. *Cal.* five-parted. *Cor.* none. *Glands* five. Female. *Cal.* *Cor.* and *Glands* as in the male. *Styles* five. *Capsf.* five, one-seeded, covered with the enlarged glands.
1820. *SCHINUS*. Male. *Cal.* five-cleft. *Cor.* five-petalled. Female. *Cal.* and *Cor.* as in the male. *Berry* tricoecous.
- + *Lychnis dioica*. *Cucubalus Otites*. *Phytolacca dioica*. *Gypsophila paniculata*, &c.

DODECANDRIA.

1822. *STRATIOTES*. Male. *Spathe* two-leaved. *Cal.* three-parted. *Cor.* three-petalled. *Neet.* twenty, like stamens. *Stam.* eleven to thirteen. Female. *Spathe*, *Cal.* *Cor.* and *Neet.* as in the male. *Styles* six, two-parted. *Berry* six-celled, many-seeded.
- More properly placed in Polyandria Hexagynia.
1824. *EUCLEA*. Male. *Cal.* five-toothed. *Cor.* five-parted. *Stam.* fifteen. Female. *Cal.* and *Cor.* as in the male. *Styles* two. *Capsf.* three-celled, berried.
1826. *MENISPERMUM*. Moon-feed. Male. *Cal.* two-leaved. *Cor.* twelve-petalled. Female. *Cal.* six-leaved. *Cor.* six-petalled. *Berry* tricoecous.
1825. *DATISCA*. Bastard Hemp. Male. *Cal.* five-leaved. *Cor.* none. *Anth.* sessile, fifteen. Female. *Cal.* two-toothed, superior. *Cor.* none. *Capsf.* one-celled, many-seeded.
1823. *TOXICODENDRUM*. Male. *Cal.* five to seven-leaved. *Cor.* none. *Stam.* ten to twenty. Female. *Cal.* seven or eight-leaved, imbricate. *Cor.* none. *Style* one. *Stigmas* three. *Capsf.* three-celled, tricoecous.

ICOSANDRIA.

1829. *ROTTLERA*. Male. *Cal.* two-parted. *Cor.* none. *Stam.* thirty to forty. Female. *Cal.* four-toothed. *Cor.* none. *Styles* three. *Capsf.* three-celled, tricoecous, three-seeded.
1828. *GELONIUM*. Male. *Cal.* five-leaved. *Cor.* none. *Stam.* twelve. Female. *Cal.* five-leaved. *Cor.* none. *Style* none. *Stigmas* three, jagged. *Capsf.* three-celled, three-valved, three-seeded.
1827. *FLACOURTIA*. Male. *Cal.* five-parted. *Cor.* none. *Stam.* fifty to an hundred. Female. *Cal.* five-leaved. *Cor.* none. *Stigma* starred, sessile. *Berry* many-celled, with two seeds in each cell.
1830. *HEDYCARYA*. Male. *Cal.* flat, eight or ten-cleft. *Cor.* none. *Anth.* fifty, sessile, bearded. Female. *Cal.* and *Cor.* as in the male. *Germes* numerous. *Nuts* six to ten.
- + *Spiræa Aruncus*. *Rubus Chamæmorus*. *Myrtus dioica*.

POLYANDRIA.

1835. *PERULA*. Male. *Cal.* two-leaved. *Pet.* one, concave. *Neet.* scales multifid. *Stam.* twenty-four to thirty. Female. *Cal.* *Cor.* and *Neet.* as in the male. *Germes* four. *Capsf.* three-celled, three-valved, three-seeded.
1837. *CLIFFORTIA*. Male. *Cal.* three-leaved. *Cor.* none. *Stam.* thirty. Female. *Cal.* three-leaved. *Cor.* none. *Styles* two. *Capsf.* dicocous, inferior.
1833. *TREWIA*. Male. *Cal.* three-leaved. *Cor.* none. Female. *Cal.* four-cleft. *Cor.* none. *Style* one. *Stigmas* four, feathered. *Capsf.* tetracocous, four-seeded.
1832. *XYLOSMA*. Male. *Cal.* four or five-parted. *Cor.* none. *Neet.* an angular gland. *Stam.* twenty to fifty. Female. *Cal.* *Cor.* and *Neet.* as in the male. *Style* none. *Stigma* subtrifid. *Berry*? subbilocular. *Seeds* two.
1834. *HISINGERA*. Male. *Cal.* four-leaved. *Cor.* none. *Stam.* fifteen to twenty-five. Female. *Cal.* six-leaved. *Cor.* none. *Styles* two. *Berry* twin, two-celled, two-seeded.
1836. *EMBRYOPTERIS*. Male. *Cal.* four-toothed. *Cor.* four-cleft. *Stam.* twenty. *Anth.* bifid. Female. *Cal.* and *Cor.* as in the male. *Stigma* cruciate, sessile. *Pome* eight-seeded.
1831. *HAMADRYAS*. Male. *Cal.* five or six-leaved. *Cor.* ten or twelve-petalled. *Stam.* fifty. Female. *Cal.* and *Cor.* as in the male. *Germes* numerous. *Seeds* numerous.
1838. *CYCAS*. Male. *Ament* imbricate. *Cal.* a spatulate scale. *Cor.* none. *Anth.* globose sessile in the scale. Female. *Spadix* compressed-ancipital. *Cal.* none. *Cor.* none. *Style* one. *Drupe* one-seeded.
1839. *ZAMIA*. Male. *Ament* strobiliferous. *Cal.* an obovate scale. *Cor.* none. *Anth.* gaping by a cleft sessile in the scale. Female. *Ament* strobiliferous. *Cal.* scales peltate. *Germes* two. *Styles* none. *Berries* two, one-seeded.

- + *Clematis dioica*, *virginiana*. *Thalictrum dioicum*. *Laurus nobilis*. *Arum triphyllum*. *Stratiotes aloides*. *Populus nigra*.

MONADELPHIA.

1840. ARAUCARIA. Male. *Ament* imbricate. *Cal.* scales somewhat woody. *Cor.* none. *Anth.* ten to twelve connate in the scale. Female. *Ament* strobiliferous. *Cal.* scales lanceolate coriaceous two-flowered. *Cor.* none. *Style* none. *Stigma* two-valved. *Nut* coriaceous, wedge-form, winged at the tip.
1841. JUNIPERUS. Juniper, Cedar, Savin. Male. *Ament* conical. *Cal.* a scale. *Cor.* none. *Stam.* three. Female. *Ament* scales fewer, finally becoming fleshy, and uniting into a three-seeded *Berry*.
1842. TAXUS. Yew Tree. Male. *Cal.* none. *Cor.* none. *Stam.* numerous. *Anth.* peltate, eight-cleft. Female. *Cal.* pitcher-shaped, quite entire. *Style* none. *Seed* one, placed on a berried calyx.
1843. EPHEDRA. Shrubby Horse-tail. Male. *Ament* small-flowered, bifid. *Cal.* a scale. *Cor.* none. *Stam.* seven. Female. *Cal.* imbricate. *Cor.* none. *Pist.* two. *Berry* two-seeded, calycine.
1846. EXCOECARIA. Male. *Ament* cylindrical. *Cal.* a scale. *Cor.* none. *Filam.* three-parted. Female. *Cal.* scales three. *Cor.* none. *Caps.* trilocular.
1844. CISSAMPELOS. Male. *Cal.* none. *Cor.* four-petalled. *Stam.* four. Female. *Cal.* none. *Cor.* none. *Stigmas* three. *Berry* one-seeded.
1852. HORSFIELDIA. Male. *Cal.* none. *Cor.* trifid. Female. *Cal.* none. *Cor.* trifid. *Style* none. *Drupe* one-seeded.
1851. MYRISTICA. Nutmeg Tree. Male. *Cal.* none. *Cor.* bell-form, trifid. Female. *Cal.* none. *Cor.* bell-form, trifid. *Style* one. *Drupe* with an arilled nut one-seeded.
1847. DRYANDRA. Male. *Cal.* two-leaved. *Cor.* five-petalled. *Stam.* nine. Female. *Cal.* two-leaved. *Cor.* five-petalled. *Caps.* woody, tetracoccus, or pentacoccus.
1845. BATSCHIA. Male. *Cal.* three-leaved. *Cor.* three-petalled. *Stam.* six, of which three are barren. Female. *Cal.* and *Cor.* as in the male. *Germ.* three. *Drupe* coriaceous, with a half two-celled nut.
1856. LATANIA. Male. *Spathe* many-leaved. *Cal.* three-leaved. *Cor.* three-petalled. *Stam.* fifteen or sixteen. Female. *Drupe* corticose, with three stones in it.
1848. LOUREIRA. Male. *Cal.* five-parted. *Cor.* bell-form, five-cleft. *Stam.* eight to thirteen. Female. *Cal.* and *Cor.* as in the male. *Caps.* dicoccus, two-celled.
1855. XANTHE. Male. *Cal.* five or six-parted. *Cor.* five or six-petalled. Female. *Cal.* and *Cor.* as in the male. *Stigmas* five or six sessile. *Caps.* five or six-celled, many-seeded.
1850. ADELIA. Male. *Cal.* three-parted. *Cor.* none. *Stam.* twenty. Female. *Cal.* five-parted. *Cor.* none. *Styles* three. *Caps.* trilocular.
1849. ALCHORNEA. Male. *Cal.* three or five-leaved. *Cor.* none. *Stam.* eight. Female. *Cal.* five-toothed. *Cor.* none. *Caps.* dicoccus.
1853. NEPENTHES. Male. *Cal.* four-parted. *Cor.* none. Female. *Cal.* four-parted. *Cor.* none. *Stigma* peltate, sessile. *Caps.* four-celled, many-seeded.
1854. RUSCUS. Butcher's broom, Alexandrian Laurel. Male. *Cal.* six-leaved. *Cor.* none. *Nect.* ovate, tubulous, stamiferous within. Female. *Cal.* *Cor.* and *Nect.* of the male. *Stam.* none. *Style* one. *Berry* superior, three-celled, two-seeded.
- † *Salix fissu, rubra?* *Croceana*. *Bryonia dioica*. *Sida dioica*. Various *Crotons* and *Ricini*.

GYNANDRIA.

1857. CLUYTIA. Male. *Cal.* five-leaved. *Cor.* five-petalled. *Stam.* five. Female. *Cal.* five-leaved. *Cor.* five-petalled. *Styles* three. *Caps.* trilocular.
- The genera of this Class also are dispersed among various Natural Orders. Several of the Palms are properly arranged under the Class Dioecia: as *Phoenix*, *Borassus*, *Elæis*, *Cycas* and *Zamia*, which Linneus arranged with the Ferns, are Palms. *Valisneria* and *Hydrocharis*, are also subjoined to them in the first Natural Order. *Restio* alone belongs to the third Order *Calamariæ*.—The eleventh Order *Sarmentaceæ* embraces many of the genera—as *Ruscus*, *Smilax*, *Tamus*, *Dioscorea*, *Rajania*, *Menispermum*, *Cissampelos*. The twelfth, *Holoraceæ* has only two, *Iresine* and *Spinacia*. The thirteenth *Succulentæ* has but one, *Rhodiola*. The sixteenth *Calycifloræ* has three, *Osyris*, *Hippophae* and *Trophis*. The thirty-fourth *Cucurbitaceæ* has only *Feuillea*. The thirty-seventh *Columniferae* contains *Kiggelaria* and *Napæa*. The thirty-eighth *Tricocceæ*—has *Excoecaria*, *Mercurialis*, *Carica*, *Cliffortia*, *Adelia*, *Cluytia*. *Schinus* stands alone in the forty-third Order *Dumoseæ*, as *Xanthoxylon* does in the forty-sixth, *Hederaceæ*. The fiftieth Order *Amentaceæ* contains *Salix*, *Myrica*, *Pistacia* and *Populus*. The fifty-first *Coniferae* has *Juniperus*, *Taxus* and *Ephedra*. The fifty-third *Scabridæ* has *Cecropia*, *Cannabis*, *Humulus* and *Acnida*. Finally Linneus placed *Cycas* and *Zamia* in the fifty-fifth Natural Order of *Filices* or Ferns.

In Jussieu's *Genera Plantarum* the plants of this Class will also be found in a great variety of his Natural Orders. He has placed *Cycas* and *Zamia* among his *Filices*. Several of the Palms

are in the first Order of his third Class: as *Phoenix*, *Elæis*, *Lontarus*, *Borassus*.—*Ruscus*, *Smilax*, *Tamus*, *Dioscorea* and *Rajania* are among his *Asparagi*.—*Restio* alone is in the Order of *Junci*.—*Valisneria* and *Hydrocharis* are in the *Hydrocharides*.—*Osyris* and *Hippophae* in the *Elæagni*. *Spinacia* and *Acnida* in the *Atriplices*. The Order of *Amaranthi* has *Iresine* only: and that of *Ericæ*, *Empetrum* only. *Viscum* stands single in the *Caprifolia*. The *Malvaceæ* have only *Napæa*. The *Menispermæ* have *Menispermum* and *Cissampelos*. *Rhodiola* stands alone in the *Sempervivæ*. *Montinia* in the *Onagrea*. *Cliffortia* in the *Rosaceæ*. *Pistacia*, *Canarium*, *Xanthoxylon* and *Schinus* are among the *Terebintaceæ*.—But the fifteenth Class has the largest share. In the first Order *Euphorbiæ* we have *Caturus*, *Excoecaria*, *Mercurialis*, *Kiggelaria*, *Adelia* and *Cluytia*. In the second *Cucurbitaceæ*, we have *Zanonia*, *Feuillea*, *Carica*. In the third *Urticæ*, we have *Cecropia*, *Hedycaria*; *Humulus* and *Cannabis*. In the fourth *Amentaceæ*, we have *Salix*, *Populus* and *Myrica*. In the fifth *Coniferae*, we have *Ephedra*, *Taxus*, and *Juniperus*.

CLASS XXIII.

POLYGAMIA.

MONOECIA.

1358. MUSA. Plantain Tree and Banana Tree. Hermaphr. *Cal.* none. *Cor.* two-petalled. *Stam.* six, one fertile. *Pist.* one. *Berry* inferior. Male. *Cal.* none. *Cor.* two-petalled. *Stam.* six, five perfect. *Pist.* one. *Berry* none.
1865. HOLCUS. Soft-grass. Indian Millet. Hermaphr. *Glume* one-flowered, two-valved. *Stam.* three. *Styles* two. *Seed* one. Male. *Glume* one-flowered, two-valved. *Stam.* three.
1860. TETRAPOGON. *Cal.* two-valved, three-flowered, the two lateral hermaphrodite, the central one neuter. Hermaphr. *Cal.* none. *Cor.* two-valved, outer valve awned. *Stam.* three. *Styles* two. *Seed* one. Neuter. *Cal.* none. *Cor.* two-valved, with the valves awned.
1866. ATHEROPOGON. *Cal.* one-valved, two-flowered, one hermaphrodite, the other neuter. Hermaphr. *Cal.* none. *Cor.* two-valved, outer valve three-awned; inner bifid. *Stam.* three. *Styles* two. *Seed* one. Neuter. *Cal.* none. *Cor.* two-valved: outer valve bifid, awned below the tip: inner two-awned.
1861. AEGOPOGON. Hermaphr. *Cal.* two-valved, one-flowered, valves bifid at the tip, awned in the middle. *Cor.* two-valved: outer valve three-awned; inner two-awned. *Stam.* three. *Styles* two. *Seed* one. Male, as the hermaphrodite in the flower.
1869. ELYONURUS. *Cal.* one-valved, bifid, two-flowered. Hermaphr. sessile. *Cal.* none. *Cor.* two-valved. *Stam.* three. *Styles* two. *Seed* one. Male pedicelled. *Cal.* one-valved. *Cor.* two-valved. *Stam.* three.
1868. ISCHÆMUM. Hermaphr. *Glume* two-flowered, two-valved. *Stam.* three. *Styles* two. *Seed* one. Male. *Glume* the same. *Stam.* three.
1871. MANISURIS. Hermaphr. *Glume* one-flowered. *Cor.* two-valved. *Stam.* three. *Style* bifid. Male. *Glume* one-flowered. *Cor.* two-valved. *Stam.* three. *Valves* of the calyx all emarginate at the tip and sides.
1870. AEGILOPS. Hermaphr. *Glume* three-flowered, three-awned. *Stam.* three. *Styles* two. *Seed* one. Male. *Glume* three-flowered, three-awned. *Stam.* three.
1864. CHLORIS. Flowers on one side. *Cal.* two-flowered. Hermaphr. sessile. Male pedicelled. Hermaphr. *Cal.* none. *Cor.* two-valved. *Awn* terminating. *Stam.* three. *Styles* two. *Seed* one. Male. *Cal.* none. *Cor.* one or two-valved, awned. *Stam.* three.
1863. ANDROPOGON. Hermaphr. *Glume* one-flowered, awned at the base. *Stam.* three. *Styles* two. *Seed* one. Male. *Glume* one-flowered, awned at the base. *Stam.* three.
1872. COLLADOA. *Cal.* one-valved, bifid, three-flowered: male single; hermaphr. two together. Hermaphr. *Cal.* none. *Cor.* two-valved, awned. *Stam.* three. *Styles* two. *Seed* one. Male. *Cal.* none. *Cor.* two-valved, awnless. *Stam.* three.
1867. APLUDA. *Cal.* one-valved, three-flowered. Hermaphr. sessile in the middle; male and neuter pedicelled. Hermaphr. *Cal.* double, outer one-valved, inner two-valved one-flowered. *Cor.* two-valved. *Stam.* three. *Styles* two. *Seed* one. Male. *Cal.* two-valved, two-flowered. *Cor.* two-valved. *Stam.* three.
1862. ANTHISTIRIA. *Cal.* four-valved, three or seven-flowered, hermaphr. central, sessile, males two pedicelled, the rest, if any, sessile. Hermaphrodite. *Cal.* none. *Cor.* two-valved. *Awn* from the base of the germ. *Stam.* three. *Styles* two. *Seed* one. Male. *Cal.* none. *Cor.* two-valved, awnless. *Stam.* three.
1874. VALANTIA. Crosswort. Hermaphr. *Cal.* none. *Cor.* four-parted. *Stam.* four. *Style* bifid. *Seed* one. Male. *Cal.* none. *Cor.* three or four-parted. *Stam.* three or four.
1877. PLANERA. Hermaphr. *Cal.* bell-form, four-cleft. *Cor.* none. *Stam.* four. *Stigmas* two, sessile. *Nut* one-seeded, scale-tipped. Male. *Cal.* bell-form, four-cleft. *Cor.* none. *Stam.* four, standing out.

1879. DIDYMANDRA. Hermaphr. Cal. four-parted. Cor. four-cleft. Stam. one, bearing two anthers. Styles three, very short. Female. Cal. four-parted. Cor. four-cleft. Styles three, very short. Berry three-celled, three-seeded.
1893. CASTELA. Hermaphr. Cal. four-toothed. Cor. four-petalled. Stam. eight. Germ four-lobed. Style one. Drupes four, one-seeded. Male. Cal. four-toothed. Cor. four-petalled. Stam. eight. Rudiment of a pistil.
1887. OPHIOXYLON. Hermaphr. Cal. five-cleft. Cor. five-cleft. Stam. three. Pist. one. Male. Cal. bifid. Cor. five cleft. Stam. two.
1896. COPROSMA. Cal. five-toothed. Cor. funnel-form. Stam. five, six or seven. Styles two. Berry two-seeded. Male. Cal. five-toothed. Cor. funnel-form. Stam. five, six or seven.
1894. CELTIS. Nettle Tree. Hermaphr. Cal. five-parted. Cor. none. Stam. five. Styles two. Drupe. Male. Cal. six-parted. Cor. none. Stam. six.
1873. KERNERA. Hermaphr. Cal. spathe two-valved. Cor. none. Neet. three-leaved, awned. Anth. six, sessile. Style one. Berry one-seeded. Male. Cal. spathe two-valved. Cor. none. Neet. none. Anth. six, sessile. Rudiment of a pistil.
1859. VERATRUM. White Hellebore. Hermaphr. Cal. none. Cor. six-petalled. Stam. six. Pist. three. Caps. three. Male. Cal. none. Cor. six-petalled. Stam. six.
1903. RHAPIS. Hermaphr. Cal. trifid. Cor. trifid. Stam. six. Pist. one. Drupe one-seeded. Male. Cal. trifid. Cor. trifid. Stam. six.
1905. MARTINEZIA. Hermaphr. Cal. three-leaved. Cor. three-petalled. Stam. six. Stigma three-parted, sessile. Drupe one-seeded. Female. Cal. three-leaved. Cor. three-petalled. Stigma three-parted, sessile. Drupe one-seeded.
1904. CEROXYLON. Hermaphr. Cal. trifid. Cor. three-petalled. Stam. one, two, four. Rudiment of a Pistil. Female. Cal. trifid. Cor. three-petalled. Stigmas three, sessile. Drupe one-seeded.
1884. TRATTINNICKIA. Hermaphr. Cal. bell-form, three-toothed. Cor. bell-form, three-toothed. Stam. five. Germ. superior. Style awl-shaped. Male. Cal. bell-form, three-toothed. Cor. bell-form, three-toothed. Stam. five. Rudiment of a Pistil.
1888. STALAGMITIS. Hermaphr. Cal. four-leaved. Cor. four-petalled. Stam. thirty. Pist. one. Berry one-celled, three-seeded. Male. Cal. four-leaved. Cor. four-petalled. Stam. thirty.
1891. GYROCARPUS. Hermaphr. Cal. four-leaved, unequal. Cor. none. Stam. four. Neet. four-parted. Style none. Samara one-seeded, two-winged at the tip. Male. Cal. five-leaved. Cor. none. Neet. four-parted. Stam. four.
1892. ACER. Maple. Hermaphr. Cal. five-cleft. Cor. five-petalled. Stam. eight. Styles two. Caps. or Samara dicocous, winged. Male. Cal. five-cleft. Cor. five-petalled. Stam. eight.
1883. AILANTHUS. Hermaphr. Cal. five-parted. Cor. five-petalled. Stam. two or three. Germs three to five. Styles lateral. Samaras one-seeded. Male. Cal. five-parted. Cor. five-petalled. Stam. ten. Female. Cal. five-parted. Cor. five-petalled. Germs three to five. Styles lateral. Samaras one-seeded.
1890. GIMBERNATIA. Hermaphr. Cal. five-cleft. Cor. none. Stam. ten. Pist. one. Samara one-seeded, two or five-winged. Male. Cal. five-cleft. Cor. none. Stam. ten.
1895. GOUANIA. Chaw-stick. Hermaphr. Cal. five-cleft, superior. Cor. none. Stam. five. Style trifid. Fruit three-fided, tripartite. Male. Cal. five-cleft. Cor. none. Stam. five.
1886. BRIEDELIA. Hermaphr. Cal. five-parted. Pet. five inserted into the calyx. Stam. five monadelphous. Styles two bifid. Berry two-seeded. Male. Cal. five-parted. Pet. five inserted into the calyx. Filam. columnar, bearing five anthers. Female. Cal. and Cor. as in the male. Styles two bifid. Berry two-seeded.
1900. SCHIRANKIA. Hermaphr. Cal. five-toothed. Cor. five-cleft. Stam. eight to ten. Pist. one. Silique four-valved. Male. Cal. five-toothed. Cor. five-cleft. Stam. eight to ten.
1901. DESMANTHUS. Hermaphr. Cal. five-toothed. Cor. five-petalled. Stam. twenty. Pist. one. Legume two-valved. Male. Cal. five-toothed. Cor. none. Stam. twenty.
1902. ACACIA. Hermaphr. Cal. five-toothed. Cor. five-cleft. Stam. four to an hundred. Pist. one. Leg. two-valved. Male. Cal. five-toothed. Cor. five-cleft. Stam. four to an hundred.
1893. INGA. Hermaphr. Cal. five-toothed. Cor. tubulous five-cleft. Stam. an hundred monadelphous. Pist. one. Leg. two-valved. Seeds wrapped in pulp or in an aril. Male. Cal. five-toothed. Cor. tubulous, five-cleft. Stam. an hundred, monadelphous.
1899. MIMOSA. Sensitive and Humble Plant. Hermaphr. Cal. five-toothed. Cor. none or five-toothed. Stam. eight. Pist. one. Loment splitting into one-seeded joints. Male. Cal. five-toothed. Cor. none or five-toothed. Stam. eight.
1881. BRABEUM. Hermaphr. Ament. Cor. four-parted. Stam. four. Style bifid. Drupe with a globose fleshy nucleus. Male. Ament. Cor. four-parted. Stam. four. Style bifid, abortive.
1880. HERITIERA. Hermaphr. Cal. five-toothed. Cor. none. Anth. ten, sessile. Germs five. Styles five, cohering. Drupes five juiceless, keeled and winged. Seeds solitary. Male. Cal. five-toothed. Cor. none. Filam. columnar. Anth. five to ten, united into a cylinder.
1889. HYPELATE. Hermaphr. Cal. five-leaved. Cor. five-petalled. Stam. ten. Pist. one. Drupe pulpy, one-seeded. Male. Cal. five-leaved. Cor. five-petalled. Stam. ten.
1878. TERMINALIA. Hermaphr. Cal. five-parted. Cor. none. Stam. ten. Drupe inferior. Male. Cal. five-parted. Cor. none. Stam. ten.
1885. CLUSIA. Hermaphr. Cal. six-leaved. Cor. four or six-petalled. Anth. aggregate. Stigmas four or six. Caps. six-celled, many-seeded. Male. Cal. four or six-leaved. Cor. six-petalled. Stam. many.
1882. FERONIA. Hermaphr. Cal. five-toothed. Cor. five-petalled. Stam. ten. Style one. Pome five-celled, many-seeded. Male. Cal. five-toothed. Cor. five-petalled. Stam. ten.
1897. HERMAS. Hermaphr. Umbel. Cor. five-petalled. Stam. five, barren. Male. Umbel. Cor. five-petalled. Stam. five fertile. Styles two. Seeds two inferior, cordate-orbicular.
1875. PARIETARIA. Pellitory. Hermaphr. Cal. four-cleft. Cor. none. Stam. four. Style one. Seed one. Female. Cal. four-cleft. Cor. none. Style one. Seed one.
1876. ATRIPLEX. Orache. Hermaphr. Cal. five-parted, inferior. Cor. none. Stam. five. Style two-parted. Seed one depressed. Female. Cal. two-leaved. Cor. none. Style two-parted. Seed one depressed.
- + *Æsculus, Mammea, Fraxinus excelsior, Euphorbia, Melothria, Ilex, Guilandina, Moringa, Silene, Saxifraga, Cleome polygama.*
- DIOECIA.
1925. PANAX. Ginseng. Hermaphr. Umbel. Cal. five-cleft. Cor. five-petalled. Stam. five. Styles two. Berry two-seeded. Male. Umbel. Cal. entire. Cor. five-petalled. Stam. five.
1911. DIOSPYROS. Date Plum. Hermaphr. Cal. four-cleft. Cor. four-cleft. Stam. eight. Style four-cleft. Berry eight-seeded. Male. Cal. four-cleft. Cor. four-cleft. Stam. eight.
1928. CHRYSITRIX. Hermaphr. Glume two-valved. Cor. chaffs numerous. Stam. many mixed with the chaffs. Pist. one. Male. Glume two-valved. Cor. chaffs numerous. Stam. many, mixed with the chaffs.
1929. SPINIFEX. Hermaphr. Involucre two-leaved. Cal. two-valved, one-flowered. Cor. two-valved. Stam. three. Pist. one. Stigmas two. Seed one. Male. Involucre two-leaved. Cal. two-valved, two-flowered. Cor. two-valved. Stam. three.
1934. ELEPHANTUSA. Hermaphr. Cal. none. Cor. none. Stam. numerous. Style five or six-cleft. Drupes several, one-seeded. Male. Cal. none. Cor. none. Stam. numerous, very much clustered.
1932. NUNNEZIA. Hermaphr. Cal. three-leaved. Cor. three-petalled. Stam. six. Stigma trifid. Female. Cal. three-leaved. Cor. three-petalled. Stigma trifid. Drupe one-seeded.
1933. CHAMÆROPS. Fan Palm. Hermaphr. Cal. three-parted. Cor. three-petalled. Stam. six. Pist. three. Drupes three, one-seeded. Male. Cal. three-parted. Cor. three-petalled. Stam. six.
1926. BREYNIA. Hermaphr. Cal. six-parted. Cor. none. Anth. five growing to the style. Pist. one. Caps. three-celled, six-seeded. Male. Cal. five-parted. Cor. none. Neet. five glands. Stam. five. Female. Cal. five-parted. Cor. none. Style none. Stigmas five. Caps. five-celled, five-seeded.
1921. PENNANTIA. Hermaphr. Cal. none. Cor. five-petalled. Stam. five. Stigma peltate, sessile. Peric. three-fided, two-seeded. Male. Cal. none. Cor. five-petalled. Stam. five.
1916. STILBE. Hermaphr. Cal. outer three-leaved: inner five-toothed, cartilaginous. Cor. five-cleft. Stam. four. Style one. Seed one. Male. Cal. outer three-leaved: inner none. Cor. five-cleft. Stam. four.
1912. NYSSA. Hermaphr. Cal. five-parted. Cor. none. Stam. five. Pist. one. Drupe inferior. Male. Cal. five-parted. Cor. none. Stam. ten.
1913. HAMILTONIA. Hermaphr. Cal. five-cleft. Cor. none. Neet. a five-toothed disk. Stam. five. Pist. one. Drupe inferior. Male. Cal. five-cleft. Cor. none. Neet. a five-toothed disk. Stam. five.
1915. LAUROPHYLLUS. Hermaphr. Cal. four-leaved. Cor. none. Stam. four. Germ superior. Style one. Male. Cal. four-leaved. Cor. none. Stam. four.
1908. FRAXINUS. Ash Tree. Hermaphr. Cal. none or four-parted. Cor. none or four-petalled. Stam. two. Pist.

Pist. one. *Samara* one-seeded. Female. *Cal.* none or four-parted. *Cor.* none or four-petalled. *Pist.* one. *Samara* one-seeded.

1922. *RICHERIA*. Hermaphr. *Cal.* four or five-cleft. *Cor.* four or five-petalled. *Neet.* a rim surrounding the germ. *Stam.* four or five. *Style* trifid. *Caps.* fix-valved, three-celled, three-seeded. Male. *Cal.* and *Cor.* the same. *Neet.* four or five glands. *Stam.* four or five. *Style* and *Stigma* none. Female. *Cal.* *Cor.* and *Neet.* as in the hermaphrodite. *Stam.* none. *Style* trifid. *Caps.* fix-valved, three-celled, three-seeded.

1914. *ISQUIERDA*. Hermaphr. *Cal.* four-toothed. *Cor.* four-petalled. *Stam.* four. *Style* none. *Drupe* one-seeded. Male. *Cal.* four-toothed. *Cor.* four-petalled. *Stam.* four. Rudiment of a pistil.

1919. *BURSERIA*. Hermaphr. *Cal.* five-toothed. *Cor.* five-petalled. *Stam.* ten. *Style* none. *Caps.* three-valved, one-seeded. Male. *Cal.* five-toothed. *Cor.* five-petalled. *Stam.* ten.

1927. *GRISELINIA*. Hermaphr. *Cal.* five-toothed. *Cor.* five-petalled. *Stam.* five. *Styles* three. *Seed* inferior, one? Male. *Cal.* five-toothed. *Cor.* five-petalled. *Stam.* five.

1909. *HYDROCARPUS*. Hermaphr. *Cal.* five-leaved. *Cor.* five-petalled. *Neet.* scales five. *Stam.* five. *Pist.* one. Female. *Cor.* five-leaved. *Cor.* five-petalled. *Neet.* scales five. *Style* none. *Berry* one-celled, many-seeded.

1917. *ARCTOPUS*. Umbel. *Cor.* five-petalled. Male. *Stam.* five; some with a very large involucre. Hermaphr. *Styles* two. *Seeds* two.

1907. *GLEDITSCHIA*. Three-thorned Acacia. Hermaphr. *Cal.* four-cleft. *Cor.* four-petalled. *Stam.* six. *Pist.* one. Legume. Male. *Cal.* three-leaved. *Cor.* three-petalled. *Stam.* six. Female. *Cal.* five-leaved. *Cor.* five-petalled. *Pist.* one. Legume.

1906. *SCHLEICHERA*. Hermaphr. *Cal.* six-cleft. *Cor.* none. *Stam.* eight. *Pist.* one. *Drupe* one-seeded. Male. *Cal.* six-cleft. *Cor.* none. *Stam.* eight.

1910. *BROSIMUM*. Hermaphr. Ament. globose with a solitary pistil at the tip. *Cal.* a scale. *Cor.* none. *Anther* peltate, solitary. *Style* bifid. Female. *Cal.* none. *Cor.* none. *Germ* scaly-imbricate. *Style* bifid. *Berry* corticose, one-seeded.

1918. *CABALLERIA*. Hermaphr. *Cal.* five-cleft. *Cor.* wheel-form. *Stam.* five. *Stigma* five-cornered. *Drupe* one-seeded. Male. *Cal.* five-cleft. *Cor.* wheel-form. *Stam.* five.

1920. *LARDIZABALA*. Hermaphr. *Cal.* none. *Pet.* six. *Neet.* six-leaved. *Stam.* six. *Germ* three to six. *Style* none. *Berries* three to six, six-celled, many-seeded. Male. *Cal.* none. *Pet.* six. *Neet.* six-leaved. *Stam.* six, Monadelphous.

1923. *SMEGMARIA*. Hermaphr. *Cal.* five-cleft. *Cor.* fix-petalled. *Neet.* stellate. *Stam.* ten. *Germ* five. *Styles* five. *Caps.* five two-valved, many-seeded. *Seeds* winged. Male. *Cal.* five-cleft. *Cor.* fix-petalled. *Neet.* stellate. *Stam.* ten.

1924. *KAGENECKIA*. Hermaphr. *Cal.* five-cleft. *Cor.* fix-petalled. *Neet.* none. *Stam.* sixteen to twenty. *Germ* five. *Styles* five. *Caps.* five opening at the top. *Seeds* winged. Male. *Cal.* five-cleft. *Cor.* fix-petalled. *Neet.* none. *Stam.* sixteen to twenty.

CERATONIA. Carob Tree. Hermaphr. *Cal.* five-parted. *Cor.* none. *Stam.* five. *Style* one. Legume coriaceous, many-seeded. Male. *Cal.* five-parted. *Cor.* none. *Stam.* five. Female. *Cal.* five-toothed. *Cor.* none. *Style* one. Legume coriaceous, many-seeded.

FIGUS. Fig Tree. Common Receptacle (the Fruit) turbinate, converging and closed, fleshy. Male. Near the margin of the calyx, fewer. *Cal.* three-parted. *Cor.* none. *Stam.* three. Female. Lower, numerous. *Cal.* five-parted. *Cor.* none. *Pist.* one. *Seed* one.

This Class has been wholly discarded by Thunberg and other reformers of the Linnean system. Several of the genera may with propriety be reduced to some of the foregoing classes, but others are better kept distinct. I have however given the class as Linneus left it, with the additions made by Willdenow.

With respect to the Natural Orders, many species of this class Polygamia are in the fourth or Gramina: as *Holcus*, *Cenchrus*, *Ischaemum*, *Manisuris*, *Aegilops*, *Spinifex*, *Andropogon*, *Apluda*, *Musa* is among the Scitamineæ. *Veratrum* among the Coronariæ. *Atriplex* among the Holoraceæ. *Diospyros* among the Bicornes. *Acer* among the Tribilata. The Lomentaceæ has *Mimosa*, *Gleditsia* and *Ceratonia*. *Fraxinus* is among the Sepiariæ. *Hermas* among the Umbellatæ. *Panax* with the Hederaceæ. *Valamia* and *Anthospermum* with the Stellatæ. *Arctopus* with the Compositæ. Finally, the Scabridæ contains *Celtis*, *Parietaria* and *Ficus*.

Jussieu has *Chrysitrix* among his Cyperoidæ: and *Holcus* with the other Grasses to *Apluda* among his Gramineæ. *Veratrum* is with his *Junci*. *Musa* gives name to his Order of Musæ. *Terminalia* and *Nyssa* are among his Elæagni. *Brabeium* is one of his Prociæ: and *Atriplex* gives name to his Order of Atriplices. *Pisonia* is one of his Nyctagines.—*Fraxinus* of his Jafmineæ—and *Aphioxylon* of his Apocineæ. *Diospyros* is among

his Guajacanæ. *Panax* is one of the Araliæ: *Hermas* and *Arctopus* are with the Umbelliferæ. *Acer* gives name to the Order of Acera. *Clusia* is one of the Guttiferæ. *Mimosa*, *Gleditsia*, and *Ceratonia* belong to the Leguminosæ. *Guania* is one of the Rhamni. *Parietaria* and *Ficus* are among the Urticæ. Finally *Celtis* is one of the Amentaceæ.

From the above account it appears that the three foregoing Classes are by no means Natural. But we should hardly look for the Fig, the Mulberry, and Pepper, with Pellitory, Hops and Hemp; or expect to find them all in the same Natural Order of Urticæ or Nettles.

CLASS XXIV.

CRYPTOGAMIA.

FILICES OR FERNS.

1. Annular, or having the Capsules girt with an elastic ring, contrary to the valves.

ACROSTICHUM. Fructifications forming one continued spot, of no determinate figure, occupying almost all the disk of the leaf. *Involucre* none, except little scales or hairs interspersed among the capsules.

POLYPODIUM. Fructif. in roundish scattered spots, not marginal. *Invol.* none, or umbilicate separating on almost every side.—The latter are separated by Swartz and Dr. Smith (in Flora Brit.) under the name of *ASPIDIUM*.

ASPLENIUM. Spleenwort. Fructif. in scattered lines. *Invol.* separating towards the nerve.

DAREA. Fructif. in scattered lines. *Invol.* separating towards the margin.

HEMIONITIS. Fructif. in scattered branching lines, each double with a vein between. *Invol.* each separating towards the margin.

SCOLOPENDRIUM. Hart's-tongue. Fructif. in scattered double lines between two veins. *Invol.* lying over one another longitudinally.

BLECHNUM. Fructif. in uninterrupted lines close to the nerve. *Invol.* separating towards the nerve.

WOODWARDIA. Fructif. in oblong separate spots in a regular series along the nerve. *Invol.* separating towards the nerve.

PTERIS. Brake. Fructif. in a marginal line. *Invol.* from the margin of the frond turned in, uninterrupted.

LINDSÆA. Fructif. in an uninterrupted line, a little removed from the margin. *Invol.* continued, separating outwards.

VITTARIA. Fructif. in an uninterrupted marginal line. *Invol.* double, uninterrupted, separating inwards.

LONCHITIS. Fructif. in small lines in pairs, forming a crescent at each sinus of the frond. *Invol.* from the margin turned in, separating inwards.

ADIANTUM. Fructif. in marginal spots. *Invol.* from the margin of the frond turned in, distinct, separating inwards.

DAVALLIA. Fructif. in separate spots near the margin. *Invol.* from the surface, distinct, separating outwards.

DICKSONIA. Fructif. in marginal distinct prominent spots. *Invol.* double: one from the surface separating outwards; the other from the margin turned in, embracing the former, and separating inwards.

CYATHEA. Fructif. scattered, roundish, in an hemispherical calyx which bursts at the top without an operculum.

TRICHOMANES. Fructif. inserted into the margin of the frond, separate. *Invol.* urn-shaped, undivided, opening outwards. Columns extending beyond the involucre, like styles.

HYMENOPHYLLUM. Fructif. inserted into the margin of the frond. *Invol.* of two flattish straight valves, opening outwards. Columns shorter than the involucre.

SCHIZÆA. Fructif. upon an appendage to the frond, and covering its back. *Invol.* from the margins of the appendage turned in, uninterrupted.

2. Exannulate. Capsules without rings.

GLEICHENIA. Caps. three-celled, three-valved: partitions originating from the middle of each valve.

MARATTIA. Caps. oval, bursting longitudinally on their upper side; disclosing several Cells in each division.

DANÆA. Caps. one-celled, bursting by a pore on the outside, accumulated in two parallel rows.

EQUISETUM. Horse-tail. Frond amentaceous. Seed plaited round with four polliniferous filaments.

OPHIOGLOSSUM. Adder's tongue. Spike distich. Capsules immersed.

OSMUNDA. Moonwort. Spike branched. Caps. naked, globular.

LYCOPODIUM. Club-moss. Caps. axillary, solitary, compressed.

PORELLA. Caps. opening by numerous lateral pores.

SALVINIA. Males four to nine in a little ball. Cal. sub-globular, one-celled. Filam. numerous, two hundred to three hundred. Female solitary, in the middle of the ball. Seeds about fifteen.

MARSILEA. Common receptacle fourteen or fifteen-celled in two rows. Seeds several in each cell, oval.

PILULARIA. Pepperwort. Common receptacle four-celled, concealing the flowers. Seeds corticate.

ISOETES.

ISOETES. Quillwort. *Common receptacle* within the base of the frond, one-celled. *Seeds* rugged.

MUSCI or MOSSES.

1. With no Peristome.

PHASCUM. Earth Moss. *Capsule* closed with a lid that does not open.

SPHAGNUM. Bog Moss. *Caps.* with a naked mouth. *Veil* cut round, surrounding the capsule at the base.

GYMNOSTOMUM. Beardless Moss. *Caps.* with a naked mouth. *Veil* entire, parting at the base.

2. With a simple Peristome.

TETRAPHIS. Four-toothed Moss. *Caps.* oblong. *Perist.* with four erect free teeth.

ANDRÆA. *Caps.* very short. *Perist.* with four teeth curved in, cohering at the tip.

SPLACHNUM. Gland Moss. *Caps.* cylindrical on a fleshy apophysis. *Perist.* with sixteen teeth, widened at the base.

ENCALYPTA. Extinguisher Moss. *Peristome* with sixteen linear erect teeth. *Veil* bell-form loose.

PTEROGONIUM. Wing Moss. *Perist.* with sixteen linear erect teeth. *Flowers* axillary.

GRIMMIA. *Perist.* with sixteen teeth, widened at the base. *Flowers* terminating.

DICRANUM. Fork Moss. *Perist.* with sixteen teeth, bent in and semibifid.

TRICHOSTOMUM. Fringe Moss. *Perist.* with thirty-two teeth, filiform, straightish, approximating by pairs or connected at the base.

TORTULA. Screw Moss. *Perist.* with filiform teeth spirally and manifoldly convoluted.

+ *Orthotrichum. Buxbaumia.*

3. With a double Peristome.

ORTHOTRICHUM. Bristle Moss. *Caps.* terminating. *Perist.* outer, with sixteen teeth; inner with from eighteen to sixteen, filiform: sometimes none. *Veil* furrowed.

NECKERA. *Caps.* from a lateral perichætium. *Perist.* outer with sixteen, teeth, filiform. *Veil* even.

FUNARIA. Cord Moss. *Caps.* obovate. *Perist.* outer with sixteen oblique teeth, cohering at the tip; inner with sixteen flat teeth. *Veil* quadrangular.

BUXBAUMIA. *Caps.* oblique, gibbous on one side. *Perist.* outer with sixteen very short teeth: inner membranaceous plaited.

BARTRAMIA. *Caps.* spherical, furrowed. *Perist.* outer with sixteen awl-shaped teeth: inner membranaceous, jagged.

MNIUM. Spring Moss. *Caps.* cylindrical, furrowed. *Perist.* outer with sixteen furrowed teeth: inner membranaceous, jagged.

BRYUM. Thread Moss. *Caps.* ovate-oblong, even. *Perist.* outer with sixteen teeth, widening at the base: inner membranaceous, toothed. *Flowers* terminating.

HYPNUM. Feather Moss. *Caps.* ovate-oblong. *Perist.* outer with sixteen teeth, widening at the base: inner membranaceous, toothed. *Pedice* from a scaly lateral perichætium.

FONTINALIS. Water Moss. *Caps.* wrapped in a scaly perichætium. *Perist.* outer with sixteen teeth widening at the base: inner latticed.

POLYTRICHUM. Hair Moss. *Perist.* outer with from thirty-two to sixty-four teeth: inner a flat undivided membrane.

The characters of these two Orders are taken from Dr. Smith's treatise on Ferns, and his Flora Britannica.

HEPATICÆ.

MARCHANTIA. *Flowers* in a common peltated calyx, floriferous beneath.

JUNGERMANNIA. *Flowers* in a simple four-valved calyx.

TARGIONIA. *Flowers* in a two-valved calyx.

ANTHOCEROS. *Flowers* in a tubulous calyx. *Caps.* subulate, two-valved.

BLASIA. *Caps.* cylindrical, tubulous.

RICCIA. *Caps.* globular, one-celled, crowned with the style.

ALGÆ.

LICHEN. Liverwort. *Frustrifications* on a smooth shining receptacle.

TREMELLA. *Frustrifications* in a gelatinous substance.

ULVA. *Frustrif.* in a membranaceous substance.

FUCUS. *Substance* coriaceous. *Seeds* in a gelatinous bladder.

CONFERVA. *Substance* capillary, or fibres continuous or jointed.

BYSSUS. *Substance* lanuginous or mealy fibres.

FUNGI.

1. Capped.

AGARICUS. *Cap* lamellated underneath.

BOLETUS. *Cap* porous underneath.

HYDNUM. *Cap* echinated underneath.

PHALLUS. *Cap* smooth underneath.

2. Without a cap.

CLATHRUS. *Body* cancellated or latticed.

HELVELLA. *Body* turbinated.

PEZIZA. *Body* bell-shaped, with lenticular seeds.

OCTOSPORA. *Body* hemispherical bell-shaped or flattish, with eight seeds in distinct membranes.

CLAVARIA. *Body* oblong, smooth.

LYCOPERDON. *Body* roundish, opening at top, filled with an impalpable powder (seeds) interwoven with filaments.

SPHERIA. *Body* spherical, filled with powder, without filaments.

MUCOR. *Body* vesicular, stipitate.

In the above arrangement I have deviated very little from Linneus himself; and I beg leave, with Dr. Smith, to enter my protest against rash innovations on a system, which was imagined by a man of very superior genius, and has now stood the test of more than half a century. I agree so perfectly with Dr. Smith on this subject, that I shall take the liberty of concluding with an extract from his Preface to the seventh volume of that elegant work of English Botany; despairing of being able to express my own sentiments so effectually.

"Linneus could certainly have formed his system upon number alone, but he wisely judged *situation* and *proportion* might conveniently be taken into consideration. To his class *Polygamia* many students of tropical plants justly objected in his life time, and he, as well as his son, listened to their observations. I could wish all the plants of that class, as well as those of *Monoecia* and *Dioecia*, to be removed into the hermaphrodite ones, except such as have a difference of structure in the different flowers; for, where that is the case, the flowers can never vary the one into the other, nor the two sexes become united in one flower. By this means many most natural orders of Monoecious or Dioecious plants would still be kept by themselves, which have no affinity with any in the other classes, and only encumber them. Perhaps the order *Monogamia* of the class *Syngenesia* might be properly abolished. Such plants as do not belong to the class *Gynandria* ought undoubtedly to be removed; but this is no reason why the *Orchideæ* should not remain there. Above all, the union of *Icosandria* with *Polyandria* is the most ill-judged attempt that has yet been made upon the Linnean system.

July 10, 1807.

ROOTS

1



Simple Leaves.

2.



EXPLANATION

OF THE

BOTANICAL PLATES.

PLATE I.

ROOTS.

THE Root is properly that organ of a vegetable by which it draws in nourishment, and which produces the herb with the fructification. It is usually composed of *Medulla* or Pith, Wood, *Liber* or inner Bark, and *Cortex* or outer Bark: and it consists of the *Caudex*, stock or main body; and the *Radicles* or Fibres. See *fig. 2.*

FIG. 1. Fusiform or Spindle-shaped root. Simple and tapering to a point. Illustrated by the *Radish*. Carrot, Parsnep, &c. are other familiar instances.—This is also a *Perpendicular* root, in opposition to that which spreads horizontally, as in *fig. 3.*—And *Simple* in opposition to branched.

FIG. 2. Præmorse or End-bitten. Not tapering, but ending blunt, and thus appearing as if bitten off short at the end: as in *Scabious*, *Plantain*, *Valerian*.

FIG. 3. Creeping root. *Repens*. Spreading horizontally, and putting forth fibres at the joints, *a. a.* As in *Mint*, *Quick-grass*, &c.—The upper part of this figure exhibits a Toothed or Scaly root.

FIG. 4. A Tuberous or knobbed root; consisting of roundish fleshy bodies, called *Tubers*, connected to the stock in a bunch by intervening threads; and either terminated by fibres, as in the *Peony* which is represented here, or having

them issuing from the eyes, as in the *Potatoe*. Other instances of the Tuberous root, are *Hemerocallis*, *Filipendula*, and *Jerusalem Artichoke*.

FIG. 5. Palmate root. Consisting of several oblong tubers or knobs, spreading out like the fingers: as in some sorts of *Orchis*.

FIG. 6. Testiculate root. Composed of two roundish or oblong tubers: as in other species of *Orchis*.

FIG. 7. Solid root. Of one fleshy uniform substance, as in the *Turnep* here represented both entire and cut transversely. It is in reality a single roundish Tuber, with fibres issuing from the base.

FIG. 8. Granulate root. Consisting of many little tubers or fleshy knobs, resembling grains of corn: as in *Saxifraga* hence called *granulata*; here represented.

These are all *Solid* roots, except *fig. 3.* which is *Fibrous*. Most of the Grasses have roots consisting wholly of fibres.

FIG. 9 and 10. Are not properly Roots but Hybernacles, in which the embryo of the future plant is inclosed by a scaly covering, and secured from external injuries during the winter.

FIG. 9. A tunicated or coated Bulb, represented both whole and cut transversely.

FIG. 10. A scaly Bulb; represented by the *Lily*.

PLATE II.

SIMPLE LEAVES.

Simple leaves have one leaf only on a petiole or foot-stalk, or proceeding from the same point. They are very numerous; some are obvious from their names or definitions, and others are better described than figured. The figures are drawn from real leaves.

FIG. 1. Ovate, or egg-shaped leaf. A longitudinal section of an egg. The longitudinal diameter exceeding the transverse; and the base wider than the top. Exemplified in *Viburnum Tinus*.

FIG. 1. β. Ovate-oblong leaf. *Hypericum calycinum*. This shews the veins and midrib very distinctly.

FIG. 1. γ. Obovate leaf. *Saxifraga umbrosa*. This shews the Retuse, and also the Crenate leaf.

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FIG. 2. Oval leaf. Agreeing with the *Ovate* in having the longitudinal diameter exceeding the transverse; but differing in having the same curvature at both ends. *Saxifraga crassifolia*.

FIG. 3. Elliptic leaf. The Oval leaf is a real ellipsis; but Botanists by an Elliptic leaf understand one that is much longer in proportion to its breadth, or more eccentric than the oval. *Saponaria officinalis* represented in this figure is called an elliptic-lanceolate leaf.

FIG. 4. Spatulate. Copied from Linneus. Fig. 1. γ. gives a tolerable idea of the Spatulate or Battledore-shaped leaf.

FIG. 5. Wedge-shaped. *Cuneiforme*. The longitudinal diameter exceeding the transverse, and narrowing

narrowing gradually downwards. *Hibiscus syriacus*.

FIG. 6. Lanceolate. Like the head of a lance or spear. Oblong, and gradually tapering towards each extremity. *Amygdalus Persica* or *Peach*.

FIG. 7. Linear. Long and narrow, of the same breadth throughout, except at one or both ends. *Grass*.

The acrofe differs not from the Linear in form, but only in being permanent. As the Scotch Fir.

FIG. 8. Subulate or Awl-shaped. Linear at bottom, but gradually tapering towards the end, to a fine point: as in the *Pink*.—This shews a Lineate leaf, or one slightly marked with parallel lines. *Folium lineatum*; which must not be confounded with *Folium lineare*.

FIG. 9. Deltoid or Rhomboid leaf. *Lombardy Poplar*.

FIG. 10. Reniform or Kidney-shaped. The section of a kidney. Roundish, hollowed at the base without angles. *Glechoma hederacea* or *Ground Ivy*.—This is a very good instance of a Crenate leaf.

FIG. 11. Cordate or Heart-shaped. The longitudinal section of the heart. Ovate or subovate, hollowed at the base without angles. *Pelargonium cordatum*. This figure shews the ramifications of the veins.

FIG. 11. β . Cordate-orbicular. Hollowed at the base without angles, but nearly round; that is, if one leg of a pair of compasses were placed in the centre of the leaf, the other leg would sweep over the tips of the incisures. *Pelargonium zonale*, so called from a zone of a darker colour encircling the leaf. Hence in English *Horse-shoe Geranium*.

FIG. 12. Lunulate or Crescent-shaped. Roundish, hollowed at the base, with posterior angles. Copied from Linneus.

FIG. 13. Sagittate. Shaped like the head of an arrow. Triangular, hollowed at the base, with posterior angles. *Sagittaria sagittifolia*. This leaf is nerved, not veined.

FIG. 13. β . Sagittate-truncate. Arrow-headed, but cut off at the base, instead of being lengthened to a point. A leaf of *Convolvulus sepium* is here represented.

FIG. 14. Hastate. Resembling the head of a Halbert. Triangular, hollowed at the base and at the sides, with the angles spreading. *Convolvulus arvensis*.

FIG. 15. Panduræform. Viol-shaped. Oblong, contracted on the sides, like the body of a violin. Exemplified in *Convolvulus panduratus* and *Rumex pulcher*. The latter is here figured. Compare this with Lyrate, fig. 20.

FIG. 16. Lobate or Lobed. Divided to the middle into parts distant from each other, with convex margins.—These leaves are named from the number of their divisions, bilobate or two-lobed, trilobate or three-lobed, &c. The latter is here represented by a leaf of *Anemone Hepatica*.—For the Cloven leaf, *fissum*, see fig. 23.

FIG. 17. Palmate or Hand-shaped. Resembling the hand with the fingers spread. Divided be-

yond the middle into several (usually five) nearly equal parts: as in *Passiflora coerulea* here figured. The *Cirrus* or Tendril is here represented.—The *Digitate* leaf (t. 3. f. 3.) resembles the fingers spread without the hand, and has the leaflets separate; whereas in the *Palmate* they cohere at the base.

FIG. 18. Pinnatifid. Divided transversely by oblong horizontal segments or jags, not extending to the midrib: as in *Thlaspi Bursa Pastoris* or common Shepherd's-pouch here figured.—Compare this with the Pinnate leaves in the next Plate.

FIG. 19. Runcinate. A sort of Pinnatifid leaf, with the divisions convex before, and straight behind, somewhat resembling the teeth of the large cross-cut saw used in sawing timber, in Latin *Runcina*, according to Linneus. The leaf of *Leontodon Taraxacum* or common *Dandelion* is here figured as an instance.

FIG. 20. Lyrate. Like the body of a violin with the stops. Divided transversely into several jags, the lower ones remote and much smaller than the upper one. *Erysimum Barbarea* or *Winter Cress* is here figured.

FIG. 21. Lacinate or Jagged. Divided irregularly, and the parts subdivided indeterminately. Copied from Linneus.

FIG. 22. Sinuate. Having wide curved breaks in the margin, like sinuses or bays: as in the Oak leaf, here figured.

FIG. 23. Parted. Divided almost down to the base. According to the number of divisions called Bipartite or Two-parted, Tripartite or Three-parted, &c.—The leaf here figured (*Ranunculus acris*) is *Three-parted*, and each part is generally trifid, or has three linear sinuses, with straight margins.

Folium fissum, *lobatum* and *partitum* are thus distinguished. The first and second are divided to about the middle, the former with straight, the latter with convex margins. The third is divided almost to the base.

FIG. 24. Truncate. Ending in a transverse line, so that it seems as if the top of the leaf had been cut off. The *Tulip-tree*, here figured, is a remarkable instance of the Truncate or Lopped leaf, as Dr. Withering names it.

FIG. 25. Emarginate or End-nicked. Having an acute notch at the end: as is frequently the case in the leaves of the Laurel (*Prunus Laurocerasus*).—A *Retuse* leaf ends in a blunt sinus.—And a *Præmorse* leaf ends very obtusely, with unequal notches.

FIG. 26. Acuminate, or sharp-pointed. Drawn out into an awl-shaped point at the end: as in *Lamium album* here figured. It is a good instance of the *Serrate* leaf. See fig. 28.

The *Acute* leaf merely ends in an acute angle, and is opposed to obtuse or blunt.

FIG. 27. Spiny or Thorny. Running out at the edge into hard, stiff, sharp points: as in the leaf of Holly, here figured.—Opposed to Unarmed, *inermis*.

FIG. 28. Serrate. Toothed like a saw. Having sharp

Compound Leaves.

3.



sharp notches about the edge, pointing towards the extremity. When they have not this direction a leaf is merely said to be toothed, *dentatum*. The Crenate leaf has blunt or circular teeth or notches. See *fig. 10*.—The Serrate leaf is represented in *fig. 26*.—The Elm leaf here figured is *Doubly Serrate*; that is, has large teeth, with small ones upon each.

FIG. 29. Repand. With a flexuose or serpentine margin: as in *Solanum repandum*, here figured.—To be carefully distinguished from the *waving* leaf: the curvature in that respecting the disk; but in this the edge only.

FIG. 30. Erofe. Having the appearance of being gnawed by insects. Linneus describes it as a sinuate leaf, having other very small obtuse

sinuses on its edge. The figure is copied from *Philos. Bot.*—White Mustard furnishes an instance.

When a leaf has no sinus, it is said to be entire, *Integrum*: when it has no notches, but the edge is one uniform curve, it is then said to be quite entire, *Integerrimum*.

FIG. 31. Peltate, or Target-shaped. Having the petiole, leaf-stalk, or foot-stalk inserted into the disk of the leaf, instead of the edge or base, as is most usual, *Tropæolum majus*.

FIG. 32. Nerved. Having vessels perfectly simple and unbranched, extending from the base towards the tip: as in *Plantago* or *Plantain* here figured.—It may also serve for an instance of the *Folium integerrimum*.

PLATE III.

COMPOUND LEAVES.

Compound leaves have two or more leaves proceeding from one petiole. The component leaves are called Leaflets, *Foliola*.

FIG. 1. Binate leaf. Having a simple petiole connecting two leaflets: as in *Bauhinia* here figured. Linneus considers this as one species of the Digitate leaf.

FIG. 2. Ternate. Having three leaflets on a simple petiole: as in *Trifolium* or *Trefoil*, so named from this circumstance. The leaf here figured belongs to *Medicago arabica*.

Linneus makes this also a species of Digitate.

FIG. 3. Digitate. Having several distinct leaflets connected by a simple petiole, usually five or thereabouts; sometimes more, as in the Horse Chestnut. When the leaflets are regularly five, this leaf is generally called *Quinate*. The leaf here figured belongs to *Cannabis* or *Hemp*.

FIG. 4. Pedate, or Bird-footed as Dr. Withering names it. Having a bifid petiole connecting several leaflets, on the inside only; as in *Helleborus niger* here figured.

FIG. 5. to 10. Pinnate leaves. Having several leaflets on each side of a simple petiole. Of this there are several varieties.

FIG. 5. Unequally pinnate. Terminated by a single or odd leaflet. *Pastinaca sativa*. Parsnep.

FIG. 6. Abruptly pinnate. Consisting of pairs of leaflets, not terminated either by leaflet or tendril.

FIG. 7. Alternately pinnate. Having the leaflets ranged alternately along the common petiole. In the two former figures they are opposite.—This is also an instance of the Cirrhosely pinnate leaf; being terminated by a tendril. *Vicia sativa*, common Vetch or Tare.

FIG. 8. Interruptedly pinnate. Having smaller leaflets interposed between the principal ones: as in *Agrimonia Eupatoria* here figured.

FIG. 9. Decursively pinnate. When the leaflets run into one another along the common petiole.

FIG. 10. Articulately or jointedly pinnate. When the common petiole is jointed.

FIG. 11. Conjugate. Having only one pair of leaflets: as in *Lathyrus odoratus* or Sweet Pea, here figured; accompanied by a branching tendril.

The two next are *Decomposed* leaves; that is, the primary petiole is so divided, that each part forms a compound leaf. Thus in *fig. 12*, each part is ternate; and in *fig. 13*, each part is pinnate.

FIG. 12. Biternate. When a petiole has three ternate leaflets: as in *Epimedium*.

FIG. 13. Bipinnate. When the common petiole has pinnate leaves on each side of it: as in many of the Ferns.

The two next are *Super-decomposed* leaves; that is, the common petiole divides several times, and connects many leaflets; each part forming a *Decomposed* leaf.

FIG. 14. Triternate, or Triply-three fold. When a petiole has three biternate leaves:

FIG. 15. Tripinnate. When a petiole has bipinnate leaves ranged on each side of it: as in common Fern, *Pteris aquilina*.

FIG. 17. Frond. *Frons* in Latin signifies the twig of a tree with its leaves. Linneus applies this term to the peculiar leafing of Palms and Ferns. He explains it to be a kind of trunk or stem, which has the branch united with the leaf; and frequently with the fructification. The Frond of a *Palm* is here figured. *Fig. 13* and *15* represent the Frond of Ferns.

The remaining figures explain the *Determination* of leaves; from their place, situation, insertion or direction.

I. The *Place* which they occupy on a plant.

1. *Seminal* or Seed-leaves: being the lobes of the seed expanded. *fig. 19. a*.

2. *Radical* or Root-leaves: proceeding immediately from the root, or growing next the ground; commonly different from the other leaves. *fig. 19. b*.

3. *Cauline*

3. *Cauline* or Stem-leaves. Inserted into the stem itself. *fig. 19. c. c.*
4. *Branch* leaves. Growing on the branches. *fig. 19. d.*
5. *Axillary*. At the angle formed by the branch with the stem; or inserted at the base of a branch: as at the foot of the branch *d* in *fig. 19.*
- II. *Situation* or Disposition of leaves.
 1. *Stellate* or *Verticillate*. Leaves in whorls, or radiating like the spokes of a wheel: not fewer than three, but commonly from four to six or eight. *fig. 21. b. c.*
 2. *Opposite*. In pairs. *fig. 18. and fig. 21. d.*
 3. *Alternate*. One above another, in a regular gradation. *fig. 20. b. c.*
 4. *Jointed. Articulatum*. When one leaflet grows from the top of another. *fig. 21. a.*
 5. *Fascicled*. In bunches or bundles from the same point: as in *Larix* or *Larch*. *fig. 16.*
- III. The *Insertion* of leaves.
 1. *Peltate*. Having the petiole inserted into the disk of the leaf. *t. 2. fig. 31.*
 2. *Petioled*. Growing on a petiole, leaf-stalk or foot-stalk. Opposed to sessile. *fig. 20. a.*
 3. *Sessile*. Close to the stem or branch, without the intervention of a petiole. *fig. 20. b.*

4. *Decurrent*. Having the base extending downwards along the stem. *fig. 20. c.*
5. *Embracing* or *Stem-clasping. Amplexicaule*. Surrounding the sides of the stem or branch at the base. *fig. 20. d.*
6. *Perfoliate*. Encircling the stem or branch, so that it seems as if it had been driven through the leaf. *fig. 20. e.*
7. *Coinate*. Two leaves so united at their bases as to have the appearance of being one leaf: as in the Garden Honeysuckle. *fig. 20. f.*
8. *Sheathing. Vaginans*. Investing the stem or branch by its base. *fig. 20. g.*
- IV. *Direction* of Leaves.
 1. *Inflexed* or *Incurved*. Bent upwards in a curve at the end towards the stem or branch. *fig. 18. a.*
 2. *Erect*. Pointing upwards. *fig. 18. b.*
 3. *Spreading. Patens*. Forming an acute angle with the stem or branch. *fig. 18. c.*
 4. *Horizontal*. Making a right angle with the stem. *fig. 18. d.*
 5. *Reclined*. Curved downwards, so that the apex is lower than the base. *fig. 18. e.*
 6. *Revolute*. Rolled back or downwards. *fig. 18. f.*

PLATE IV.

FLOWER.

The *Frustrification* consists of the *Flower* and *Fruit*. The Flower has four parts—the *Calyx*, *Corolla* with its *Nectary*, *Stamen* and *Pistil*.

I. **CALYX.** The outer covering of the Flower.

1. *Perianth* or Calyx properly so called: contiguous to the other parts of fructification. *fig. 1. a. Tradescantia virginica. fig. 7. b. fig. 8. b. fig. 12. b. fig. 13. b.*
2. *Involucre*. Remote from the flower, particularly in the Umbel. *fig. 2, 3. General. fig. 2. a. Partial. fig. 3. a. Fool's Parsley and Chervil.*
3. *Ament* or *Catkin*. Consisting of many chaffy scales, ranged along a common receptacle. *t. 5. fig. 21, 22.*
4. *Spathe*. A Sheath opening longitudinally. *fig. 4. b. Narcissus Tazetta.*
5. *Glume*. The calyx of Corn and Grasses; formed of valves (usually two) embracing the seed. *fig. 5. a. a. Dactylis glomerata.*
6. *Calyptre*. The calyx of Mosses. *t. 6. f. 24.*
7. *Volva*. The calyx of a Fungus. *t. 6. f. 26.*

II. **COROLLA.** The inner covering of the Flower: usually of a more tender texture, with a variety of splendid colours. *f. 4. and f. 6—13. a.*

Petal in a monopetalous flower, the same with the corolla, exclusive of the Nectary, *f. 6, 7.* It consists of the *Tube* and *Limb* or *Border*. *f. 7.*

In a polypetalous corolla, the Petal is one of the leaves of which the whole corolla is composed. *fig. 8. a. fig. 12. a. fig. 13. a, c, d, e.* In consists of the

Claw, *unguis. f. 12. d.* and the *Lamina. f. 12. c.*

Campanulate or *Bell-shaped* Corolla. Monopetalous, swelling or bellying out, without any tube. *Convulvulus sepium. fig. 6.*

Funnel-shaped. Infundibuliformis. Monopetalous, with a conical limb, and tubular base. *fig. 7. Nicotiana Tabacum.*

Salver-shaped. Hypocrateriformis. Monopetalous, with a flat limb rising from a tube. *fig. 8. Jasminum officinale.*

Wheel-shaped. Rotata. Monopetalous, spreading flat, without any tube. *Veronica Chamædrys. fig. 9.*

Labiata. Monopetalous, irregular, with the lips gaping. *fig. 10. Lamium album.*

Personate. Monopetalous, irregular, with the lips closed. *fig. 11. Antirrhinum majus.*

Cruciform. Polypetalous, with four equal petals, spreading out in form of a cross. *fig. 12.—c. the Lamina or border; d. the Unguis, claw or tail of the petal. Cheiranthus incanus.*

Papilionaceous. Irregular, usually four-petalled. Shaped like a Butterfly with its wings expanded. *fig. 13. Pisum sativum. a. Corolla. b. Calyx. c. Vexillum, Standard or Banner; the upper Petal, spreading and rising upwards. d. The two wings, Alæ, the two side petals, standing singly; being separated by the Keel, Carina, e, the lower petal, shaped like a boat: this is sometimes split, and then the corolla is five-petalled.*

NECTARY.

Nectarium, the Nectary, or melliferous part of the

FLOWER.



PERICARP or FRUIT.



the flower; commonly making a part of the corolla, but sometimes distinct from it. Linneus has extended the name of Nectary to some parts of the corolla which do not appear to secrete a honied juice.

The forms which the Nectary puts on are various. Some of the most remarkable are the *Cup*, in *Polyanthus Narcissus*, fig. 4. *Fistulous* bodies, two in number, concealed under the helmet-petal or hood in *Aconitum*. *a*, *a*. fig. 14. One of them is represented separately at *b*. *Horn* or *Spur* at the back of the flower, as at *a* in fig 15. representing a flower of *Delphinium Ajacis* or Garden Larkspur. No appearance of the Nectary is more common than that of *Glands*. In *Ranunculus*, fig. 16. it is in the form of one large *Gland*, *a*. just above the base of each petal, on the inside.

Parnassia palustris, fig. 17. has five singular nectaries, *b*. They are heart-shaped, furnished with hairs, upon the top of which are little balls.

Fritillaria imperialis or Crown Imperial, fig. 18. has a large excavation at the base of each petal, which generally exhibits a large drop of nectareous juice.

Hellebore has several tubular Nectaries, like small bottles, placed in a ring round the base of the

stamens. In *Helleborus foetidus* fig. 19. there are from five to eight of these. One is represented separately at *a*.

Asphodel has six valves, each inserted into the base of one of the petals; and forming a complete arch over the germ. A stamen springs from each. One of these valves, with its stamen, is represented at *b*.—*Asphodelus luteus* is here figured.

STAMEN.

An organ or viscus for the preparation of the pollen, fig. 1. *b*. fig. 5. fig. 17, 19 and 20. The Stamen consists of two parts, the *Filament* and *Anther*. These are very distinct in fig. 5. and 20. See also *Plate 7*.

PISTIL.

Pistillum, *Pistil* or *Pointal*. An organ or viscus for the reception of the pollen. fig. 1. *c*. It consists of the *Germ*, *Style*, and *Stigma*. See *Plate 8*.

Germ is the rudiment of the fruit yet in embryo.—*Style* is the middle portion of the pistil, connecting the stigma with the germ.—*Stigma* is the top of the pistil, pubescent and moist, in order to detain and explode the pollen or prolifick powder. These three parts are seen distinctly in fig. 1, 4, 15, 17, 19, of *Plate 8*.

PLATE V.

PERICARP OR FRUIT.

A Viscus big with seeds, which it drops when ripe. It is the germ fecundated, or arrived to a state of maturity, after the flower is past; containing ripe seeds analogous to fruitful eggs.—The most remarkable pericarps are the *Capsule*, *Silique*, *Legume*, *Follicle*, *Drupe*, *Pome*, *Berry* and *Strobile*.

Capsule a membranaceous hollow pericarp, opening in some determinate manner; or, differently in different plants. fig. 1—5. The parts are 1. The Valves or outer covering. 2. The Partitions, *Dissepimenta*. 3. The *Columella* or central pillar. 4. The Cells, *Loculamenta*. These parts are easily distinguished in fig. 2 and 3. The former represents a Capsule of *Iris* (which is figured entire in *f. 1*.) cut transversely, so as to shew the three cells with the partitions dividing them, and the seeds lodged in them. The latter represents it burst open, and exhibiting the three valves, with the seeds ranged along the *Columella*.

Capsules are distinguished from the number of their valves and cells. This here figured is a three-valved, three-celled capsule.

Some flowers are succeeded by more capsules than one. Such fruits are called *Bicapsular*, &c. That here figured at *f. 4*. is the fruit of the *Aquilegia* or *Columbine*; and is *Quinquecapsular*. A single capsule is represented separately.

Capsules are called *Dicoccous* and *Tricoccous*, which swell out in two or three protuberances, and are divided internally into two or three cells, with one seed in each cell.—*Fig. 5*. exhibits two views of the seed-vessel of the Tea-tree; the first entire, the second opening. This is a *Tricoccous* capsule.

VOL. I.

Silique, *Silique* or *Pod*. An oblong, membranaceous, two-valved pericarp, having the seeds fastened along both futures. fig. 6. A pod of *Stock-Gilliflower*, shewing the two valves, the partition with its futures, and the seeds.

Silicula, *Silicle* or *Pouch*, differs from the *Silique* only in form and size; the transverse diameter is equal, or nearly so, to the longitudinal. It varies in shape, as shewn by three figures at *n. 7*. *Biscutella auriculata*, *Tblaspi Bursa Pastoris*, and *Draba verna*.

Legume, *Pod* or *Cod*. Two-valved, having the seeds fastened along one future only. Usually membranaceous and one-celled. fig. 8. *a a*. The two valves. *Pisum sativum*. Garden Pea.

Follicle or *Conceptacle*. One-valved, opening longitudinally on one side, and having the seeds loose in it. It is usually double or two pericarps together, and membranaceous. fig. 9. *Asclepias*.

The following are moist Fruits.

Drupe or *Plum*. A pulpy pericarp or fruit, without valves, containing a nut or stone inclosing a kernel. Usually moist and succulent; but sometimes dry, as *Almond*.

Fig. 10. a—e. *Phoenix dactylifera* or Date Palm. *a*. The Drupe entire. *b*. The same opened longitudinally. *c*. The Stone, Nut, or *Putamen*. *d*. The umbilical chord by which it hangs. *e*. The bag in which the Stone is inclosed.

Fig. 10. f—h. *Myristica officinalis* or Nutmeg. *f*. The Fruit opened longitudinally. *g*. The Nut involved in its aril, which is called *Mace*. *h*. The flesh covering the nut with its aril; of a solid texture drying

* b

drying to a leathery crust. In Linneus's genera it is called a drupaceous capsule. Gærtner names it a Berry, but allows that it would be a Drupe, were it not for the Aril.

Pome. A pulpy pericarp or fruit, without valves, containing a capsule. It includes all the moist fruits which have the seeds lodged in a core. *Fig. 11. Achras Sapota.* The fruit is figured entire, and cut transversely: the latter shews the granular pulp, and the four cells in each of which a seed is lodged; there are ten cells in the unripe fruit, but all except three or four are abortive.

Berry, Bacca. A succulent or pulpy pericarp or fruit, without valves, containing naked seeds either loose in the pulp, or placed on receptacles: *fig. 12.* Many fruits are improperly called Berries: and some which Linneus has so named do not agree with the description.

Fig. 13. represents a *Compound Berry*; each component part or *Acinus* being a small berry, containing one seed immersed in the pulp. *a.* The entire

fruit. *b.* The calyx. *c.* The common receptacle with the compound berry dissected. *Rubus fruticosus* or Blackberry.

Gærtner has other pericarps: as—*Utriculus.* One-celled and one-seeded; commonly very thin and almost diaphanous; always valveless: as in *Beta, Thalictrum, Zannichellia.*

Samara. Membranaceous; one or two-celled, never opening spontaneously, spreading out into a leafy form: as in *Elm, Ash, Birch, Maple, &c.* See *Plate 6. fig. 10.*

Pepo. A fleshy fruit approaching to the Berry, but having cells remote from the axis, and so placed near the periphery of the fruit, that the seeds are fastened to it. It comprehends the *Pompion, Melon, Cucumber, &c.* Linneus calls them *Pomes*; but this fruit is distinct both from that and the Berry.

Gærtner's elegant and accurate work, *De Fructibus & Seminibus*, may be consulted on this subject to great advantage.

PLATE VI.

FRUIT, SEED AND RECEPTACLE.

Strobile. A Pericarp formed from a female Ament, by the hardening of the scales.—In *Philos. Botan.* it is explained to be a Receptacle covered with indurated calycine scales. *Fig. 1. Magnolia grandiflora,* with the ripe seeds hanging by threads from the scales.

Cone, a species of Strobile, according to Linneus. The fruit of many evergreen trees, as *Fir, Pine, Cedar, Cypress.* Composed of woody scales, usually opening, and having a seed at the base of each scale. It is broadest at the base, and tapers more or less to the end. *Fig. 2.* An entire Cone. *Fig. 3.* One of the scales magnified, with the seeds.

Nut. A hard bony Pericarp, not opening in general spontaneously. Or a seed covered with a shell. This term extends to the *Acorn. fig. 4,* and to all Stone-fruits.

Seed the rudiment or Embryo of a new plant: or, the deciduous part of a vegetable, containing the rudiment of another vegetable of the same species, vivified by the pollen; and analogous to the egg in animals. *fig. 5—10.* It consists of three principal parts—1. The tegument or skin. 2. The Cotyledons or lobes. 3. *Corculum* or heart. *Fig. 5.* represents a seed of Horse-Chestnut, entire at *d:* naked

or stripped of the skin, shewing the embryo at *a.* *b, c.* is the same cut through, discovering two very thick lobes at *c;* and the embryo at *b,* with the plume emerging from the radicle.

Besides these three parts common to all seeds, some have a *Hilum* or eye; which is a scar made by the umbilical chord, or the point of adhesion to the pericarp: *fig. 5. d.* Remarkable in the Bean, Kidney Bean, Cardiospermum, &c.—An *Aril.* *Plate 5. f. 3, 10.*—A *Coronet, Coronula, fig. 6—10.* Which is either a *Calycle* or the calyx adhering, *fig. 10.*—a *Pappus* or Down, *fig. 6, 7, 8,* which is either simple, as in *f. 6, 7,* or feathered as in *f. 8.*—stiped, as in *f. 6,* or sessile, as in *f. 7.*—a *Wing,* as in *fig. 10.* the lower row.—a *Tail,* as in *f. 9,* which is often spiral, and throws off the seed with considerable force.—Hooks, as in *fig. 11.*—These and other processes assist much in the dispersion of seeds.

Receptacle. The Base by which the other parts of the fructification are connected: *fig. 13, 14.* *Fig. 13.* is a compound Receptacle; in the Dandelion: as it connects many florets. *Fig. 14.* is that of the Fruit, or rather of the Seeds, in the Strawberry: for the seeds are inserted on the outside of the pulp.

FRUIT SEED RECEPTACLE.

6.

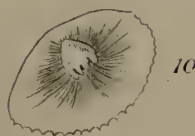
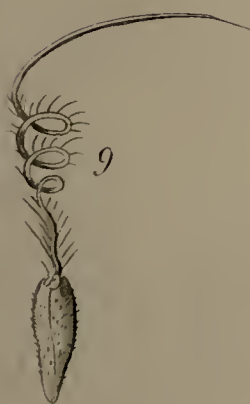
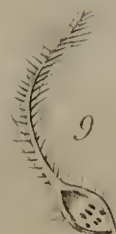
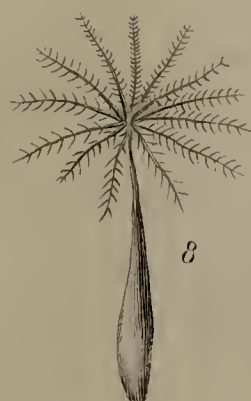
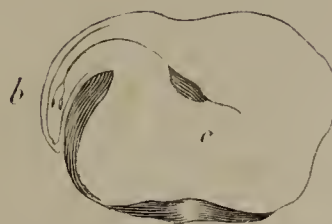
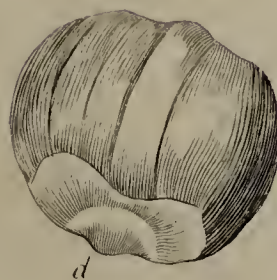




PLATE VII.

LINNEUS'S CLASSES, OR

The Outlines of LINNEUS'S System of Vegetables.

- A. Plants with conspicuous Flowers.
 - B. 1. All complete, or furnished with Stamen and Pistil.
 - C. With Stamens separate from the Pistil.
 - D. And separate from each other.
 - E. All of the same length, or not proportionably longer than each other.
 - F. In which the number only is to be considered.
 - I. MONANDRIA. One Stamen. *Fig. 1.*
 - II. DIANDRIA. Two Stamens. *Fig. 2.*
 - III. TRIANDRIA. Three Stamens. *Fig. 3.*
 - IV. TETRANDRIA. Four equal Stamens. *Fig. 4.*
 - V. PENTANDRIA. Five Stamens. *Fig. 5.*
 - VI. HEXANDRIA. Six equal Stamens. *Fig. 6.*
 - VII. HEPTANDRIA. Seven Stamens. *Fig. 7.*
 - VIII. OCTANDRIA. Eight Stamens. *Fig. 8.*
 - IX. ENNEANDRIA. Nine Stamens. *Fig. 9.*
 - X. DECANDRIA. Ten Stamens. *Fig. 10.*
 - XI. DODECANDRIA. From 11 to 19 Stamens inclusive. *Fig. 11.*
 - F. In which the situation is also to be considered.
 - XII. ICOSANDRIA. About 20 Stamens on the Calyx or Corolla. *Fig. 12.*
 - XIII. POLYANDRIA. Twenty Stamens or more on the receptacle or base of the Flower. *Fig. 13.*
 - E. Some Stamens proportionably longer than others:
 - XIV. DIDYNAMIA. Four Stamens, two longer. One Pistil. Flowers ringent. *Fig. 14.*
 - XV. TETRADYNAMIA. Six Stamens, four longer. One Pistil. Flowers cruciform. *Fig. 15.*
 - D. Stamens coherent at bottom only, or by the Filaments.
 - XVI. MONADELPHIA. Filaments united into one body. *Fig. 16.*
 - XVII. DIADELPHIA. Filaments in two bodies. Corolla papilionaceous. *Fig. 17.*
 - XVIII. POLYADELPHIA. Filaments in 3 or more parcels. *Fig. 18.*
 - D. Stamens coherent at top only, or by the Anthers.
 - XIX. SYNGENESIA. Anthers united, 5 Filam. distinct, 1 Pistil, Flowers compound. *Fig. 19.*
 - C. With Stamens growing out of the Pistil itself.
 - XX. GYNANDRIA. Stamens on the Pistil, not on the Receptacle. *Fig. 20.*
 - B. 2. All incomplete; or which have Stamens only, or Pistils only.
 - XXI. MONECIA. Each sort of Flower separate, but on the same Plant. *Fig. 21.*
 - XXII. DIOECIA. Each sort of Flower, on distinct Plants only. *Fig. 22.*
 - B. 3. Flowers of the first sort, together with one both of the second sort.
 - XXIII. POLYGAMIA. *Fig. 23.*
 - A. Flowers inconspicuous.
 - XXIV. CRYPTOGAMIA. Flowers very small, invifible, or not yet discovered.
 - XXV. PALMS. Flowers borne on a *Spadix*, and within a *Spathe*, mostly incomplete.
- Linneus's Classification is explained at length in Letters on the Elements of Botany, letter 9.

PLATE VIII.

LINNEUS'S ORDERS.

The Orders in the first thirteen Classes of Linneus's System are founded wholly upon the number of Pistils, and are entitled—

1. *Monogynia*. Such flowers as have one Pistil: *fig. 1.*
2. *Digynia*. Two Pistils: *fig. 2.*
3. *Trigynia*. Three Pistils: *fig. 3.*
4. *Tetragynia*. Four Pistils: *fig. 4.*
5. *Pentagynia*. Five Pistils: *fig. 5.*
6. *Hexagynia*. Six Pistils: *fig. 6.*
7. *Heptagynia*. Seven Pistils: *fig. 7.*
8. *Decagynia*. Ten Pistils: *fig. 8.*
9. *Dodecagynia*. Twelve Pistils: *fig. 9.*
10. *Polygynia*. Many Pistils, indefinite: *fig. 10.*
11. *Didynamia Gymnospermia*. Four naked seeds at the bottom of the perianth: *fig. 11.* wherein the four seeds are represented in their natural situation in the figure on the left hand; and in that on the right hand, the calyx is laid open to shew them more plainly.
12. *Didynamia Angiospermia*. The seeds in a seed-vessel; which is two-celled, and the seeds, which are small and many, are fastened to a receptacle in the middle of it. The flowers are commonly Perfonate. In the former Order they are Labiate or Ringent. They have only one Pistil in both.
13. *Tetradynamia Siliculosa*. Fruit a *Silicle*, or short two-valved pericarp, varying in shape, triangular, oval, spherical, &c. *fig. 13.*
14. *Tetradynamia Siliquosa*. Fruit a *Siliqua*, or oblong narrow two-valved pericarp. *fig. 14.* The seeds are fastened along both futures, in this and the silicle. The flowers are Cruciform, and have only one pistil in both orders.

In the 16th, 17th, and 18th Classes, *Monadelphica*, *Diadelphica*, and *Polyadelphica*, the Orders are taken from the number of Stamens; it is unnecessary therefore to figure them.

The 19th Class *Syngenesia*, so called from having the anthers united in a cylinder, has six Orders, five founded on the form, sex and situation of the Florets; which are either ligulate or tubulous; hermaphrodite, male, female or neuter; situated in the disk or the ray. The flowers are Compound, having several florets on a common receptacle, and inclosed within a common perianth.

15. *Syngenesia Polygamia Æqualis*. The whole flower regular, all the florets alike, either ligulate or tubulous; all hermaphrodite and consequently fertile. *Fig. 15.* represents a compound ligulate flower; and a single floret, shewing its shape, with the germ crowned by its pappus, the cylinder of anthers, with the bifid curled stigma above it.
16. *Polygamia Superflua*. Florets of the disk hermaphrodite and tubulous; of the ray or exterior part female, commonly ligulate, but sometimes tubulous, or even naked. Always fertile or producing seed both in disk and ray. *Fig. 16.*

represents a radiate flower, together with a single tubulous and ligulate floret. This Order is named *Superflua*, because the florets of the ray, though fertile, are not wanted.

17. *Polygamia Frustranea*. Florets tubulous hermaphrodite in the disk, producing seed; but imperfect, abortive or frustrate in the ray; wanting at least the stigma, but frequently neuter, as in *fig. 17.* where besides the entire flower, a single floret, both fertile and neuter is represented.
18. *Polygamia Neccessaria*. Florets in the disk or middle tubulous and male, or at least defective, and therefore barren; whilst those of the ray or towards the outside of the flower, though female, are fertile; being impregnated by the barren flowers, which are therefore necessary. *Fig. 18.* besides the entire flower, represents a floret of each sort, together with a fertile and abortive seed.
19. *Polygamia Segregata*. Besides the common calyx, as in the foregoing Orders, this has partial calyxes inclosing one or several florets, thus separated (*segregata*) into distinct parcels in a manner different from the other Orders. *Fig. 19.* besides the whole flower represents a single tubulous floret, both surrounded by its calyx, and stripped of it.

These Orders are styled *Polygamia*, because the flowers have many florets, inclosed by one common perianth. In opposition to the last Order.

20. *Monogamia*, which consists of *Simple* flowers: *fig. 20.* Linneus placed this Order here in conformity with the principles of his artificial system, because the Anthers are united; but it is to be lamented that he thus deformed a Class otherwise truly natural.

The Orders of the three following classes being founded upon the Stamens, and taking their names from the foregoing classes, it is unnecessary to explain or figure them.

- 21, 22. The 23d Class *Polygamia* has three Orders, from the triple mode in which the three sorts of flowers may be arranged—on the same plant, *Monoecia*—on two plants, *Dioecia*—or on three separate plants of the same species, *Trioecia*. *Fig. 21, 22* represents a plant of the third Order, wherein the figure most to the right has male flowers only; that in the middle female flowers only; and that marked 21, hermaphrodite flowers only.
23. *Cryptogamia Filices*. Ferns. Having the fructification upon the back of the leaf. *fig. 23.* and *fig. 24.* Plate 7.
24. *Cryptogamia Musci*. Mosses, *fig. 24.*
25. *Algæ*, *fig. 25.*
26. *Fungi*, *fig. 26.*

See Letters on the Elements of Botany, letter 10.



EXEMPLIFICATION

OF

LINNÆAN CLASSES.

PLATE ONE TO PLATE SEVEN INCLUSIVE.

PLATE I. Exhibits the Classes Monandria, Diandria, Triandria, and Tetrandria.

FIG. 1. A small sprig of *Lopezia racemosa*. (Monandria Monogynia.)

FIG. 2. A single flower magnified.

FIG. 3. Flower of *Canna Indica*. (Monandria Monogynia.)

FIG. 4. The same with the calyx and lower parts removed.

FIG. 5. *Hippuris vulgaris*. (Monandria Monogynia.)

FIG. 6. and 7. Flowers of the same.

FIG. 8. Flower of *Circæa Lutetiana*. (Diandria Monogynia) in its natural size.

FIG. 9. The same magnified.

FIG. 10. A sprig of *Veronica Beccabunga*. (Diandria Monogynia) in its natural size.

FIG. 11. Magnified flowers.

FIG. 12. Flowering spike of *Anthoxanthum odoratum*. (Diandria Digynia.)

FIG. 13. Magnified flower.

FIG. 14. Flower of *Crocus vernus*. (Triandria Monogynia) laid open.

FIG. 15. Flower of *Moræa tripetala*. (Triandria Monogynia.)

FIG. 16. Flowering spike of *Cynofurus cristatus*. (Triandria Digynia.)

FIG. 17. Separate unopened flowers.

FIG. 18. The same magnified.

FIG. 19. Magnified open flower.

FIG. 20. Part of a flowering panicle of *Briza media*. (Triandria Digynia.)

FIG. 21. Magnified flower of the same.

FIG. 22. Head or spikelet of unopened flowers, in their natural size.

FIG. 23. Flowering head of *Scabiosa arvensis*. (Tetrandria Monogynia.)

FIG. 24. Single floret, magnified.

FIG. 24. *Cuscuta Europæa*. (Tetrandria Monogynia.)

FIG. 26, 27. Separate flowers, both in their natural size and magnified.

FIG. 28. *Sagina Ceraftoides*. (Tetrandria Tetragynia.)

FIG. 29. The several parts of the flower, with the seed-vessel and seeds.

PLATE II. Exhibits the Classes Pentandria, Hexandria, and Heptandria.

FIG. 1. *Azalea nudiflora*. (Pentandria Monogynia.)

FIG. 2. Stamens and Style of the same.

FIG. 3. *Hottonia palustris* (Pentandria Monogynia,) with a view of Corolla, Calyx, Stamen, and Germ separate.

FIG. 4. *Mirabilis Jalapa*. (Pentandria Monogynia.)

FIG. 5. *Gentiana Amarella*. (Pentandria Digynia.)

FIG. 6. Corolla, Calyx, and Germ separate.

FIG. 7. *Athamanta Libanotis*. (Pentandria Digynia.)

nia.) with a magnified view of the flower and germ.

FIG. 8. *Parnassia palustris*. (Pentandria Tetragynia.)

FIG. 9. *Lilium Chalcedonicum*. (Hexandria Monogynia.)

FIG. 10. *Alstroemeria Pelegrina*. (Hexandria Monogynia.)

FIG. 11. *Trillium erectum*. (Hexandria Trigynia.)

FIG. 12. *Trientalis Europæa*. (Heptandria Monogynia.)

FIG. 13. *Septas Capensis*. (Heptandria Heptagynia.)

FIG. 14. *Disandra prostrata*. (Heptandria Monogynia.)

PLATE III. Exhibits the Classes Octandria, Enneandria, and Decandria.

FIG. 1. *Fuchsia coccinea*. (Octandria Monogynia.)

FIG. 2. *Gaura biennis*. (Octandria Monogynia.)

FIG. 3. *Vaccinium Oxycoccus*. (Octandria Monogynia.)

FIG. 4. *Erica Daboecii*. (Octandria Monogynia.)

FIG. 5. *Paris quadrifolia*. (Octandria Tetragynia.)

FIG. 6. *Butomus umbellatus*. (Enneandria Hexagynia.)

FIG. 7. A separate flower.

FIG. 8. The advanced germens.

FIG. 9. *Rhododendron Chamæcistus*. (Decandria Monogynia.)

FIG. 10. *Kalmia glauca*. (Decandria Monogynia.)

FIG. 11. *Dianthus cæsius*. (Decandria Digynia.)

FIG. 12, 13. Petal, stamens, &c. separate.

PLATE IV. Exhibits the Classes Dodecandria, Icofandria, and Polyandria.

FIG. 1. *Sempervivum tectorum*. (Dodecandria Polygynia.)

FIG. 2. *Lythrum Salicaria*. (Dodecandria Monogynia.)

FIG. 3. A flower of the same laid open.

FIG. 4. *Pyrus Malus*. (Icofandria Pentagynia.)

FIG. 5. Calyx laid open, to shew the insertion of the stamens.

FIG. 6. *Metrosideros citrina*. (Icofandria Monogynia.)

FIG. 7. *Rubus odoratus*. (Icofandria Polygynia.)

FIG. 8. *Capparis spinosa*. (Polyandria Monogynia.)

FIG. 9. *Helleborus Foetidus*. (Polyandria Polygynia.)

FIG. 10. *Helleborus hyemalis*. (Polyandria Polygynia.)

FIG. 11. *Papaver Rhoeas*. (Polyandria Monogynia.)

FIG. 12. Germ and Stamens of the same (the corolla being taken away.)

PLATE V. Exhibits the Classes Didynamia and Tetradynamia.

- FIG. 1. *Melittis grandiflora*. (Didynamia Gymnospermia.)
 * * Calyx and Corolla laid open.
 FIG. 2. *Stachys coccinea*. (Didynamia Gymnospermia.)
 FIG. 3. *Teucrium latifolium*. (Didynamia Gymnospermia.)
 FIG. 4. *Antirrhinum majus*. (Didynamia Angiospermia.)
 * * Stamens and Style of the same.
 FIG. 6. *Orobanche major*. (Didynamia Angiospermia) with the parts of fructification separate.
 FIG. 7. *Thlaspi campestre*. (Tetradynamia Sili-culosa) with the germen and stamens magnified, and a view of the capsule in its natural size, with a transverse section of it.
 FIG. 8. *Brassica oleracea*. (Tetradynamia Sili-quosa) with the parts of fructification separate.

PLATE VI. Exhibits the Classes Monadelphica, Diadelphica, and Polyadelphica.

- FIG. 1. *Ferraria Tigridia*. (Monadelphica Trian-dria.) The species of the genus *Ferraria* are differently arranged by authors, some being placed in the Class Triandria, and others in the Class Gynandria, in which Linneus had stationed them. The present species is placed in the Monadelphica Triandria by the ingenious con-ductor of the Botanical Magazine, the style in this flower passing through the column support-ing the anthers.
 FIG. 2. *Hibiscus speciosus*. (Monadelphica Poly-andria.)
 FIG. 3. *Geranium pratense*. (Monadelphica Decandria.)
 FIG. 4. Stamens of the same, separate.
 FIG. 5. *Polygala vulgaris*. (Diadelphica Octandria.)
 FIG. 6. 7. Parts of fructification separate.
 FIG. 8. *Lathyrus odoratus*. (Diadelphica Decan-dria.)
 FIG. 9. Stamens viewed separate.
 FIG. 10. *Spartium junceum*. Diadelphica Decan-dria.)
 FIG. 11. *Hypericum Ascyron*. (Polyadelphica Po-lyandria.)
 FIG. 12. Calyx, with germen and styles.
 FIG. 13. A group of stamens.

PLATE VII. Exhibits the Classes Syngenesia, Gy-nandria, Monoecia, Dioecia, Polygamia, and Cryptogamia.

- FIG. 1. *Cichorium Intybus*. (Syngenesia Polyga-mia Æqualis.)
 FIG. 2. A separate floret.
 FIG. 3. *Bellis perennis*. (Syngenesia Polygamia Superflua.)
 FIG. 4, 5, 6. Parts of fructification of the same, with a male and female floret magnified.
 FIG. 7. *Centaurea Cyanus*. (Syngenesia Polyga-mia Frustranea.)
 FIG. 8. Florets of the same viewed separately.
 FIG. 9. *Dahlia coccinea*. (Syngenesia Polygamia Superflua.)
 FIG. 10. *Echinops Sphærocephalus*. (Syngenesia Polygamia Segregata.)
 FIG. 11. Floret of the same.
 FIG. 12. *Lobelia Dortmanna*. (Syngenesia Mo-nogamia.)
 FIG. 13. Corolla, Calyx, and Stamens separate.
 FIG. 14. *Orchis Morio*. (Gynandria Diandria.)
 FIG. 15. View of Stamens of the same.
 FIG. 16. Magnified view of a Stamen, to shew the singular appearance of the Anther.
 The genus *Orchis* is by some modern botanists referred to the Class Diandria. Willdenow places it in the Order Monandria of this Class.
 FIG. 17. *Aristolochia Clematitis*. (Gynandria Hex-andria.) Willdenow places it in the Class Mo-nadelphica.
 FIG. 19. *Corylus Avellana*. (Monoecia Polyan-dria,) shewing the male flowers in spikes or catkins, and the female ones in the form of a small tuft, at a distance, on the same sprig.
 FIG. 20. *Salix caprea*. (Dioecia Diandria,) shew-ing the male catkins.
 FIG. 21. A single male flower magnified.
 FIG. 22. The female catkins of the above species, on a separate individual.
 FIG. 23. A single female flower magnified.
 FIG. 24. *Valantia cruciata*. (Polygamia Monoecia.) This is placed by Dr. Smith and others among its kindred *Galiums* in Class Tetrandria.
 FIG. 25. *Trichomanes Tunbrigense*. (Cryptoga-mia. *Filices*.)
 FIG. 26. *Hypnum ferratulum*. (Cryptogamia. *Musci*.)
 FIG. 27. *Hypnum taxifolium*. (Cryptogamia. *Musci*.)
 FIG. 28. A separate piece of the same.
 FIG. 29. A species of Lichen. (Cryptogamia. *Algæ*.)
 FIG. 30. A species of *Agaricus*. (Cryptogamia. *Fungi*.)

PLATE 1.



PLATE 2.



PLATE 3.



Edw. P. Vowler del.

PLATE 4.



PLATE 5.

This plate contains six distinct botanical illustrations. Figure 1 (top left) shows a branch with a large, deeply lobed leaf and a single flower. Figure 2 (top center) depicts a cluster of flowers on a stem with small, rounded bracts. Figure 3 (top right) is a tall, slender plant with many small, opposite leaves and a terminal raceme of flowers. Figure 4 (bottom left) shows a branch with several large, tubular flowers and long, narrow leaves. Figure 5 (bottom center) is a detailed view of a single tubular flower with a flared, spotted calyx. Figure 6 (bottom right) shows a cluster of flowers with dissected parts below, including a petal and a pistil. Small asterisks (*) are placed near figures 1, 2, 4, and 5.

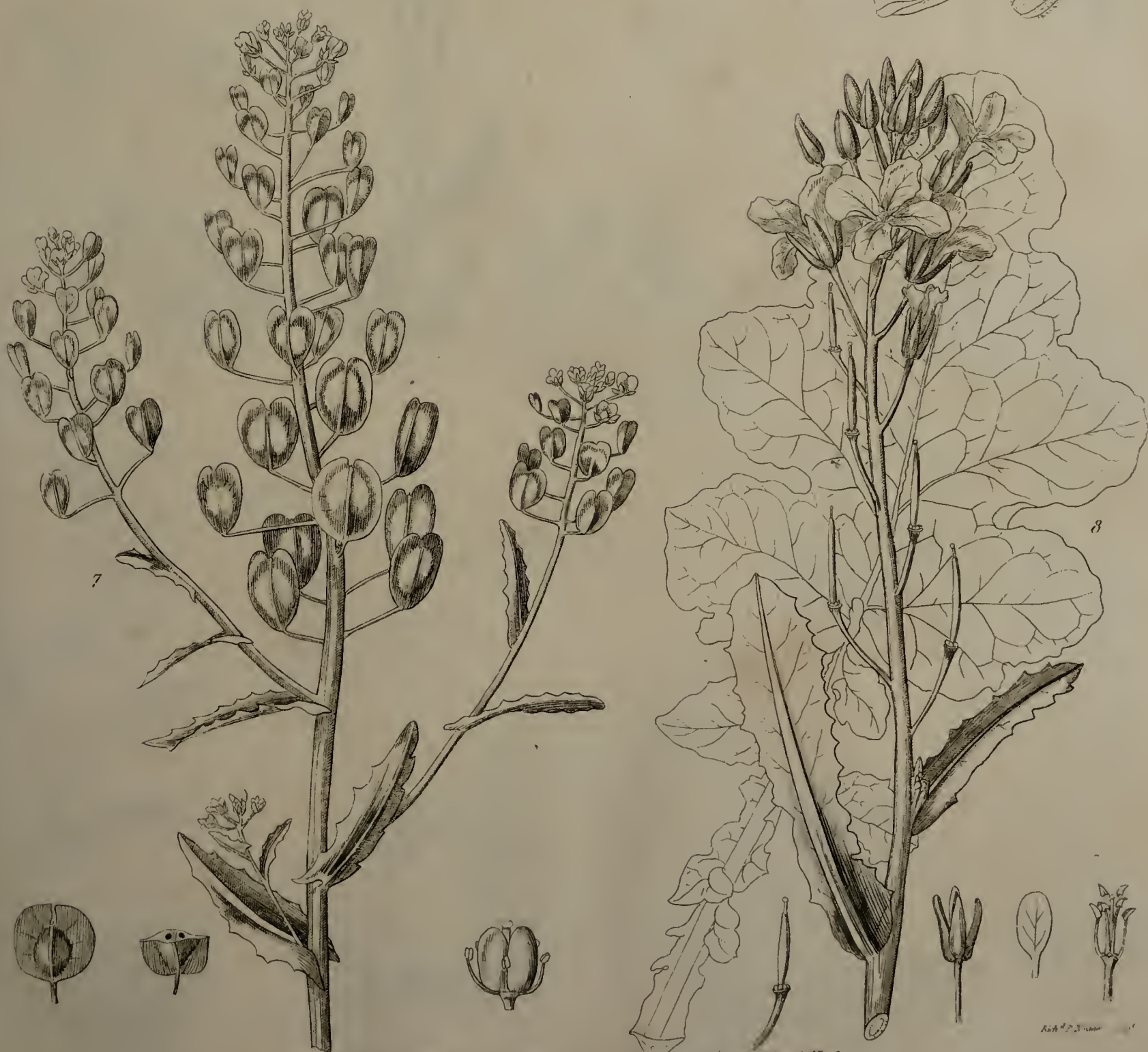


PLATE 6.



Rev. P. Volder sculp.

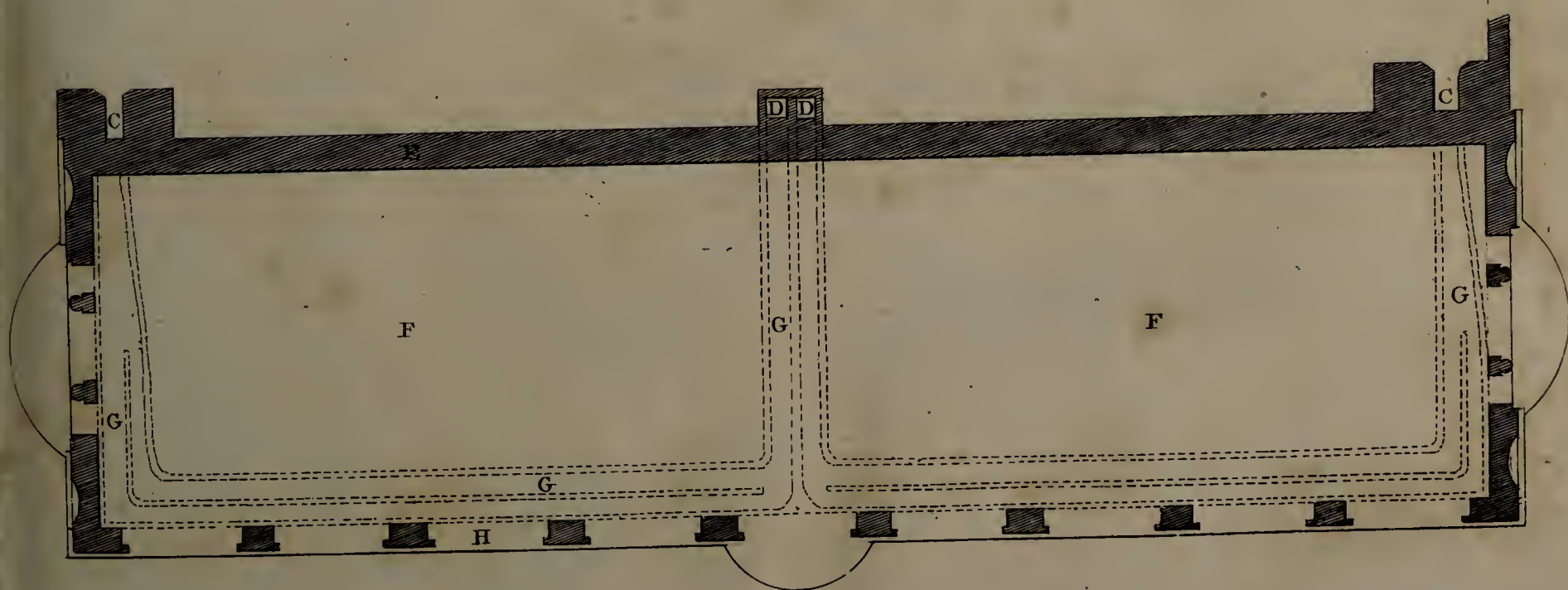
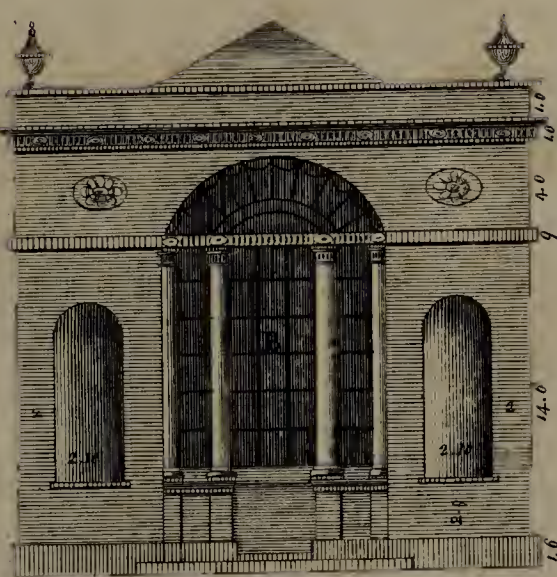
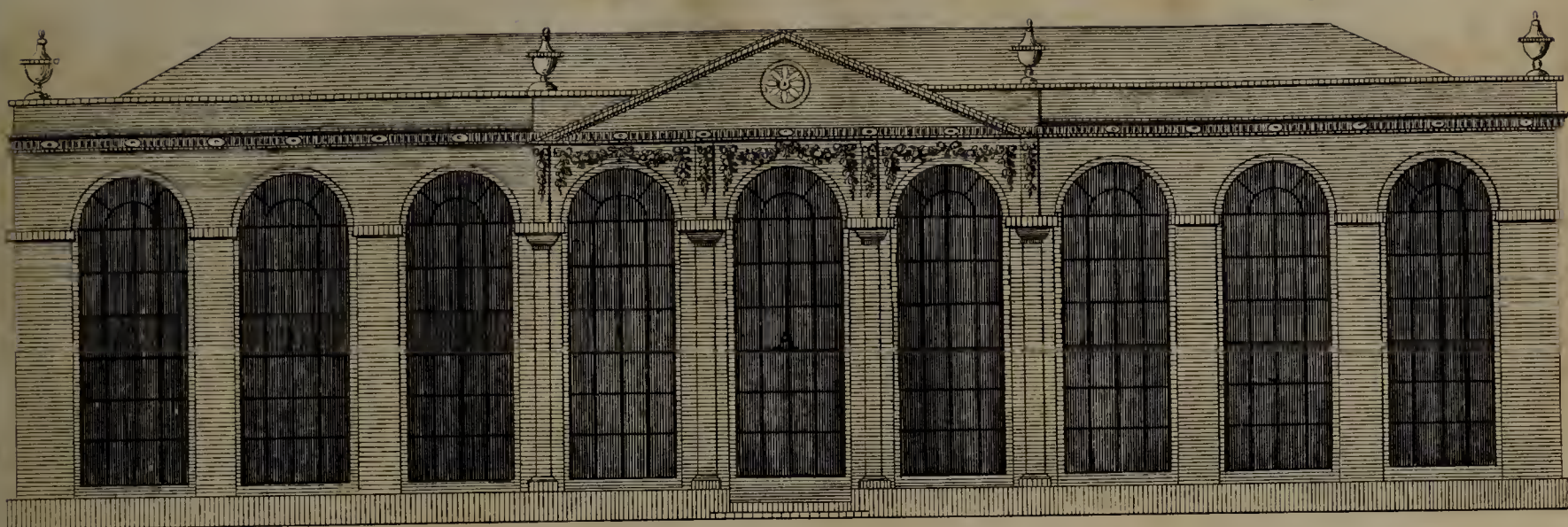
PLATE 7.



PERICARP or FRUIT.

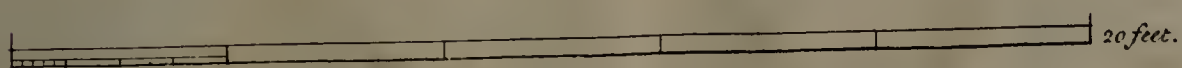
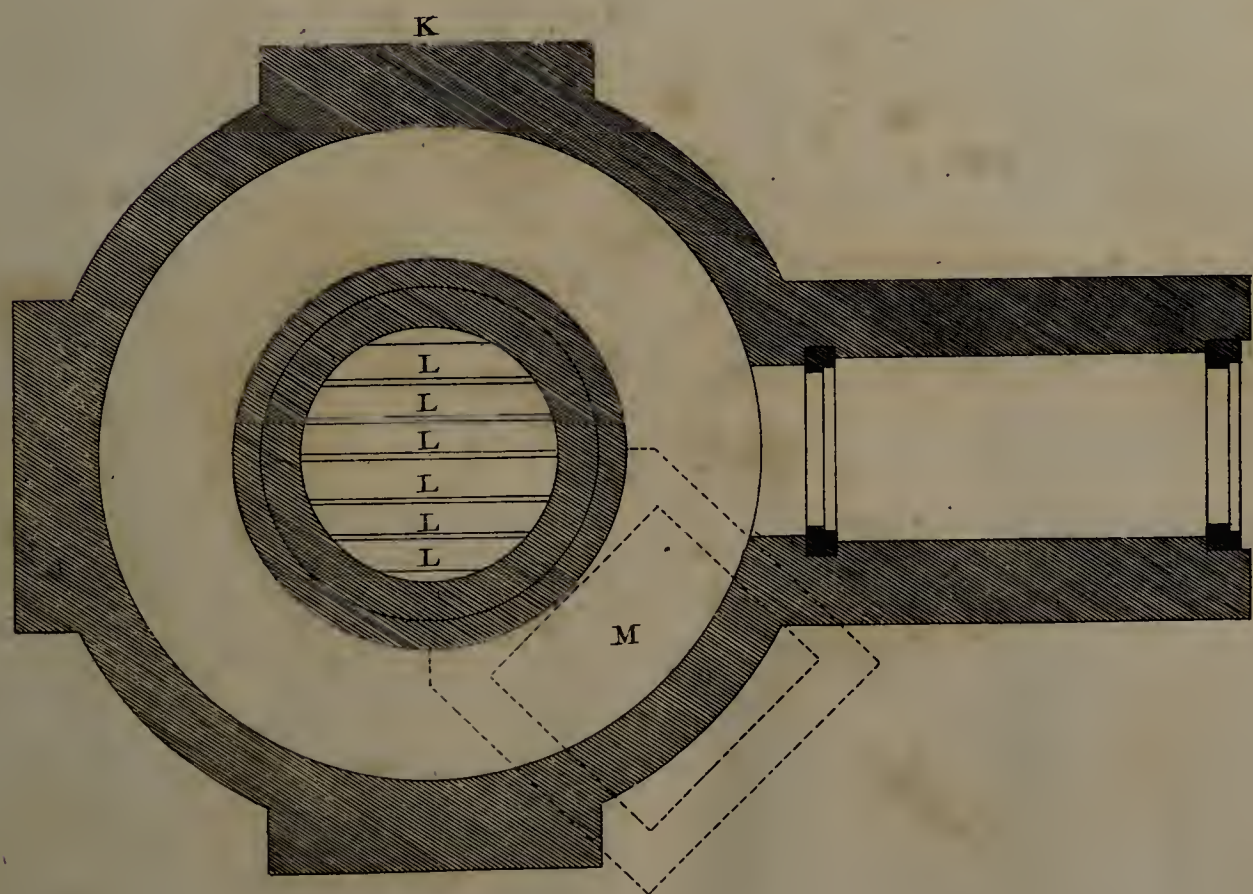
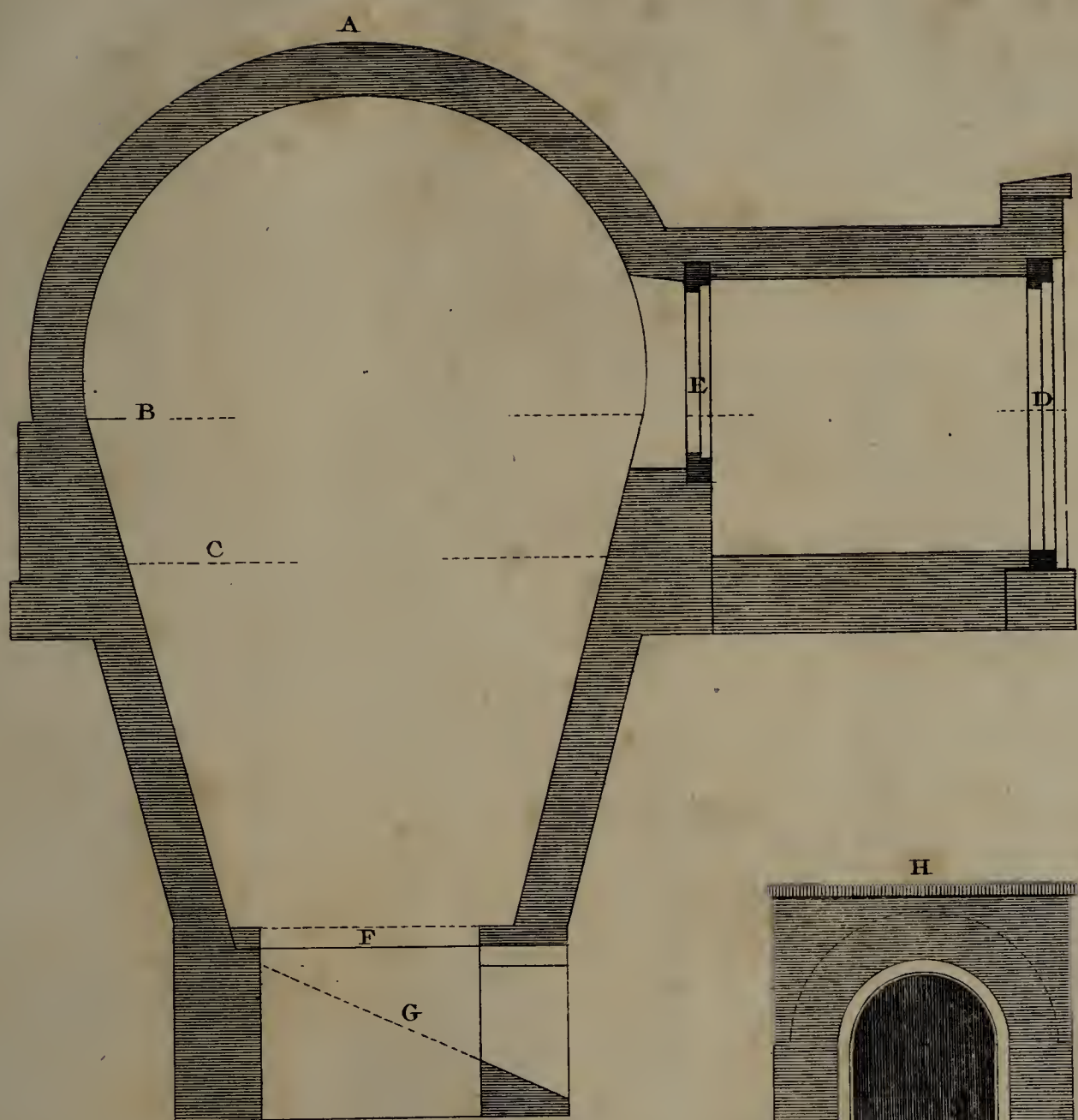




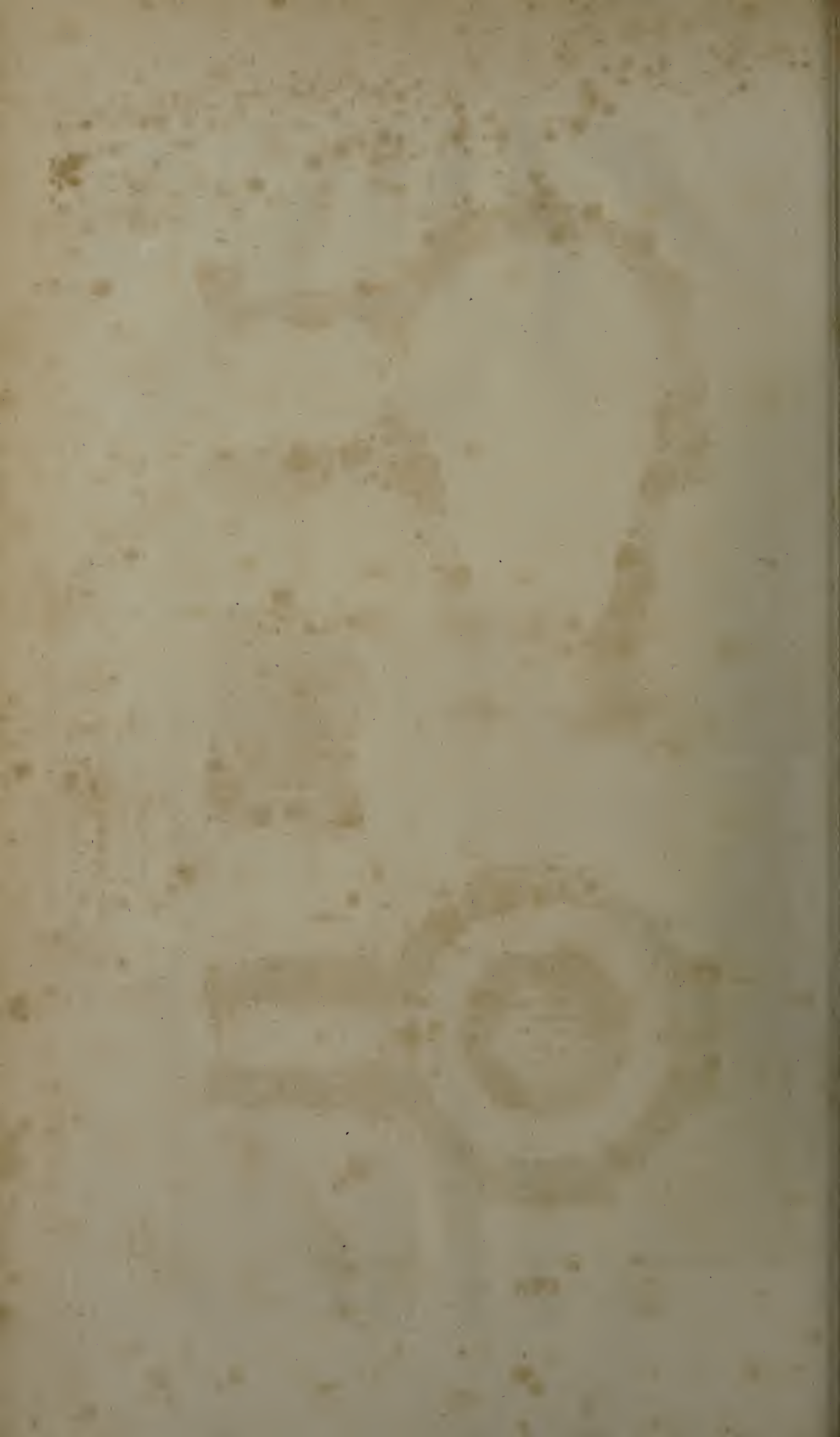


140 feet

PLAN and ELEVATION of a GREENHOUSE.
 Published as the Act directs, Feb 7. 27. 1796, by J. & C. Rivington, St. Paul's Church Yard.



PLAN and SECTION of an ICE-HOUSE.
 Published as the Act directs. May 7, 1796, by W. C. Rivington, St. Paul's Church Yard.



Elevation of a Vinery



End 2 Section

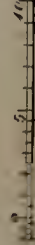


Ground Plan

Sheds for Attornils



Scale of Feet



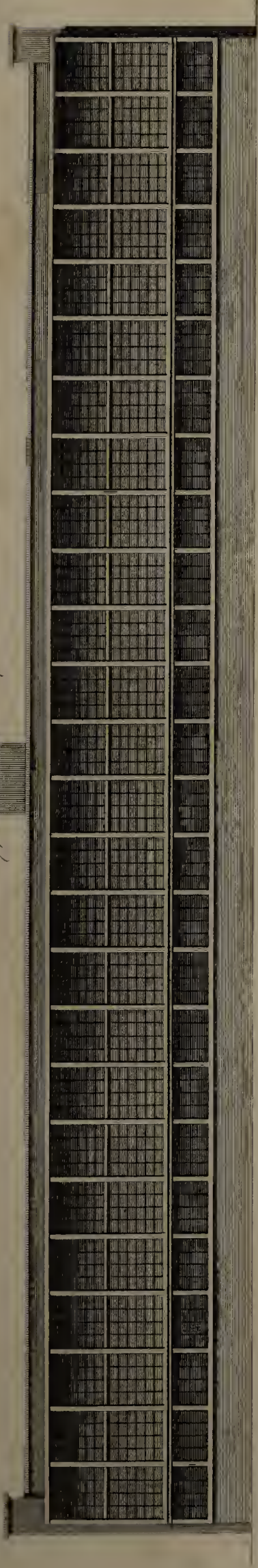
Designed by Wm. Jacob Maitland.

Engraved by Wilson Lowry

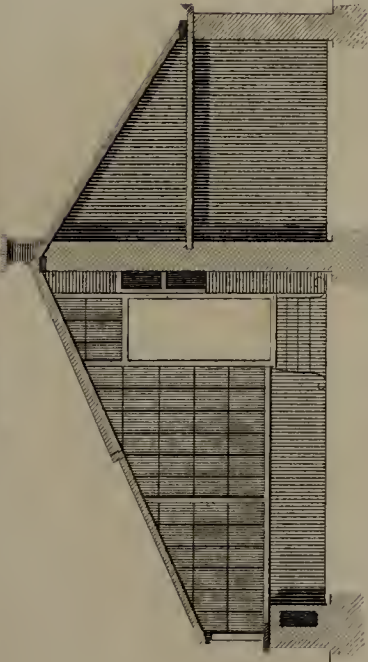
Published as the Act directs January 4th 1798. by C & F Rivington, St Pauls Church Yard.



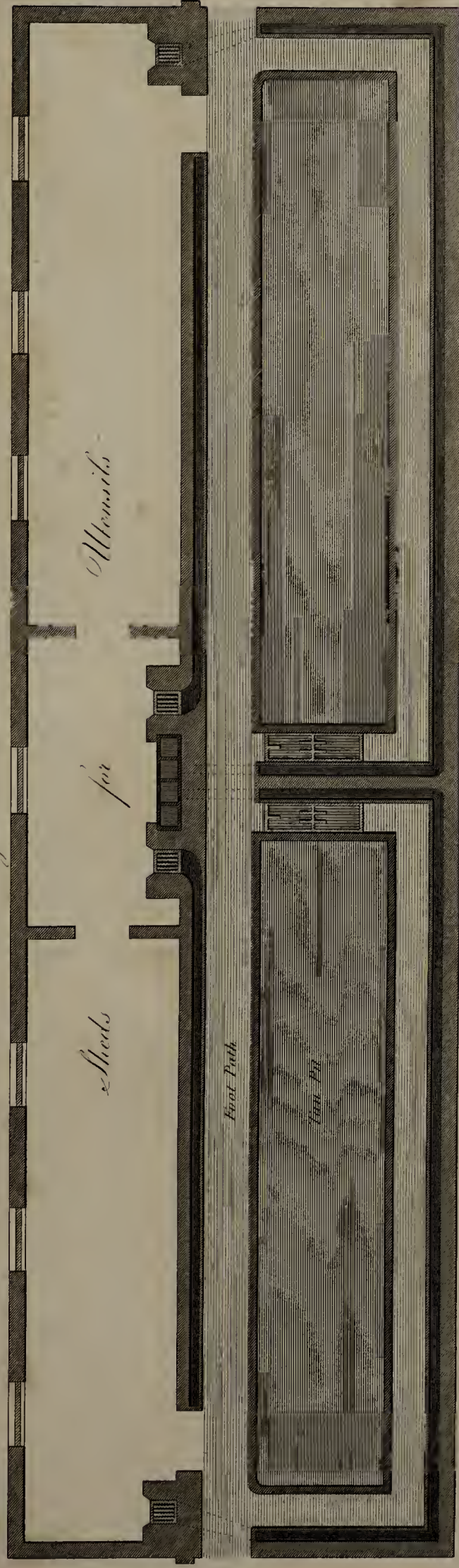
Elevation of a Trailing and Suspension Bow House



End Section



Ground Plan



Sheds

for

Altars

Foot Path

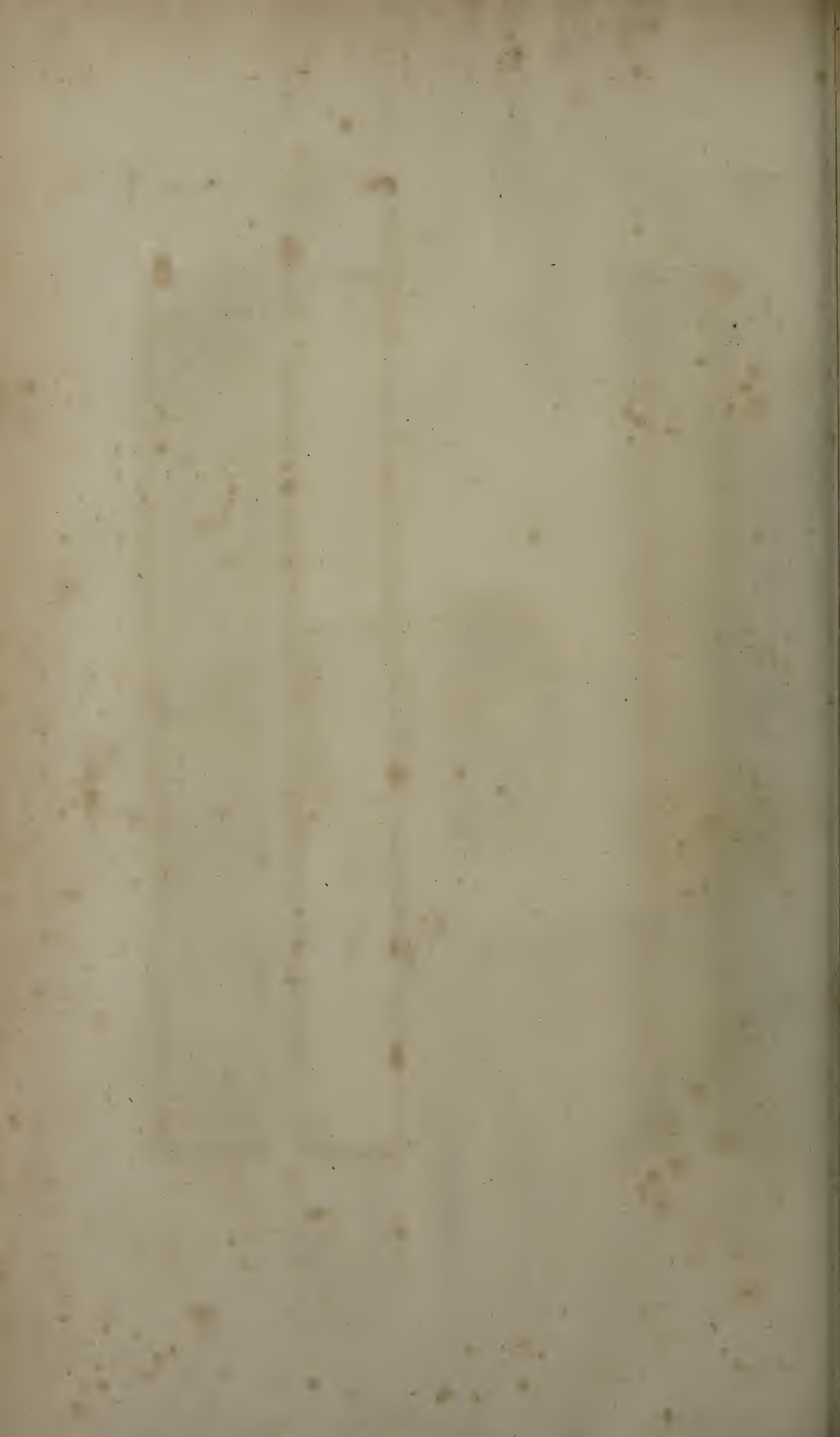
Foot Path

Scale of Feet

Designed by Wm. Jacob Madsen

Published as the 1st. Series October 1897 by F. and C. Livingston St. Pauls Church Fund

Engraved by Hudson Lowry



CORRECTIONS AND ADDITIONS.

Acanthus 8. For 195 read 295.
 After Agallocha—add, *Agallochum*, see *Aquilaria*.
 To Agrostis—add, *Agrostis coccinea*. Symes *Ava*, 479.
 After Aloe—add, *Aloexylum*, see *Aquilaria*.
 Amomum. After *Gærtn. t. 12.*—add, Clafs. 1. 1. Monandria
 Monogynia.
 Anthemis maritima. After Montpellier—add, and England.
 Asperula calabrica. Add *Pavetta foetidissima*. *Cyrilli*.
 Athanasia *n. 14* and *n. 18.* have the same trivial name, but are
 different species.
 Bauhinia. Add *Bauhinia dyphylla*. Symes *Ava*, 476.
 Carex Cyperoides, *n. 6.* repeated in *n. 54.*
 After Ceanothus, add, *Ceanothus arboreus* see *Rhamnus*.
 After Chærophyllosum—add, *Chætocarpus* see *Labatia*.
 Chelone. Pentstemon. *Dele Digitalis Mor. hist.*—and, For *P.*
lævigata read *Pentstemon pubescens*. *Hort. kew. 2. 360.*
 Cistus marifolius—add—*Berk. outl. ed. 1. vol. 2. 150. Engl.*
bot. t. 396. Smith brit. 572. Westmoreland, Cumberland
and Carnarvonshire.
 After Codon—add, *Codonium* see *Schoepfia*.
 For *Covallaria (n. 2.)* read *Convallaria*.
 Crinum tenellum (*n. 4.*) See *Leucoium strumosum*.
 Dracontium 5 read 3.
 Epidendrum—add, *E. moschatum*. Symes *Ava*, 478.—At the
 end of the description of *n. 121.* add a reference to
 Thunberg—at the head of the next description add 122—
 for 122 read 123—and, for 123 read 124.
 Erodium, Eroteum, Ervum. See these articles at the end of
 Letter E.
 Erysimum: For Clafs 14. read Clafs 15.

Ervum folonienfe. See *Vicia lathyroides*.
 Galaxia. For *κυκλφ* read *κυκλος*.
 Ginkgo. See *Salisburia*.
 For *Glycine caribæa* read *G. caribæa*.
 Grafs *col. 3. par. 2.* at the end—for LAND read MEADOW.
 After *Guilandinoides*—add, *Guinea-grafs* see *Panicum*.
 After *IXIA* see *Dilatris*, *Gladiolus*—add *Moræa*.
 For *Laurus foeteus* read *Laurus foetens*.
 Ledum latifolium. For Labrador Tree read Labrador Tea Tree.
 For *Lobelia Columnæ* read *Lobelia Columnæ*.
 Mentha—after *Juss. 113. insert Clafs. 14. 1. Didynamia Gym-*
nospermia.
 Mesembryanthemum 68. *a.* for requires read acquires.
 After *Moræa* see *Aristea*—add, *Sisyrinchium*.
 Napæa lævis. For *Malva* read *Althæa*.
 After NERIUM see *Echites*, &c.—add *Tabernæmontana*.
 Orchis 11. numbered twice, and thence the numbers proceed
 wrong.
 For *Orobus 6* read 5.
 For PANACRATIUM read PANCRATIUM.
 In *Pafferina ciliata* *dele* *Sanamunda 1. Cluf. hist. 1. 88.*
 Phlox. 8. descr. for 1788 read 1768.
 Poa brizoides (*n. 68.*) read *Poa brizoides*.
 Polygala mexta (*n. 28.*) read *Polygala mixta*.
 Rhododendrum maximum: for *Mill. fig. t. 229.* read 228.
 Sambucus, descr. for the second *n. 3.* read 4.
 After *Sebestena*—add, *Sebifera* see *Tomex*.
 Smithia sensitiva—after 496. add *t. 13.*
 For *Solanum racemosum* read *S. racemosum*.
 Turnera Pumilea—leaves uniglandular.

T H E

GARDENER'S AND BOTANIST'S

DICTIONARY.

A B R

ABELE-TREE. See *Populus*.
 ABELMOSCHUS. See *Hibiscus*.
 ABIES. See *Pinus*.
 [ABLANIA. See *Trichocarpus*.]
ABRŌMA (α and β $\rho\omega\mu\alpha$, no food, not fit for food. In opposition to *Theobroma*, with which it ranks in the system.)
Lin. gen. edit. Schreb. n. 1217. Jacqu. hort. 3. t. 1. Gertn. t. 64. Juss. 276.
Ambroma Lin. suppl. 54.
Class. 18. 2. Polyadelphia Dodecandria.
Nat. order of Columniferæ. Malvaceæ Juss.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved: leaflets lanceolate, acute, spreading, permanent.

COR. *Petals* five, larger than the calyx: claws obovate, arched, concave, obtuse, hairy at the end, erect, inserted at the base into the nectary: borders oval, obtuse, spreading, ciliate, contracted at the base into very short, ciliate, recurved little claws, on which the principal claws are placed.

Nectary, short, small, pitcher-shaped, divided into five segments, which are obcordate, hairy, erect, recurved and arched, alternate with the claws of the petals.

STAM. *Filaments* five, membranaceous, very small, growing on the nectary between the segments, emarginate-trifid. *Anthers* on each filament three, twin, kidney-form.

PIST. *Germ* subcylindrical. *Styles* five, subulate, approximating. *Stigmas* acute.

PER. *Capsule* ovate, membranaceous, veined, five-winged, five-beaked, five-celled, gaping at top into five parts between the beaks: *partitions* folded.

SEEDS very many, subovate, within an oblique membranaceous aril, fixed in a double row to the central edge of the partitions, which is thickened and longitudinally bearded. *Receptacle of the seeds* none.

ESSENTIAL CHARACTER.

Pistils five. *Capsule* five-celled, one-valved, gaping at top. *Seeds* subovate, incompletely arilled.

A B R

SPECIES:

1. *Abroma augusta*. *Maple-leaved Abroma*.
Lin. syst. 696.
A. fastuosum. Jacqu. hort. 3. t. 1. Gertn. fruct. 307.
Ambroma augusta. Lin. suppl. 341. Ait. hort. kew. 3. 99.
Theobroma augusta. Lin. syst. ed. 13. 580. Mill. illustr.
Althæa Luzonis peregrina altera. Camel. luz. 12. n. 23. in Ray hist. 3. app. Petiv. gaz. t. 102. f. 8. Leaves cordate, or angular, sharply serrulate.
2. *Abroma Wheleri*. *Wheler's Abroma*.
Retz. obs. 5. n. 72.
Leaves ovate-lanceolate acuminate slightly toothed.

DESCRIPTIONS, &c.

1. *Maple-leaved Abroma* is a tree, with a straight trunk, yielding a gum when cut, and filled with a white pith, like the Elder. Some of the leaves are heart-shaped and acuminate; others, especially almost all of the first year, are angular, and have five or seven lobes, which are acute, and the anterior ones most produced; they are all veined, alternate, green on both sides, but paler underneath, and the petioles are round. The whole plant is covered with stiff, whitish, shining, decumbent bristles, scarcely visible to the naked eye, easily separating, and sticking to the hands, but harmless. The peduncles are generally bifid, and bear two flowers. There is one stipule on each side to every petiole; but four at the division of the peduncles, lanceolate and acute. The flower nods, is elegant, but has little smell. The corolla is of a dark purple. The time of flowering is from June to October. In September and October the fruit ripens; and the peduncle is erect*.

It is a native of New South-Wales and the Philippine islands; and was introduced here about 1770†.

* Jacquin.

† Hort. kew.

2. The second is a shrub with a brown bark; the extreme branches tomentose. Leaves alternate, some having a few teeth about the edge, others entire; the nerves are tomentose. Peduncles opposite to the leaves, having one joint, curved back and woody when bearing fruit: they have an involucre consisting of several lanceolate, deciduous leaflets. The flowers are of a dusky purple colour. Nectary bearded on each side with parallel hairs; the inner one consisting of obcordate scales. Anthers in threes, sitting in the sinuses between the divisions or scales of the inner nectary. Capsule large, with five membranaceous valves. Receptacle five-parted, bearded, fastened to the sutures of the valves. Seeds ovate, dark coloured, scabrous with raised points. Native of the East-Indies, where it was observed by Koenig*, who gave it the trivial name in compliment to Edward Wheler, Esq. Member of the Supreme Council in Bengal.

PROPAGATION AND CULTURE.

The first sort requires the protection of a hot-house; and is propagated here by cuttings. The seeds will not easily ripen with us, and seldom arrive in a state fit for vegetation, unless great care be taken of them. The plant requires a strong heat and abundance of water. The second is not known in Europe.]

ABROTANOIDES. See *Artemisia*, *Protea*, and *Seriphium*.

ABROTANUM. See *Artemisia*, *Eriocephalus*, *Santolina*, and *Tanacetum*.

ABRUS (*Ἀβρός*, soft, delicate; from the extreme tenderness of the leaves. Hence Prior has invented the name of *Abra* for Solomon's favourite mistress.) *Lin. gen. Reich. n. 924. Schreb. n. 1162. Juss. 357. Gært. 151.*

Class. 17. 4. Diadelphia Decandria.

Nat. order of *Leguminosæ*.

GENERIC CHARACTER.

CAL. Perianth one-leaved, bell-shaped, obscurely four-lobed: teeth blunt, the upper one broader than the rest.

COR. Papilionaceous. Banner roundish, entire, ascending, flattened at the sides, longer than the wings and keel. Wings oblong, blunt. Keel oblong, sickle-shaped, gibbous, longer than the wings.

STAM. Filaments nine, united into a sheath, cloven above, free at the end, unequal, rising. Anthers oblong, erect.

PIST. Germ cylindrical, hairy. Style subulate, rising, shorter than the stamens. Stigma in form of a head, and small.

PER. Legume like a rhomb, compressed, coriaceous, bivalved, four or five-celled, acuminate, with a little, subulate, deflex claw.

SEEDS solitary subglobose.

ESSENTIAL CHARACTER.

Cal. obscurely four-lobed: the upper lobe broadest. Filaments nine, united into a sheath at bottom, gaping at the back. Stigma blunt. Seeds subglobose.

SPECIES.

1. *Abrus precatorius*. *Jamaica Wild Liquorice*.

Lin. syst. p. 641. Reich. 3. 393. Loureiro cochinch. 428. Gært. fruct. 2. 328.

Glycine Abrus. Lin. spec. 1025. Mill. dict. n. 3. Brown. jam. 297. 1.

Abrus Rumph. amb. 5. p. 57. t. 32.

Konni Rheed. malab. 8. p. 71. t. 39.

Phaseolus Sloan. jam. 1. p. 180. t. 112. f. 4, 5, 6. Pluk. alm. t. 214. f. 5, 6.

Ph. ruber, Abrus vocatus. Alp. egypt. t. 32, and 76. t. 77.

Orob. americanus, fructu coccineo, nigra macula notato. Tourn. inst. 393.

DESCRIPTION, &c.

The *Abrus* grows naturally in both Indies, Guinea and Egypt. [It was also found by the late circum-navigators in the Society islands, about the year 1769.] This is a perennial plant, with slender

shrubby, twining, branching stalks, by which it will rise to the height of eight or ten feet. The leaves are pinnate, ending abruptly, and have from twelve to sixteen pairs of small, smooth, oblong, blunt leaflets, set close together; these have the taste of liquorice, whence the inhabitants of the West-Indies have given it the name of Wild Liquorice, and they use the herb for the same purpose as we do the liquorice in Europe. The flowers are produced from the side of the stalks in short spikes or bunches; they are of a pale purple colour, and shaped like those of the kidney-bean; these are succeeded by short smooth pods, each containing three or four hard seeds, very smooth, of a glowing scarlet colour, with a black spot or eye on that side which is fastened to the pod.

[The legume or pod is, sometimes of an oblong form, and contains six seeds, scarce apparently divided by a membrane, which indeed frequently disappears as the pods ripen*.]

There are two varieties, one with a white, and the other with a yellow seed; but these do not differ from the former in leaf or stalk.

The seeds of this plant are commonly strung, and worn as ornaments by the natives of those countries where the plant grows wild: they are frequently brought to Europe from Guinea, and the East and West-Indies, and wrought into various forms with other hard seeds, and shells. [A few years since an attempt was made, both at London and Paris, to introduce them into ear-rings and other female ornaments, but without much success. This, like most others, was only the revival of a fashion which prevailed for a short time in Holland, at the latter end of the last century. In their native countries they are commonly used for weighing precious commodities; they are also strung as beads for rosaries; whence the trivial name of *precatorius*. They are frequently thrown, with other West-Indian seeds on the north-west coast of Scotland. Linneus affirms that they are extremely deleterious. I cannot find any authority for an assertion very improbable in itself, if we consider the nature of legumes in general. They are eaten in Egypt; but authors agree that they are the hardest and most indigestible of the pulse tribe, occasioning violent flatulencies in the bowels. *Abrus* was accounted a species of *Glycine*, until Linneus made it a separate genus in the twelfth edition of his *Systema Vegetabilium*, on account of a difference in its stature and appearance from the other species. The *Abrus* was cultivated before 1680, by Bishop Compton, at Fulham†.]

PROPAGATION AND CULTURE.

This plant is propagated by seeds, which must be sown upon a good hot-bed in the spring; but as the seeds are very hard, unless they are soaked in water twelve or fourteen hours before they are sown, they frequently lie in the ground a whole year before they vegetate; but when soaked, the plants will appear in a fortnight, if the seeds be good, and the bed in a proper temperature of heat. When the plants are two inches high, they should be transplanted each into a separate pot, filled with light earth, and plunged into a hot-bed of tanner's bark, where they should be shaded from the sun until they have taken new root; after which they must be treated in the same manner as other tender plants from the same countries, always keeping them in the bark stove. They will flower the second year, and sometimes ripen their seeds in England.

ABSINTHIUM. See *Artemisia*, *Achillea*, *Anthemis*, *Parthenium*, *Senecio*, *Tanacetum*.

ABSUS. See *Cassia*.

ABUTILON. See *Hibiscus*, *Melochia*, *Malva*, *Napæa*, *Sida*.

ACACIA. See *Guilandina*, *Guaicum*, *Mimosa*, *Poinciana*, *Spartium*.

ACACIA, false. See *Robinia*.

ACACIA, three-thorned. See *Gleditsia*.

* Retz, obs.

* Gærtner.

† Hort. kew.

[ACÆNA. (*Ακαινα*, a thorn.)

Lin. Gen. Reich. n. 173. Schreb. n. 218. Juss. 336.

Class. 4. 1. Tetrandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth four-leaved: leaflets ovate, concave, equal, permanent.

COR. none, unless the calyx be termed as such.

STAM. Filaments equal, of middle length, opposite to the calyx. Anthers quadrangular, twin, erect.

PIST. Germ inferior, obovate, hispid. Style very small, bent in on one side. Stigma a small, many-cleft, thickish, coloured membrane.

PER. a dry, obovate, one-celled berry, beset with spines bent backwards.

SEED single.

OBS. According to the Systema, the corolla is four-petalled: and if the two bractes under the germ be taken for the calyx, then the calyx may be considered as the corolla.

ESSENTIAL CHARACTER.

Cal. four-leaved. Cor. four-petalled. Berry dry, inferior, one-seeded, with spines bent backwards.

SPECIES.

1. *Acæna elongata.*

Lin. mant. 200. Juss. p. 165. Reich. 1. 345.

DESCRIPTION.

Acæna is a Mexican plant. Perennial, woody, very branching; branches very long. Stems many, shrubby, rather erect, two feet high. Leaves pinnate, scattered, sheathing; leaflets sessile, approximating, pubescent underneath: the first pairs very small, linear, acute, quite entire; from four to eight large pairs, oblong, serrate; the serratures bearded at the end. Spikes axillary, ancipital, erect, a little rigid, six or seven inches long. Bractes ovate-oblong, concave, so near the calyx as easily to be taken for a part of it. Flowers subsessile, alternate*.

ACAJOÜ and ACAJUBA. See *Anacardium*.]

ACALYPHA. (*Ακαλήφη* Theophr. and Dioscor. *παρά τὸ μὴ ἔχειν καλὴν ἀφὴν*: not being pleasant to handle.)

Roy. Lin. gen. 1082. Reich. 1180. Schreb. 1461.

Gærtn. t. 107. Juss. 390.

Ricinocarpos (Tick-fruit) Boerh. and Burm.

Class. 21. 8. Monoecia Monadelphia.

Nat. order of *Tricoccæ*. *Euphorbiæ* Juss.

GENERIC CHARACTER.

* Male flowers crowded above the females.

CAL. Perianth three or four-leaved: leaflets roundish, concave, equal.

COR. none.

STAM. Filaments eight to sixteen, short, crowded, connected at the base. Anthers roundish.

* Female flowers fewer, below the others, received into a large divided involucre.

CAL. Perianth three-leaved: leaflets subovate, concave, converging, small, permanent.

COR. none.

PIST. Germ roundish. Styles three: branching, usually three-parted, long. Stigmas simple.

PER. Capsule roundish, three-furrowed, three-celled: the valves gaping two ways.

SEEDS solitary, roundish, very large.

ESSENTIAL CHARACTER.

MALE. Cal. three or four-leaved. Cor. none. Stam. eight to sixteen.

FEMALE. Cal. three-leaved. Cor. none. Styles three. Capsule three-grained, three-celled. Seed one.

SPECIES.

1. *Acalypha virginica.* *Virginian Acalypha.*

Lin. spec. 1423. Reich. 4. 182. Hort. upf. 290.

Fl. zeyl. n. 342. Gærtn. fruct. 2. 116.

Mercurialis tricoccos hermaphrodita. Pluk. phyt.

t. 99. f. 4. Herm. lugdb. t. 687.

Female involucre heart-shaped gashed: leaves ovate-lanceolate longer than the petiole.

2. *Acalypha virgata.* *Jamaica Acalypha.*

Lin. spec. 1423. Reich. 4. 182. Amæn. 5. 410.

A. humilior, &c. Brown. jam. 346. t. 36. f. 2.

Female spikes with involucre heart-shaped, serrate; male ones distinct, naked: leaves lanceolate-ovate.

3. *Acalypha indica.* *Indian Acalypha.*

Lin. spec. 1424. Reich. 4. 183. Fl. zeyl. n. 341.

Merc. zeylanica tric. cum acetabulis. Herm. lugdb.

t. 687. Raii hist. 1854. suppl. 107, 108.

Cupameni. Rheed mal. 10. p. 161. t. 81.

Female involucre heart-shaped slightly notched: leaves ovate shorter than the petiole.

4. *Acalypha villosa.* *Villous Acalypha.*

Lin. suppl. p. 422. Jacqu. amer. p. 254. hort. 3.

p. 26. t. 47.

Female involucre very small, toothed and extremely villous; spikes elongate: leaves ovate pointed serrate, longer than the petiole.

5. *Acalypha australis.* *South-American Acalypha.*

Lin. spec. 1424.

Ricinoides castaneæ folio. Plum. spec. 20.

Female involucre quite entire: leaves lanceolate obtuse.

Species from Swartz prodr. 99.

6. *Acalypha hernandifolia.*

Female spikes very long, involucre cordate serrate; males distinct naked: leaves subcordate serrate, on very long petioles.

7. *Acalypha corensis.*

Jacqu. amer. 254. t. 161.

Female flowers terminating distinct, involucre three-leaved; male spikes axillary, involucre: leaves ovate serrate.

8. *Acalypha lævigata.*

Female spikes with many-parted involucre; male spikes lax naked: leaves wedge-ovate acuminate serrulate very smooth.

9. *Acalypha elliptica.*

Female spikes with involucre shorter than the germs, ovate toothed hirsute; males naked lax: leaves elliptic acuminate toothed.

10. *Acalypha reptans.*

Urtica minor iners spicata, &c. Sloan. jam. 1. 125. t. 82. f. 3.

Spikes terminating erect, flowers mixed, females lower; involucre cordate serrate; males leafless: leaves ovate serrate: stem creeping.

11. *Acalypha tomentosa.*

Female spikes terminating solitary, involucre many-parted; males erect: leaves ovate-lanceolate serrate scabrous villous-tomentose underneath.

12. *Acalypha angustifolia.*

Female flowers subsessile terminating, involucre serrate; males in spikes: leaves linear serrate.

13. *Acalypha scabrosa.*

Female spikes with cordate gashed involucre: leaves oblong-lanceolate serrate scabrous.

14. *Acalypha betulæfolia.*

Female flowers axillary sessile, involucre cordate crenate; males in spikes: leaves roundish crenate smooth.]

DESCRIPTIONS, &c.

1. The first sort grows naturally in Virginia, and several other parts of North-America; also in Ceylon. It is an annual plant, seldom more than a foot high, sending out several side-branches towards the bottom: the leaves are very like those of broad-leaved Pellitory of the wall: the flowers are produced in small clusters in July and August: these make but a poor appearance, and resemble those of Pellitory so much, that they may easily be mistaken for them at a little distance. [Cultivated 1759, by Mr. Philip Miller*.]

2. The second is a native of the warmest countries, and grows plentifully in Jamaica. This is also an annual plant, which in England seldom exceeds the former in stature. The leaves greatly resemble those of the annual Nettle, and sting full as much when touched.

3. Discovered in great plenty by Dr. Houstoun, at La Vera Cruz. It is an inhabitant of marshy places, and grows about three feet high, with an herbaceous stalk: leaves alternate, differing much in their figure; some plants having them long and narrow, others broad like those of the Chestnut-tree,

* Mant. from Mutis's MSS.

* Hort. kew.

and deeply veined. These varieties arise from the seed of the same plant.

[Found also in the East-Indies upon dunghills, whence it has the name of *Kupamenija* (dung-loving.) It is annual. The stems are round, striated, branching, a foot high: at the joints are roundish smooth leaves, which are slightly notched, and resemble those of Mercury; whence, and from the tricoccous capsule, these plants are called by some *Three-seeded Mercury**.

A spike comes out from the axils with six, seven, or eight female flowers. The involucre is stem-clasping, each having one female flower, with male flowers terminating the spike †.

It was cultivated 1759, by Mr. Philip Miller, and flowers in July ‡.

4. Found by Mutis in the woods about Carthage, where it flowers from May to August. It is an erect branching shrub, often fifteen feet high. The flowers are very small, in axillary spikes, those of different sexes on distinct branches: the male spike close, cylindric, erect: the female very loose; calyx five-leaved; three styles; each bifid to the base §.

5. Is a native of South America.

6. &c. Are all natives of the West-Indies. 11 and 12 are found in Hispaniola. 10 is found both there and in Jamaica. 7 was discovered by Jacquin.

The rest are inhabitants of the island of Jamaica.

Some of these have probably been considered as varieties of the former sorts. The *tenth* is variety β of Linneus's *Acalypha indica*. It is thus described by *Sloane*. Root large. Stems several, final, procumbent. Leaves small, without order, petioled. Flowers purple, with little white ones intermingled, in a spike an inch in length. After these follow several tricoccous heads, from green becoming reddish, rough on the outside. In each of these are three roundish seeds, every one covered with a membrane.

The *seventh* is a shrub of six feet in height, upright, smooth and having runners. Leaves sharp, smooth, alternate, two or three inches long, on very short petioles. Spikes of male flowers loose, erect, solitary, an inch in length: involucre tubulous, one-leaved, entire, usually putting forth four one-flowered peduncles successively. Calyx of the flowers, or proper involucre three-leaved; filaments usually eight. Female flowers three or four, disposed raceme-wise on a terminating, very short, thick, common peduncle; without any common involucre. Perianth five-leaved. Styles three, bifid, permanent. Seeds angular.

Native of Domingo and Martinico; but most frequent on the confines of woods in Venezuela ||.

The *fourteenth* is a shrub having very much the appearance of *Betula mana*. The leaves are about half an inch in length, and some of them almost as broad.

Retzius has a species which he names *Acalypha betulina*, found by Koenig in Ceylon, and planted in India for medical purposes. It is *Cauda felis agrestis* of *Rumph. amb.* 4. 84. t. 37. The leaves of this are larger than those of the common Birch, two inches long, and an inch and half broad, acuminate and deeply serrate, whereas those of the former are only slightly crenate. They are placed on petioles from half an inch to an inch in length; which in the *betula folia* of Swartz are very short.

Retzius's specific character is this — *Shrubby; female involucre cordate crenate; leaves ovate acute serrate*. It grows to the height of a man; the branches are round, with a brown bark inclining to ash-colour. The aments axillary and tomentose; the involucre, where there is any, embraces the rachis; and within this are two or three tomentose female flowers, having three long styles, which are many-parted, not three-parted; and several male

flowers above the females. It has an aromatic odour*.]

PROPAGATION AND CULTURE.

These plants have no beauty to recommend them, and are preserved only in some botanic gardens for the sake of variety.

1. If the seeds are permitted to scatter, the plants will come up in the spring, better than if sown by hand; and if they are not put into the ground in autumn, they rarely grow the first year. All the culture this plant requires, is to keep it clear from weeds, and to let it remain where it was sown, for it does not bear removing well. It flowers in August, and the seeds ripen in October.

2. Is too tender to thrive in the open air in England, therefore the seeds should be sown in pots, plunged into a hot-bed; and if the plants do not come up the first year, which often happens, the pots should be put under shelter in winter, and the following spring plunged again into a hot-bed, which will bring up the plants: these must be transplanted into other pots, and brought forward in hot-beds, otherwise they will not produce ripe seeds.

[3. May be treated like the second: in a stove it will flower, and in September perfect the seeds.

4, 5, &c. Have not yet been introduced, but will require the same treatment with the second and third.

ACANGA. See *Bromelia*.

ACANOS. }

ACANTHUM. } See *Onopordum*.

ACANTHOIDES. See *Carlina*.

ACANTHUS. (*Axantha*, a thorn.)

Tournef. 80. *Lin. gen. n.* 793. *Reich.* 857. *Schreb.* 1065. *Gartn. t.* 54. *Juss.* 103.

Class. 14. 2. Didynamia Angiospermia.

Natural order of *Personate*. *Acanthi* Juss.

GENERIC CHARACTER.

CAL. Perianth with leaflets in three alternate pairs, unequal, permanent.

COR. one-petalled unequal: tube very short, closed with a beard: upper lip none: under lip very large, flat, straight, very broad, three-lobed, obtuse, the length of the upper lip of the calyx.

STAM. Filaments four, subulate, shorter than the corolla, the two upper rather longer, recurved, incurved at the top. Anthers oblong, compressed, obtuse, the lateral ones parallel, villous before.

PIST. Germ conical. Style filiform, length of the stamens. Stigmas two, acute, lateral.

PER. Capsule subovate with a point, two-celled, two-valved; with a contrary partition: claws alternate, curved, fastened to the partition.

SEED ovate, gibbous, single; sometimes two.

ESSENTIAL CHARACTER.

Cal. two-leaved, bifid. Cor. one-lipped, bent down, trifid. Caps. two-celled.

SPECIES.

1. *Acanthus mollis*. Smooth *Acanthus*.

Lin. spec. 891. *Reich.* 3. 202. *hort. cliff.* 326. *ups.* 181. *mat. med. n.* 346. *Gartn. fruct.* 253. *Sabb. hort.* 3. t. 13.

A. fativus. *Bauh. pin.* 383. *Ger.* 986. *emac.* 1147. f. 1. *Park. parad. t.* 331. f. 1. *Raii hist.* 1326.

Acanthus. *Riv. mon. t.* 87.

A. Branca urfina. *Blackw. herb. t.* 89.

Carduus Acanthus s. *Branca urfi*. *Bauh. hist.* 3. p. 75.

β. *A. nigra*. *Portuguese Acanthus*. *Mill. dict. n.* 2.

A. lusitanicus. *Mill. dict. edit. qu. n.* 2.

γ. *A. rarioribus* & *brevioribus aculeis munitus*. *Tournef. inst.* 176. *Mill. fig. t.* 7.

Leaves sinuate unarmed.

[2. *Acanthus carduifolius*. Thistle-leaved *Acanthus*.

Lin. suppl. p. 294. *syft. p.* 580.

Leaves sinuous-toothed thorny, spike of flowers radical.]

* Ray. † Lin. zeyl. ‡ Hort. kew. § Jacquin.
|| Jacqu. amer.

* Retz. obs. 5. 30. n. 85.

3. *Acanthus spinosus*. *Prickly Acanthus*.
Lin. spec. 891. *Reich.* 3. 202. *hort. cliff.* 326.
Sabb. hort. rom. 3. t. 14.
A. filvestris. *Park. parad. t.* 331. f. 2. *Ger. emac.* 1147. f. 2.
A. aculeatus. *Baub. pin.* 383. *Rail. hist.* 1326.
Leaves pinnatifid thorny.
4. *Acanthus Dioscoridis*. *Acanthus of Dioscorides*.
Lin. spec. 891. *Reich.* 3. 202. *Rauw. itin.* 285.
Gron. orient. n. 192. *Mor. hist.* 3. 604. *Rail suppl.* 636.
Leaves lanceolate quite entire, thorny on the margin.
5. *Acanthus ilicifolius*. *Holly-leaved Acanthus*.
Lin. spec. 892. *Reich.* 3. 203. *Lour. cochinch.* 375.
A. malabaricus agrifolii folio. *Pet. gaz.* t. 94. f. 15.
Aquifolium indicum. *Rumph. amb.* 6. p. 163. t. 71.
Paina-schulli. *Rheed. mal.* 2. p. 93. t. 48. *Rail hist.* 1766. *Pluk. phyt.* t. 261. f. 4.
Leaves repand tooth-thorny, stem shrubby prickly.
- [6. *Acanthus integrifolius*. *Entire-leaved Acanthus*.
Lin. suppl. p. 294. *syft.* 580.
Leaves oblong entire, stem herbaceous procumbent.
7. *Acanthus procumbens*. *Procumbent Acanthus*.
Lin. suppl. p. 294. *syft.* 580.
Leaves oblong serrate and ciliate, stem procumbent shrubby.
8. *Acanthus furcatus*. *Forked Acanthus*.
Lin. suppl. p. 195. *syft.* 580.
Leaves oblong tooth-thorny, stem shrubby, bractes terminated by a three-forked thorn.
9. *Acanthus capensis*. *Cape Acanthus*.
Lin. suppl. p. 295. *syft.* 580.
Leaves oblong toothed thorny, stem shrubby erect, bractes terminated by a simple thorn.
10. *Acanthus maderaspatensis*. *Madras Acanthus*.
Lin. spec. 892. *syft.* 580. *Reich.* 3. 203.
A. ciliaris. *Burm. ind.* 139. t. 42. f. 2.
Melampyro affinis tetraphylla, &c. *Pluk. phyt.* t. 99. f. 3.
Leaves fourfold, flowers axillary, calyxes ciliate.

DESCRIPTIONS, &c.

The plants of this genus are generally large, with a single herbaceous stalk, and great pinnatifid leaves. The flowers are produced in terminating spikes. Some of the species are shrubby and thorny; with undivided leaves, toothed, and having a thorn at the end of the teeth.

1. *Smooth Acanthus* has the stem from two to three feet in height. The leaves oblong, smooth on both sides and shining, from a span to a foot in length, divided deeply into opposite ovate lobes, which are bluntly toothed and finely ciliate about the edges: they are placed on roundish petioles, with a flat channel running along the upper surface. Though the leaves are said to be smooth, yet they are not without white bristles on both sides, especially along the nerves. The flowers are white, and come out from about the middle to the top of the stalk.

This is the species which is used in medicine, under the name of *Branca ursina*. The roots and leaves abound with a mucilage, which is readily extracted by boiling or infusion. The roots are the most mucilaginous. Where this plant is common, they employ it for the same purposes to which *Althæa* or Marsh-mallow, and other vegetables possessing similar qualities are applied among us*.

Heracleum Sphondylium or Cow-parfneep, a plant with properties very different from this, is said to be substituted for it in foreign countries†. With us there is very little danger of this mistake being made, for *Brankursine* is seldom if ever used medicinally in England.

Virgil has two very different plants with the name of *Acanthus*. One a tree described by Theophrastus, under the name of *Ακανθος*, which is undoubtedly the Egyptian Acacia, or *Mimosa nilotica* of Linneus, and produces the Gum Arabic: this is mentioned in the fourth Eclogue and second Georgick. The other a garden herb, described by Dioscorides under

the name of *Ακανθα* or *Ερπικανθα*; which is commonly supposed to be this plant, though Linneus takes it to be the fourth species. Virgil adorns the handles of Alcimedon's cups with it, in the third Eclogue; and places it in the Corycian's garden, in the fourth Georgick*.]

The leaves found accidentally growing round a basket covered with a tile, gave occasion to Callimachus to invent the Corinthian capital.

It is native of Italy about Naples, of Sicily, [Provence, and the islands of the Archipelago.

This species was cultivated in Sion garden, so long since as the year 1551†.

β. The second species of Miller is nothing more than a variety of this,] with the leaves much larger, and less jagged, the segments more pointed, and the upper surface lucid. It was discovered by Bernard de Jussieu in Portugal, and called by him *Acanthus lusitanicus amplissimo folio lucido*. He sent the seeds to Mr. Miller in 1725, and they constantly produced the same plants as the parent, in Chelsea garden.

[γ. Mr. Miller has given another variety in the seventh plate of his figures. The leaves of this are much jagged, and the incisures are terminated by soft inoffensive spines; they are a foot and half long, and about nine inches broad; with a petiole springing immediately from the root. The flower-stems are commonly three feet high, with flowers almost the whole length. These begin to come out in may, and continue to august.

Mr. Miller is of opinion that this is the *Acanthus* which gave occasion to the foliage in the capital of the Corinthian column.

This seems to be the same with the *Acanthus Dioscoridis* of Miller, in the quarto edition of his Dictionary. He was probably unacquainted with the genuine plant of Rauwolff.

2. The stem is extremely short. Many leaves proceed almost immediately from the root, resembling those of the Thistle; whence it derives the trivial name: the divisions terminate in a tomentose, or naked spine. The spike of flowers is oblong, of the same length with the leaves, or longer; and furnished with imbricate, nerved, stiff, six-spined bractes. The calyxes are thornless and membranaceous. Sparrmann found this at the Cape of Good Hope.‡]

3. *Prickly Acanthus* has the leaves deeply jagged, in very regular order, and each segment is terminated with a sharp spine; as are also the petioles, and the calyx of the flowers; so that this plant is troublesome to handle.

It grows wild in Italy and Provence; and flowers from July to September. [In 1629 it was cultivated in England§.

These plants were formerly called *Brank-ursine*, from the officinal name *Branca-ursi*; and also by the vulgar appellation of *Bear's-breech*, from the roughness of this species. But these have now become obsolete; and the softer, more classical name of *Acanthus* is generally adopted in English.

4. This, which Linneus supposes to be the genuine species of Dioscorides, grows naturally in the East, on Lebanon, &c. It rests at present entirely on the authority of Rauwolff, whose specimen Bobart had seen.]

5. *Holly-leaved Acanthus* is an ever-green Shrub, rising about four feet high, and dividing into many branches; with leaves very like those of the common Holly, both in size and shape; and armed with spines in the same manner. The flowers come out singly in an upright raceme at the end of the stalk; they are white, and shaped like those of the Common Acanthus, but smaller.

[The calyx consists of six imbricate leaflets, according to Linneus. *Lourcero* describes it as having an upright border, divided into four parts; the segments acute, and the two outer ones larger than the

* Professor John Martyn's notes on Virgil.

† Turner's herbal, in Hort. kew.

‡ Lin. supplement.

§ Parkinson in Hort. kew.

others. The corolla has the tube truncate in front, and extending backwards into an ovate, upright segment, which is slightly trifid. The stigma is simple; and there are two seeds. He observed it near Canton in China, differing from that of Cochinchina, in having two small, concave leaflets at the base of the calyx; and the truncate part of the corolla emarginate. Native of the East and West-Indies, and some of the islands in the South-Seas.

6—9. The sixth, seventh, eighth and ninth species are natives of the Cape of Good Hope.

The last of these has round, opposite, ash-coloured branches; opposite, sub lanceolate, sessile, stiff leaves, with two spines on each side, and one at the end; the axillary leaves are petioled, longer, softer, but thorny as well as the others. Spikes of flowers terminal, solitary and sessile: the bractes resemble the leaves, but are mostly without spines. Calyx bivalve and smooth, the upper valve longest: the corolla has one trifid lip*.

10. The tenth has an herbaceous dichotomous stem: elliptic thornless leaves: the outer calyx imbricated, with four pairs of obovate leaflets inclining to wedge-shaped, and ciliate; the inner four-leaved, the two outer leaflets of which are lanceolate and longer than the others; the two inner less and linear. Capsule red. It is a native of the East-Indies †.]

PROPAGATION AND CULTURE.

1. 3. The *Smooth* and *Prickly Acanthus* are lasting plants, which may be propagated either by seeds, or parting of their roots; if by the former method, the seeds should be sown in a light dry soil, towards the end of march: when the season proves favourable, the plants will appear in may, and all the culture they require, is to keep them clean from weeds, and where the plants are too close, to thin them, so as to leave them about six inches asunder, which will be room enough for them to grow 'till autumn, when they should be transplanted where they are designed to remain. The first sort, and especially the Portuguese variety, being more tender, ought to be planted in a warm border near a wall; and as these do not multiply so fast by their roots, they do not require more room than three feet; but the third spreads its roots to a great distance, therefore must have more than twice that room. This being hardy, may be planted between shrubs, to fill up vacant spaces, where it will thrive fast enough, provided the ground be light, and not over wet; and when it is in flower, will make an agreeable variety. If this sort be propagated by its roots, the operation may be performed either in spring or autumn; but the others must only be removed in the spring; for if they are transplanted in the autumn, and the following winter should prove cold, they will run the hazard of being lost. These plants take root very deep, so that when they are planted in wet ground, their roots will rot in winter: I have frequently traced them more than four feet, therefore they should not be removed after they have been growing long in a place, but the side shoots may be annually taken off, otherwise they will spread so far, as to overbear any neighbouring plants or shrubs. When they are once established in a garden, they are with difficulty eradicated.

5 and 10. Are too tender to thrive out of a stove in England, and can only be propagated by seeds, which do not ripen in Europe.

[The other sorts must be placed among Cape plants, and treated in the same manner as they are.]

ACARNA. See *Airaëtylis*, *Carduus*, *Carlina*, *Cnicus*.

ACER (According to some from *Acris*, on account of the hardness of the wood: according to others, from *Acre ingenium*, because it was much employed by ingenious artificers in fine works. *Aceroperum elegantia ac subtilitate Citro secundum*. Plin. 16. 15. These properties are peculiar to the *Common Maple* only, of all the species.)

* Lin. suppl.

† Lin. syst.

Engl. *The Maple-tree*. Fr. *Erable*.

Lin. gen. n. 1155. Reich. 1266. Schreb. 1590.

Tournef. t. 386. Juss. 251. Gertn. t. 116.

Class. 23. 1. Polygamia Monœcia.

Nat. order of Tribilatae. *Acera* Juss.

GENERIC CHARACTER.

* *Hermaphrodite flowers*.

CAL. *Perianth* one-leaved, five-cleft, acute, coloured, flat and entire at the base, permanent.

COR. *Petals* five; ovate, broader outward, obtuse, scarcely larger than the calyx; spreading.

STAM. *Filaments* eight, subulate, short. *Anthers* simple: *pollen* cruciform.

PIST. *Germ* compressed, immersed in a convex perforated large receptacle. *Style* filiform, advancing in height daily. *Stigmas* two (or three) pointed, slender, reflex.

PER. *Capsules* the number of the stigmas, coalescent at the base, roundish, compressed, each terminated by a very large membranous wing.

SEEDS solitary, roundish.

* *Male flowers*,

The same with the *Hermaphrodites*, except that they have neither germ nor style, but only a bifid stigma.

OBS. On the first unfolding of the flower, the stigma only appears; and a few days after, the style.

In *Acer Pseudoplatanus* the corolla is scarcely distinguishable from the calyx, and the stamens are long.

A. Negundo has no corolla, and 4 or 5 stamens.

This and *A. rubrum* are diœcous.

Hermaphrodite flowers in the same umbel are often of two kinds: the lower ones feminine hermaphrodites, of which the anthers do not burst, but the pistil grows into a fruit; the upper ones masculine hermaphrodites, of which the anthers scatter their dust, and the pistils do not grow, but fall off.

ESSENTIAL CHARACTER.

Cal. five-cleft. Cor. five-petalled. Stam. eight (or ten.) Germs two (or three) superior. Style simple. Caps. two (sometimes three) with one seed in each, terminated by a wing.

Males without germ or style.

SPECIES.

[1. *Acer sempervirens*. *Evergreen Maple*.

Lin. syst. 911. Reich. 4. 330. mant. 128. Mill. diff. edit. 7. n. 11. Lauth. diff. n. 14.

Leaves ovate quite entire evergreen.]

2. *Acer tataricum*. *Tartarian Maple*.

Lin. spec. 1495. Reich. 4. 330. Mill. diff. ed. 7. n. 12. Gertn. fruct. 2. 166. Lauth. diff. n. 13. Krasch. comm. Petrop. 2. t. 13. Pallas ross. 9. t. 3.

Leaves heart-shaped undivided serrate, lobes obscure; flowers in racemes.

3. *Acer Pseudoplatanus*. *Great Maple*.

Lin. spec. 1495. Reich. 4. 331. Hudf. angl. 445. Wither. arr. 1147. Lightf. scot. 639. Lauth. diff. n. 6. Dukam. arb. 1. t. 36. Ewel. Hunt. 200—193. Hall. belv. n. 1029. Pollich. pal. n. 944. Villars dauph. 803.

Acer major. Dod. pempt. 840. 1.

A. majus, multis falso *Platanus*. Bauh. hist. 1. 8. 168. f. 2. Raii hist. 1701. Ger. emac. 1484. 1. Park. theat. 1425. 1.

Leaves five-lobed unequally serrate, flowers in racemes.

4. *Acer rubrum*. *Scarlet-flowering Maple*.

Lin. spec. 1496. Reich. 4. 331. Kalm itin. 2. 288. Gertn. fruct. 2. 167. Lauth. diff. n. 1.

Acer virginianum, &c. Herm. par. t. 1. Pluk. alm. t. 2. f. 2. Catesb. car. 1. 62. Mill. fig. t. 8. f. 4. Trew selet. t. 85. 86.

Leaves five-lobed, slightly toothed, glaucous underneath; peduncles very simple and aggregate.

5. *Acer saccharinum*. *American Sugar Maple*.

Lin. spec. 1496. Reich. 4. 332. Lauth. diff. n. 5.

Leaves five-parted-palmate, point-toothed, pubescent.

[6. *Acer dissectum*. *Cut-leaved Maple*.

Lin. syst. 911. Thunb. jap. 160.

Leaves many-parted-palmate, the divisions subpinnatifid and serrate.

7. *Acer japonicum*. *Japoneſe Maple*.
Lin. ſyſt. 911. *Thunb. jap.* 161.
Leaves many-parted gashed and villous, flowers ſubumbelled.
8. *Acer palmatum*. *Hand-leaved Maple*.
Lin. ſyſt. 911. *Thunb. jap.* 162.
Leaves palmate ferrate ſmooth, flowers in umbels.
9. *Acer ſeptemlobum*. *Seven-lobed Maple*.
Lin. ſyſt. 912. *Thunb. jap.* 162.
Leaves ſeven-lobed ſmooth, lobes pointed, regularly and ſharply ferrate.
10. *Acer pictum*. *Painted Maple*.
Lin. ſyſt. 912. *Thunb. jap.* 162.
Leaves ſeven-lobed ſmooth, lobes pointed entire.]
11. *Acer platanoides*. *Norway Maple*.
Lin. ſpec. 1496. *Reich.* 4. 332. *fl. ſuec. n.* 924.
Lauth. diff. n. 3. *Hall. helv. n.* 1029. *Scop. carn. n.* 1248. *Pollich pal. n.* 945. *Pluk. alm. t.* 252. *f.* 1. *Mill. fig. t.* 8. *f.* 1. *Trew ſelect. t.* 91. *Villars dauph.* 803.
Leaves five-lobed pointed ſharply toothed ſmooth, flowers in corymbs.
- [12. *Acer montanum*. *Mountain Maple*.
Ait. hort. kew. 3. 435.
A. penſylvanicum. *Du Roi barbecc.* 1. 22. *t.* 2. *Lauth. diff.* 33.
Leaves ſlightly five-lobed acute ferrate, racemes compound, calyxes hairy.]
13. *Acer penſylvanicum*. *Penſylvanian Maple*.
Lin. ſpec. 1496. *Reich.* 4. 333. *Ait. hort. kew.* 3. 435. *Mill. fig. t.* 7. *Dubam. arb.* 1. 28. *t.* 12, 13. *f.* 11.
A. ſtriatum. *Du Roi barbecc.* 1. 8. *t.* 1. *Lauth. diff.* 35.
Leaves three-lobed acuminate, ſharply double ferrate, racemes ſimple, calyxes ſmooth.
14. *Acer campeſtre*. *Common or Small Maple*.
Lin. ſpec. 1497. *Reich.* 4. 333. *fl. ſuec. n.* 925. *Lauth. diff. n.* 7. *Gaertn. fruſt.* 2. 166. *Hudſ. angl.* 445. *Wither. arr.* 1148. *Lightf. ſcot.* 640. *Hall. helv. n.* 1029. *Scop. carn. n.* 1247. *Pollich pal. n.* 946. *Neck. gallob.* 419. *Leers herb. n.* 774. *Villars dauph.* 801.
Acer minus. *Dod. pempt.* 840. *Ger. emac.* 1484. 2. *Raii hiſt.* 1700.
A. vulgare minori folio. *Bauh. hiſt.* 1. 166.
15. *Acer Opalus*. *Italian Maple*.
Mill. dict. n. 8. *Ait. hort. kew.* 3. 436. *L'Herit. ſtirp. nov.* 2. *t.* 98.
A. italum. *Lauth. diff.* 32.
A. opulifolium. *Villars dauph.* 802.
A. major folio rotundiore minus laciniato, an Opalus Italorum. *Raii hiſt.* 1701.
Erable printanier. *Reynier, mem. Lauſ.* 1. 71.
Leaves roundiſh five-lobed, looſely ferrate, capſules ovate, ſmooth, almoſt upright.
16. *Acer monſpeſſulanum*. *Montpelier Maple*.
Lin. ſpec. 1497. *Reich.* 4. 333. *Lauth. diff. n.* 12. *Scop. carn. n.* 1246. *Villars dauph.* 801.
Acer trifolium. *Bauh. pin.* 431. *Pluk. alm. t.* 251. *f.* 3. *Dubam. arb.* 1. 28. *t.* 10. *f.* 8. *Raii hiſt.* 1701.
Leaves three-lobed very entire ſmooth annual.
17. *Acer creticum*. *Cretan Maple*.
Lin. ſpec. 1497. *Reich.* 4. 334. *Lauth. diff. n.* 11. *Alp. exot.* 9. *t.* 8. *Dubam. arb.* 1. 28. *t.* 10. *f.* 9.
Acer orientalis hederæ folio. *Tournef. cor.* 43. *Pocock orient.* 191. *t.* 85.
Leaves three-lobed very entire pubeſcent perennial.
- [18. *Acer trifidum*. *Trifid-leaved Maple*.
Lin. ſyſt. 912. *Thunb. jap.* 163.
Leaves undivided and trifid, without indentations on the edge.]
19. *Acer Negundo*. *Virginian Aſh-leaved Maple*.
Lin. ſpec. 1497. *Reich.* 4. 334. *Lauth. diff. n.* 2.
Acer maximum, fol. trifidis & quinquefidis, virginianum. *Pluk. alm. t.* 123. *f.* 4, 5. *Dubam. arb. t.* 11. *f.* 10.
Leaves compound, flowers racemed:

- [20. *Acer pinnatum*. *Wing-leaved Maple*.
Loureiro cochinch. 649.
Leaves pinnate; leaflets oblong quite entire.

DESCRIPTIONS, USES, &c.

The genus *Acer* or *Maple* conſiſts entirely of Trees, moſt of them yielding a ſaccharine juice from the trunk, branches and leaves. All, except the two laſt, have ſimple leaves, generally palmate, or elſe divided into three or five lobes. The flowers are either in racemes or corymbs, commonly from the ſides of the twigs; of an herbaceous or yellowiſh green colour (except in the fourth): there are males and imperfect hermaphrodites, either mixed with, or diſtinct from the perfect flowers. Sometimes the petals are wanting, or elſe they reſemble the leaflets of the calyx ſo as ſcarcely to be diſtinguiſhed from them. Two united winged capſules generally ſucceed to each perfect flower; but ſometimes there are three.

1. Mr. Miller (in his ſeventh edition) deſcribes the *Evergreen Maple* as a ſhrub, with the leaves of the colour and conſiſtence of box. It was ſent him from the Duke d'Ayen's garden; and he had the ſeeds from the Levant. Linneus retains this as a diſtinct ſpecies: it is entirely left out in the laſt edition of the dictionary: and appears to be but a variety, though a remarkable one of the Cretan Maple, n. 17.

2. The *Tartarian Maple* has the leaves oppoſite, two or three pairs on the flowering branches; the lower ſubovate, leiſs, often ſcarcely ferrate; many cordate-ovate, unequally ferrate, ſometimes ſublobate on long petioles. Flowers in terminating thyrſes, twenty or thirty in a thyrſe, about half males, and half hermaphrodites. Corolla white, more than twice the length of the greeniſh calyx. Anthers twin; filaments much longer than the corolla. Wings of the ſeeds blood-red, nearly in a line, or diverging at an acute angle. It is an inhabitant of ſouthern Ruſſia; by the Tanais, Volga, &c. The wood is whitish, with ſome browniſh veins. The ſeeds are uſed as aſtringents by the Calmuc Tartars, boiled with milk and butter*.

Linneus deſcribes this as a lofty ſhrub, or rather a low tree, not exceeding twenty feet in height; with leaves like thoſe of Hornbeam, having ſcarcely any apparent lobes: with flowers in racemes, as in the Great Maple, but the raceme compound, and the flowers petaloid. They appear early, and are ſometimes followed by ripe ſeeds in our gardens. Cultivated 1759 by Mr. Philip Miller†.]

3. The *Great Maple* is wild in Switzerland, Germany, Auſtria and Italy: in mountainous ſituations. [With us it is vulgarly called the *Sycamore-tree*, and by ſome *Mock-Plane*. In Scotland it is known by the appellation of *Plane-tree*. Such is the inevitable confuſion of vernacular names.] The leaves are divided into three large lobes, and two ſmaller ones towards the baſe. The racemes hang down, and are pubeſcent; as are alſo the unripe fruits, and the nerves of the leaves underneath. The flowers are yellowiſh green. The wings of the capſules erect. [The pollen appears globular in the microſcope, but if it be touched with any thing moiſt, the globules burſt open with four valves, and then they appear in form of a croſs‡.

This tree grows to a great height, has frequently a clean ſtraight bole and a ſpreading top. It is in leaf by the middle of april; and on their firſt appearance the leaves are of a pleaſant green, but they exude a clammy juice ſo abundantly, that they attract a variety of inſects, which ſoon perforate and diſfigure them. The bunches of flowers are in full blow; within a fortnight after the appearance of the leaves; but being of an herbaceous colour, they make no great appearance.

The great Maple was formerly much planted for walks and avenues, but has lately given way to better or more fightly trees.] This, however, the Norway, and ſome of the reſt, are peculiarly proper to

* Pallas.

† Hort. kew.

‡ Lin.

make plantations near the sea, or to shelter other trees in that situation; for they resist the spray better than most trees. [They also do less damage to grafs in pastures.

An enormous tree of this sort is said to have been growing before the Duke of Dorset's seat at Knowle in Kent. It is represented in Badeslade's view of that seat, and is preserved in Dr. Harris's History of the county. It was twelve or fourteen feet in girth. The original plantations of Vauxhall and Marybone Gardens were chiefly of this tree*.

Before earthen-ware came into use at the table, the wood of the great Maple, which is soft and white, was in much request for trenchers. It is still used by the turners for bowls, dishes, &c. by the saddlers for saddle-trees; and is recommended by Mr. Evelyn as excellent for cart and plow timber, being light and tough. It is however inferior to the Ash for these purposes.

Walter Blith recommends the Sycomore as a very quick-growing and thriving wood; on warm, sound, rich land as thriving wonderfully, and rising to gallant shade, excellent to make walks and shadow-bowers, useful for inward building, where better is wanting, and for firing where wood grows scarce.

It is generally looked upon as proper for under-wood, because it shoots fast from the stool, and makes good fuel.

It is considered as a quick grower, and not of long duration, and yet there are several large, flourishing trees, some of them indeed now tending towards decay, (1792) in the Master's piece, at Sidney-Suffex College in Cambridge, which were planted there in 1607.

In spring and autumn, this species will pour forth from the wounded stem, in the same manner as the Birch, abundance of saccharine juice; from which a good wine may be made, as Mr. Ray affirms, from the information of Dr. Martin Lister.

There are two varieties of this tree common in the nurseries; one which has only broader leaves and larger keys; the other with variegated leaves, producing a pleasing variety in the tints of large plantations.

4. *Scarlet Maple* is a dioecous tree. The leaves of the male are cut to the base, so that it might easily be mistaken for a distinct species†. The flowers come out before the leaves; and have not more than six stamens. There are two varieties in the nurseries: 1. Virginian scarlet-flowering Maple. 2. Sir Charles Wager's flowering Maple.

[This sort was cultivated in 1656 by Mr. John Tradescant, jun.‡. It is propagated with us for the sake of the scarlet flowers, which come out early in the spring. In Pennsylvania, where it grows in the swamps, the natives use it for almost all sorts of wood-work; with the bark they dye a dark blue, and make a good black ink. The Canadians tap the tree for the juice, of which they make sugar and treacle.]

5. The *American Sugar Maple* will grow to the height of forty feet. It has some resemblance to the Norway, when the plants are young; but as they grow up, the leaves of this are more deeply divided, and their surfaces less smooth, so that the two species are then easily distinguished.

[This is very distinct from the scarlet-flowering Maple, in having the leaves divided more deeply and towards the base, veined also and of a sea-green colour underneath§.

The Flowers are apetalous, in pendulous racemes, short and compound, composed of imperfect hermaphrodite and perfect male flowers, the anthers being abortive in the first, and fertile in the last. It was introduced in 1735, by Peter Collinson, Esquire.||]

USES.

From this tree the inhabitants of North-America make a very good sort of sugar, in large quantities,

* M. S. Orde. † Munch, in Reich. ‡ Hort. kew.

§ Lin. spec. || Hort. kew.

by tapping the trees early in the spring, and boiling the juice. But I am of opinion that they make sugar from more than one sort of Maple in America; for I have found that the Ash-leaved Maple abounds with a saccharine juice, in full as great plenty as any other sort. Mr. Ray and Dr. Lister prepared a tolerably good sort of sugar from our Great Maple; and I have observed upon cutting off branches from the Scarlet Maple in february, a great quantity of a very sweet juice has flowed out for several days together. [Large tracts in North-America are covered with the Sugar Maple; this tree yields a Sugar equal to the best from the Cane, and in great quantity, with no other labour than what women and girls can bestow, in drawing off and boiling the liquor; and when skilfully tapped will last many years. It is therefore believed by judicious persons that the country can not only supply their own demand, but even make Sugar for exportation*.

We are assured by Dr. Rush, that this tree is so far from being injured by tapping, that it yields the more syrup the oftener it is tapped; and that a tree flourished after forty-two annual operations.

From twenty-three gallons and one quart of sap procured in twenty-four hours from two trees, four pounds and thirteen ounces of good grained sugar have been obtained. But a tree of an ordinary size yields in a good season from twenty to thirty gallons of sap, from which are made from five to six pounds of sugar. It is supposed that by transplanting to an open exposure, the quantity of sap may be increased, and its quality improved. For a farmer in Pennsylvania having planted a number of these trees above twenty years ago in his meadow, he obtains every year a pound of sugar from every three gallons of the sap.

The season for tapping is in february, march and april, according to the weather. Warm days and frosty nights are most favourable to a plentiful discharge of sap. The quantity obtained in a day from one tree is from five gallons to a pint: but twenty-three gallons were procured from a single tree on the fourteenth of April, 1789.

The perforation is made with an axe or an auger; but the latter is preferred. The auger is introduced about three-quarters of an inch, in an ascending direction; and is afterwards deepened gradually to the extent of two inches. A spout is introduced about half an inch, and projects from three to twelve inches; it is generally made of the Sumach (*Rhus*) or Elder (*Sambucus canadensis*.) The tree is first tapped on the south side, and afterwards on the north side. The sap flows from four to six weeks, according to the temperature of the weather. Troughs large enough to contain three or four gallons are placed under the spout, to receive the sap, which is carried every day to a large receiver; from which it is conveyed, after being strained, to the boiler.

The sugar is improved by straining the sap through a blanket or cloth, either before or after it is half boiled. Butter, hog's lard, or tallow, are added to the sap in the kettle to prevent its boiling over; and lime, eggs or new milk, are mixed with it, in order to clarify it. A spoonful of slacked lime, the white of one egg, or a pint of new milk, are the usual proportions to fifteen gallons of sap: the latter seems to be the best; but clear sugar may be made without any of them.

The sugar after being sufficiently boiled, is grained, clayed and refined, nearly in the same manner with the cane sugar in the West-Indies. The sooner the sap is boiled, the better. It should never be kept longer than twenty-four hours. The larger the boiler, the more sugar is obtained from it. A copper vessel affords a sugar of a fairer colour than an iron vessel.

For a number of years many hundred private families in New-York and Pennsylvania have supplied themselves plentifully with this sugar. Many

* MSS. information from Thomas Jefferson, Esq. jun. 1790.

have made from 200 to 400 pounds in a year. One man sold 600 pounds, all made with his own hands in one season; another made 640 pounds, without any assistance, in less than four weeks, besides attending to the other business of his farm, for which he received sixteen pounds in money; and a family consisting of a man and his two sons, made 1800 pounds weight in one season.

The quality of this sugar is superior to that which is made in the West-Indies from the cane; and it deposits less sediment when dissolved in water*.

A person who had been many years acquainted with the usual method of making this article, having obtained the instructions of a sugar refiner in Philadelphia, began his experiments in february 1790, at Stockport, on the river Delaware, and sent sugar to Philadelphia, equal in the opinion of good judges to the best sugars imported from the West-India islands. He is clearly of opinion that four active men, well provided with materials and conveniences, may turn out, in a common season, which lasts from four to six weeks, 40 cwt. of good sugar.

In all sugar plantations, it will be advantageous to cut out the different sorts of timber which grow intermixed with the Maple-tree, and even such of that species as are not thriving trees. The timber so cut out will serve as fuel for the boilers, and leave openings for the rays of the sun to enter, which will improve and enrich the sap†.

The Indians of Canada have practised the making of sugar from the Maple time out of mind, and they gained a pound of sugar from eight pints of liquor. The French began to refine it in that country towards the close of the last century; and Dr. Robinson sent some of the sugar to Mr. Ray in 1684. A friend of Mr. Ray's tried the experiment with our Great Maple, and obtained a sugar from the juice, but in small quantity‡.

The five following species, and also the seventeenth, were found by Thunberg in Japan.

6. Branches dichotomous and trichotomous, somewhat angular, smooth and spreading. Leaves opposite petioled and smooth. The flowers come out at the ends of the branches in simple umbels. Corolla small and purple. It flowers in may§.

7. Branches round purple and smooth. Leaves opposite petioled roundish ferrate, cut into thirteen parts and villous on both sides, especially the veins. Flowers terminal, with the leaves in simple umbels: corolla purple and the seeds woolly. It flowers in april and may||.

8. A middling sized tree wholly smooth, branches opposite round purplish spreading. Two palmated petioled leaves at the extremity of the twigs, marked with five or seven nerves, and smooth on both sides; consisting of five or seven lanceolate sharp lobes regularly and sharply ferrate; nerves sometimes hairy. Flowers produced with the leaves and peduncled. May is the time of flowering¶.

9. Leaves petioled and seven-nerved, the lobes ovate.**

10. Branches round ash-coloured smooth. Leaves collected at the ends of the twigs, alternate petioled seven-nerved variegated; the lobes oblong: petioles smooth, longer than the leaves††.]

11. The Norway Maple grows to a large size. The leaves being smooth and of a shining green, as large or larger than those of the Sycomore, and being seldom eaten or defaced, because the tree abounds in a sharp milky juice disliked by insects; they have a much better appearance than those of the Sycomore; and in the spring, when the flowers are out, which are of a fine yellow colour, this tree has great beauty.

[Hanbury observes, that in the autumn the leaves

* Dr. Rush's account of the Sugar Maple-tree, in the third volume of the American Transactions.

† Remarks on the manufacturing of Maple Sugar, by a Society of Gentlemen at Philadelphia, 1790.

‡ Ray's Philos. Letters, published by Derham, p. 177, 179.

§ Thunb. || Ibid. ¶ Ibid. ** Ibid. †† Ibid.

die to a golden yellow colour, which produces a good effect at that season, when the different tints of the decaying vegetable world are displayed. He says farther that it is a quick growing tree, arrives at a great bulk, and is one of the best trees for sheltering habitations.

Linneus recommends it for walks and plantations; as yielding a juice from which sugar may be made, if it be wounded in the winter; and as cutting out into a white smooth wood, fit for the stocks of guns, the joiner and the turner*. Dr. Hunter observes, that as it is a quick grower, arrives at a great bulk, and answers all the purposes of the Sycomore; the raising it for use, as well as ornament and variety, should not be neglected.

This species varies very much in its leaves; in-
fomuch that Scopoli affirms, that it approaches gradually to the *Pseudoplatanus*. He also remarks, that the flowers are never in corymbs, but always in racemes. This is found in the nurseries with variegated leaves as well as that: but the two principal varieties are, the common Norway Maple, with lobed leaves, and the Cut-leaved Maple, with lacinate or jagged leaves. There is a more remarkable variety, if it be one, observed near Port Mahon in the island of Minorca, and named by Lauth, in his thesis on this genus, n. 4. *Acer crispum*, or *curled-leaved Maple*. The leaves are very irregularly palmated, and resemble the feet of hawks; the lobes are curled and end in bristles. The bark is a dark gray, with large whitish spots.

Norway Maple is found on mountains in the northern countries of Europe, Germany, Switzerland, Stiria, Carniola and Savoy.

It was cultivated with us in 1724.

12. Leaves four inches and an half long, scarcely three broad, three-lobed with the vestige of a fourth and fifth lobe, but seldom really five-lobed, very sharp, unequally and sharply ferrate, veined, wrinkled, bright green above, paler underneath, and tomentose. The whole raceme, with the flowers, yellow and somewhat erect; pedicels often branched, with sometimes very slender bractes. Calyx scarcely linear, sharp and rose-coloured at the end, hairy. Petals twice the length of the calyx and narrower. Stamens eight, the length of the corolla. Capsules globular, bearing the wings at an obtuse angle; these swell out little at the end, so that the sides are nearly parallel. Native of North-America. † Cultivated 1750 by Archibald Duke of Argyle‡.

13. *Pennsylvanian Maple* is a small tree, which in some situations may be considered rather as a shrub. It will grow to the height of about fifteen feet, with a slender stem, covered with a whitish bark, and sending forth several red branches. The flowers are on long pendulous racemes, of a greenish yellow colour. The seeds generally fall off before they are ripe. It is a native of Pennsylvania, Virginia and Canada, and was introduced here 1755, by Messrs. Kennedy and Lee§.

The Striped-bark Maple of Bartram's catalogue, is supposed to be the same with this; and so, I apprehend, is the *Acer canadense* of Gordon's. It is thus described by Lauth, in his thesis. Bark smooth, beautifully varied with green and white stripes, the boughs of a shining red in winter. Leaves nine inches long, not quite so wide. Raceme long, with flowers on simple pedicels, and distant. Divisions of the calyx, only half the width of the petals in the corolla. Stamens eight, shorter by half than the corolla. Capsules oblong, compressed, not joined in a right line, but forming an angle.

The thickness of the shade, the beauty of the bark, and the tree not being liable to insects, would make it desirable for plantations, were it not for the litter occasioned by the abundance of the leaves and fruits which it produces, and its being subject to be torn by storms.

* Succ.

† Hort. kew.

‡ Lauth, diff. de Acer.

§ Ibid.

14. The *Common Maple*, though it does not become a large tree, should not however have been degraded by Linneus to a shrub; nor does it make a bad figure in plantations. Evelyn says, that by shredding up the boughs to a head, he has caused it to shoot to a wonderful height in a little time.

The bark is rough, and full of deep fissures. The leaves grow in pairs on long petioles. They are divided about half way down into three lobes, the side ones subdivided into two smaller ones, and the middle into three, all obtuse. Flowers greenish, at the summits of the branches, in thin loose short clusters. The young peduncles, when broken off, are lactescent. The receptacle of the flower is spongy, and divided into eight rays, between each of which is placed a stamen*.

The petioles, peduncles and fruits are pubescent: the petals are hairy; the raceme decomposed, and having few flowers†.

These are of three sorts, 1. males with fertile anthers. 2. false hermaphrodites, with fertile anthers, and an imperfect barren pistil. 3. large hermaphrodites with short filaments, and anthers having no pollen: but a perfect fertile pistil‡. A variety with red fruits was first observed by Vaillant. This is not unfrequent about London, as between Lee Common and Weston Green in the road to Eltham, about Dulwich, &c.

The common Maple is chiefly seen in hedges-rows and coppices.

USES.

We meet with high encomiums on this wood among the ancients; and Virgil introduces Evander sitting on a Maple throne. It was chiefly valued among them for the fineness of its grain.]

The timber is far superior to that of the Beech for all uses of the turner, particularly dishes, cups, trenchers and bowls; and when it abounds in knots, as it very frequently does, it is highly esteemed by the joiners for inlaying, &c. On account also of the lightness of the wood, it is often used by musical instrument makers; from its hardness, for gun-stocks and other purposes; and from its whiteness it was formerly in great request for tables. [In the vale of Gloucester, where oak timber is scarce, it is used for gate-stuff and other purposes of husbandry; and sometimes screws for cyder-presses are made of this wood: but the principal value of the Maple is for underwood: it is of quick growth and affords good fuel.]

15. The *Italian Maple* is common in many parts of Italy, particularly about Rome and Viterbo. It is one of the loftiest trees of that country, and is esteemed for the leaves, which are large, and afford a great shade; so that it is planted frequently there by the sides of roads, and near habitations.

[This tree is not noticed by Linneus, and many other modern authors.] It is rarely to be met with in England, though hardy enough to bear the open air; [and cultivated so long since as 1752, by Mr. Miller; as appears by the sixth edition of his Dictionary.

Being a noble tree, acquiring a considerable stature, and having a spreading head adorned with large and beautiful foliage, it deserves the attention of ornamental planters.

When this tree was first discovered at the foot of the Alps by Monf. Favrod, and afterwards observed in plenty near Pissevache, in the valley of Trient; and near Olon, it was supposed to be a new species, and is thus described by Monf. Reynier.

Trunk ten feet high, straight, branching, covered with a gray bark: branches flexible. Leaves middle-sized, thin, three or five-lobed, toothed, rounded. Flowers in a very loose pendant raceme; on peduncles very long, branching and bending: they are larger than those of the other sorts, composed of five lanceolate petals, yellowish and veined: calyx very small, falling a long time before the corolla: stamens eight, twice as long as the corolla. Wings

* Lightfoot.

† Pallas.

‡ Leers.

of the seed not adhering to the sides of the capsule, as in the other species, but placed at the top, and only a little separated from each other.

16. *Montpelier Maple* grows about twenty feet in height.] The leaves resemble those of the Common Maple, but are of a much thicker substance, and not so large; they are of a shining green colour, and continue their verdure very late in the autumn; which renders this tree more valuable. At present this sort is not common in England. [The flowers have little beauty, their blow is soon over, and the seeds sometimes come to perfection with us. It is common in the South of France, and Italy: and was cultivated by Mr. Miller in 1739*.]

17. *Cretan Maple* bears some resemblance to the last, and gains the same height. The leaves of the young trees are ovate, but afterwards become shaped like those of Ivy: they are of a much thinner texture than in that, and their petioles are covered with a soft hairy down; whereas those of the other are smooth and stiff.

Where the trees are well sheltered they continue green most part of the year. The flowers are seldom followed by good seeds.

It grows naturally in the Levant; [and was cultivated in 1752, by Mr. Miller†.

18. The twigs are round, smooth and purplish. The leaves at the ends of the twigs, scattered, undivided, and of two or three lobes, smooth on both sides, pale underneath, ovate and sharp‡.]

19. *Ash-leaved Maple* is a very strong-shooting tree, of quick growth, and is in Virginia and Carolina one of the largest trees of this kind. It is well adapted, by its pale green leaves, so different in form from those of the other species, to make a beautiful variety in woods, but they fall very soon in the autumn; and it must be planted in places not too much exposed to violent winds, being subject to split. [The timber is fit for the same uses with that of the Norway Maple and Sycomore, but is soft and brittle.

It was cultivated in 1688 by Bishop Compton§.

Professor Medicus of Manheim, observed three and four pistils in the female flower; no corolla, and four or five stamens in the males||.

20. The Maple of Cochinchina is a tree of a middling size, with a very hard wood, and spreading branches. The leaves have about four pairs of alternate, small, smooth leaflets, terminated by an odd one. The flowers are white, in compound racemes. It is native of woods in Cochinchina¶.]

PROPAGATION AND CULTURE.

The genus *Acer* consists of deciduous trees, most of them sufficiently hardy. They are easily propagated by sowing their seeds, soon after they are ripe, in a bed of common earth, covering them about half an inch thick with light mould. In the spring they will appear above ground, and if kept clear from weeds, and watered in dry weather, some of the sorts will grow above a foot high the first summer. The autumn or spring following, if they are close in the seed-bed, it will be proper to transplant them into a nursery, in rows at three feet distance, and two feet asunder in the rows; [some say that two feet and a half by one foot and a half is sufficient; others recommend only two feet by a foot.] In this situation they may remain three or four years, by which time they will be large enough to plant out for continuance.

If the seeds are kept out of the ground till spring, they rarely come up the same year, and many times do not grow. When therefore they are to be transported to any distance, it will be proper to put them up in sand or earth.

[If the common Great Maple or Sycomore had been an indigenous tree of England, the country would have been full of it, since it comes up with such wonderful facility and abundance from the seed. Mr. Ray speaks of it as very common in court-

* Hort. kew.

† Ibid.

‡ Thunb.

§ Hort. kew.

|| Reich.

¶ Loureiro.

yards, church-yards, avenues, and about noblemen's houses; but observes that it began in his time not to be much in request, because of the great litter and mucilage occasioned in gardens and walks by the falling leaves.

Parkinson says, it is cherished in our land only in orchards, or elsewhere for shade and walks. And Gerard, that it is a stranger in England, only it groweth in the walks and places of pleasure of noblemen, where it especially is planted for the shadow sake, and under the name of Sycomore-tree.] The variegated sort may be raised from seed as well as the common one, and most of the plants will be as finely striped as the parent tree, which is not usual.

[Trees thus raised from seed will grow faster, and attain a greater height, than from layers or cuttings; by which means they may also be propagated. But this is seldom practised in those sorts which come readily from the seed.]

The scarlet-flowering Maple is frequently propagated by laying down the young branches early in the spring, giving them a little slit at a joint, by which means they will have taken sufficient root in two years to be transplanted. They require a situation a little defended from the north-east winds, especially while young; and delight in a moist light soil, in which they will produce more flowers, and better seeds.

The Norway and Ash-leaved Maples may be raised easily from layers; or, from cuttings planted in the autumn, in a moist shady place.

The variegated Sycomore and Norway Maple may with most ease and certainty be propagated, by inoculating a bud of the variegated or striped into their respective plain sorts.

The Americans, and especially the Sugar Maple, are very impatient of heat while young; their seeds therefore should be sown in a shady situation, or in pots or cases that may be removed into the shade.

The Tartarian Maple is very hardy in respect to cold, but very difficult to raise in England; for when the plants are young, if they are exposed to the sun but a few hours, they will be destroyed: and though the trees naturally grow on boggy grounds, yet watering the young plants much will kill them. The only method to preserve them, is to cover the surface of the ground with moss, which should be kept moist, and the plants entirely shaded from the sun the first summer*.

[In the case of the Scarlet-flowering Maple, Hanbury recommends the seeds to be sown as soon as they are ripe, (which is the beginning of June) and have lain a few days to harden; covering them only a quarter of an inch deep. The beds should be hooped, and sheltered with mats in scorching weather, but in rainy and cloudy weather should always be uncovered. In a month or six weeks, a great part of the plants will appear; but the far greatest share will not come up before the spring following. When the summer plants first show themselves, they must be constantly covered in the day-time, unless in cloudy and rainy weather; but uncovered during the night. In dry weather they must be watered. The summer following they may be exposed to all weathers; being only kept clean from weeds, and watered occasionally: the spring after, the strongest may be set out in the nursery.—This seems no bad process for the American, and all the sorts which require any attention.

With respect to layers, Hanbury says that the young shoots may be laid down either in the autumn, winter, or early in the spring; that by the autumn following they will have struck root, when the strongest may be put where they are to remain, and the weakest planted in the nursery for a year or two.

With respect to cuttings, he says that they should be the bottom parts of the last year's shoots, taken off early in October. The spring and summer following they must be duly watered in dry weather, and kept clean from weeds. By the autumn they

will be fit to remove into the nursery; though, if they are not planted too close, they may remain in their situation a year or two, and then be set out at once where they are to remain.

For budding the variegated or striped sorts he gives the following directions. Let some common plants of the same species, one year old, be taken out of the seminary, and set in the nursery in rows a yard asunder, and a foot and half distant from each other. Let the ground be kept clean, and in the winter turned over: the summer following the stocks will be of a proper size to receive the buds, which should be taken from the most beautifully striped branches. The best time for this work is August. The eyes or buds should front the north. Early in October take off the bass matting; then cut off the stock just above the bud, and dig the ground between the rows. The summer following cut off all natural side buds from the stock; and by autumn, if the land is good, your buds will have shot forth, and formed themselves into trees five or six feet high. They may then be removed, or a few only drawn out, leaving the others to be trained up for larger standards.

Mr. Boutcher recommends the seeds of the Sycomore and Norway Maple not to be sown as soon as ripe; but to be spread in an airy place till dry, and then laid up in dry sand till February or the beginning of March, according as the season proves; when they may be sown in drills, or in beds eighteen inches broad, with alleys the same width, and covered three quarters of an inch thick.

The following February or March dig the alleys, and cut their roots about five inches under ground, which may easily be performed with a sharp spade; and draw the plants where too thick: let these be planted in good mellow soil, in rows eighteen inches asunder, and eight or nine inches from each other.

In October following, when the plants in general will be two feet high and upwards, raise both the seedlings, and those that were transplanted; shorten their top-roots, cut off any cross lateral branches, and remove them into rows two feet and an half asunder, and fifteen inches in the row, to continue two years.

Thence remove them again, at the same season, and plant them in rows five feet asunder, and two feet and an half from each other; where they may continue four years.

These will now be from twelve to fifteen feet high, and if required of a larger size, may be removed and planted eight or ten feet asunder; when any time after two, and not exceeding eight or ten years, they may be placed where they are designed to remain.

Though autumn planting be preferable for these and most other deciduous trees, when strong and well rooted, yet when young they are apt to be injured by frosts, and thrown out of the ground in severe winters when planted at this season.

The use of removing these trees frequently when young is, that they naturally grow with downright tap roots; whereas after undergoing this discipline, no plant roots better, or is more patient of transplantation at a large size.

He adds that these, and our common Maple, will prosper in very indifferent coarse land, but most affect that which is deep and moist, though not wet or stiff. The American sorts delight most in a firm dry mould.

The Common, Sugar, Norway, and Ash-leaved Maples being large-growing trees forty feet high and upwards, with large spreading heads, and exuberant foliage, are fit for large plantations; and the leaves being of different sizes, shapes and colours, they will make a considerable variety, especially if we take in the variegated sorts: and the large pendulous branches of flowers, though deficient in colour, are not without their beauty, especially those of the Norway Maple.—The other sorts are of inferior growth, seldom rising more than from twenty to thirty feet.

ACER. See *Banisteria* and *Triopteris*.
 ACETOSA. See RUMEX.
 ACETOSELLA. See OXALIS, and Rumex.
 ACHANIA (*Aχαιος*, non bians; because the corolla does not open.
 Soland. M. S. *Swartz prodr.* 102 *Lin. gen. Schreb.*
Malvaviscus edit. prior. Cavan. diff. 3. 31. t. 48.
 f. 1. *Dillen. elth.* 170.
 Class. 16. 6. Monadelphia Polyandria.
 Nat. order of *Columniferae. Malvaceae* Juss.

GENERIC CHARACTER.

CAL. *Perianth* double. Outer many-leaved; leaflets linear, permanent, slightly coalescing at the base. Inner one-leaved, subcylindric, streaked half way, five-cleft, permanent.
 COR. Subclavate, convoluted. Petals five obovate-oblong, erect, with a lobe at the base on one side, involving the column of stamens.
 STAM. Filaments numerous, coalescing into a writhed tube longer than the corolla, free at top, capillary. Anthers oblong.
 PIST. Germ subglobular. Style filiform, the same length with the tube of the stamens, ten-cleft at top: the segments spreading. Stigmas capitate.
 PER. Berry subglobular, fleshy, five-celled.
 SEEDS solitary, convex on one side, angular on the other.

ESSENTIAL CHARACTER.

Cal. double; outer many-leaved. Cor. convolute. Berry, five-seeded.

SPECIES.

1. *Achania Malvaviscus. Scarlet Achania, or bastard Hibiscus.*
Swartz. prod. 102. *Ait. hort. kew.* 459.
Hibiscus Malvaviscus Lin. spec. 978. *syft.* 629.
Reich. 3. 360. *hort. cliff.* 349. *Mill. dict. n.* 22.
Brown. jam. 284.
Malvaviscus arboreus. Cavanilles diff. 3. 131. t. 48.
 f. 1. *Dill. elth.* 210. t. 170. f. 208. *Sabb.*
hort. 1. t. 54. *Plum. spec.* 2. ic. 169. f. 2.
 (Malva) *Pluk. alm. t.* 257. f. 1. (Alcea).
Leaves somewhat scabrous, acuminate, leaflets of the outer calyx erect.
2. *Achania mollis. Woolly Achania.*
Ait. hort. kew. 459.
Leaves tomentose, leaflets of the outer calyx spreading.
3. *Achania pilosa. Hairy Achania.*
Swartz. prodr. 102. *Ait. hort. kew.* 459.
Leaves hairy, obtuse and acute.

DESCRIPTIONS.

1. Stem arboreous, ten feet high and more, branched. Leaves petioled, cordate, crenate, tomentose, sometimes slightly three or five-lobed, the middle lobe most produced. Stipules bristle-shaped, small, withering. Flowers axillary, solitary, on villous peduncles shorter than the petiole. Outer calyx eight-leaved, the leaflets coalescing at the base: inner marked with ten streaks, five-toothed at the tip. Corolla deep scarlet; tube scarlet twisted into a spiral; upright, very long. Stigmas hispid, blackish. Native of Mexico*, and Jamaica. Cultivated in 1714, by the Dutchess of Beaufort: and flowering most part of the year †.
2. The branches, petioles, and leaves are covered with a very thick nap. The leaves are sometimes cordate-ovate acuminate, and sometimes angular, slightly three-lobed.—It is a native of South America, and the West India islands. Houstoun found it in Jamaica in 1730.—Introduced in 1780, by Benjamin Bewick, Esq. It flowers in august and september ‡.
3. This species has a very different appearance from the two former. It is shrubby as they are, but the stem and branches are smaller, thinner, and not downy; and it continues only two or three years. The leaves are cordate-ovate, with broad irregular serratures about the edge: some of them blunt and even retuse, but others acute. The stipules are subulate. The leaflets of the outer calyx spread out towards the end, and are spatulate. The flowers are

* Cavanilles, † Hort. Kew. ‡ Ibid.

small, and the corolla is closed.—Native of Jamaica. Introduced 1780, by Mr. Gilbert Alexander. It flowers in november §.]

PROPAGATION AND CULTURE.

Achania is generally propagated by cuttings, because the seeds do not often ripen here; if the cuttings are planted in pots filled with light earth, and plunged into a gentle hot-bed, keeping the air from them, they will soon take root, and should be gradually inured to bear the open air. These plants require a moderate stove to preserve them through the winter; and if they are kept in warmth in summer, they will flower, and sometimes ripen fruit; they may be placed abroad in a sheltered situation for two or three months, but the plants so treated seldom flower well.

ACHILLEA (so named from Achilles the famous Grecian hero, who is supposed to have imbibed the knowledge of Botany from his master Chiron.)

Vaill. mem. acad. 1720. f. 2, 10, 36. *Lin. gen.* n. 971. *Reich.* 1053. *Schreb.* 1313. *Gartn.* t. 168. *Juss.* 186.

Millefolium and *Parmica. Tournef. t.* 283.

Engl. *Milfoil.*—Fr. *Millefeuille.*

Class. 19. 2. Syngenesia Polygamia Superflua.

Nat. Ord. of *Compositae Discoideae*—*Corymbiferae* Juss. *Raii.*

GENERIC CHARACTER.

CAL. Common ovate, imbricate: scales ovate, acute, converging.
 COR. Compound radiate: Corollets hermaphrodite, tubular, in the disk. Females ligulate, five to ten, in the ray.
Proper of the Hermaphrodite, funnel-shaped, five-cleft, spreading.
Female obcordate, spreading, trifid: the middle cleft less than the others.
 STAM. In the Hermaphrodites Filaments five, capillary, very short. Anther cylindrical, tubular.
 PIST. In the Hermaphrodites Germ small. Style filiform, the length of the stamens. Stigma obtuse, emarginate.
 In the Females Germ small. Style filiform, the same length as in the others. Stigmas two, obtuse, reflex.
 PER. none. Calyx scarcely changed; Receptacle filiform, elongate, as the disk of the seeds, ovate, twice the length of the calyx.
 SEEDS solitary, ovate, furnished with flocks; but having no down.
 REC. chaffy, elevated: chaffs lanceolate, the length of the florets.

ESSENTIAL CHARACTER.

Cal. ovate, imbricate. Florets of the ray about four. Down none. Recept. chaffy.

SPECIES.

* With yellow corollas.

1. *Achillea Santolina. Lavender-cotton leaved Milfoil.*
Lin. spec. 1264. *Reich.* 3. 866. *hort. cliff.* 412.
Vaill. mem. par. 1720. p. 322.
Parmica orientalis, Santolinæ folio, flore majore.
Tournef. cor. 37.
Leaves bristle-shaped toothed, toothlets nearly entire subulate reflex.
2. *Achillea Ageratum. Sweet Milfoil or Maudlin.*
Lin. spec. 1264. *Reich.* 3. 866. *hort. cliff.* 413.
upf. 265. *mat. med.* 190. *Mill. fig. t.* 10.
Blackw. t. 300. *Allion. pedem. n.* 655. *Villars dauph.* 3. 256.
Ageratum. Camer. epit. 795.—fol. ferratis *Baub. pin.* 221.
A. vulgare, f. Costus hortorum minor, Park. theat. 79. f. 2. *Raii. hist.* 364.
Balsamita minor. Dod. pempt. 295. *Mor. hist. f.* 6. t. 1. f. 2.
Leaves lanceolate obtuse sharply ferrate.
- [3. *Achillea falcata. Sickle-leaved Milfoil.*
Lin. spec. 1264. *hort. cliff.* 412. *Forsk. ægypt.* 55.
Retz. obs. 2. 25. n. 85. *Vaill. mem. par.* 1720. p. 322. *Barrel. ic.* 430.
Leaves linear toothed obtuse flat, toothlets crenate.]

§ Hort. kew.

4. *Achillea tomentosa*. Woolly Milfoil.
Lin. spec. 1264. *Reich.* 3. 867. *hort. cliff.* 413.
upf. 265. *Hall. belv. n.* 106. *Gmel. itin.* 1.
p. 137. *t.* 25. *f.* 2. *Villars dauph.* 3. 260.
Millefolium luteum. *Lob. obs.* 431. *Ger. herb.* 915.
f. 1. *emac.* 1073. *f.* 1. *Park. theat.* 694. *f.* 6.
Raii hist. 347.
M. tomentosum luteum. *Baub. pin.* 140. *Mor.*
hist. *f.* 6. *t.* 11. *f.* 16.
Leaves pinnate hirsute. pinnae linear toothed.
5. *Achillea pubescens*. Downy Milfoil.
Lin. spec. 1264. *Reich.* 3. 867. *hort. cliff.* 413.
Vaill. mem. par. 1720. *p.* 286. (*Matricaria*).
Leaves pinnate, leaflets lanceolate gashed serrate wool-
bearing beneath.
6. *Achillea abrotanifolia*. Southernwood-leaved Milfoil.
Lin. spec. 1265. *Reich.* 3. 867.
Leaves pinnate superdecapound, divisions linear dis-
tant.
- [7. *Achillea bipinnata*. Bipinnate Milfoil.
Lin. spec. 1265. *Reich.* 3. 868. *hort. cliff.* 413.
Leaves bipinnate tomentose, leaflets ovate entire.]
8. *Achillea ægyptiaca*. Egyptian Milfoil.
Lin. spec. 1265. *Reich.* 3. 868. *hort. cliff.* 413.
Gmel. itin. 2. 178. *Tournef. itin.* 1. 228. *t.* 87.
(Ptarmica).
Abinthium fæntonicum ægyptiacum. *Baub. pin.* 136.
Leaves pinnate, leaflets obtusely lanceolate serrate-
toothed.
 ** *Corollas white in the ray.*
9. *Achillea macrophylla*. Feverfew-leaved Milfoil.
Lin. spec. 1265. *Reich.* 3. 868. *Hall. belv. n.* 115.
Allion. pedem. n. 659. *Villars dauph.* 3. 259.
Dracunculus alpinus, foliis Scabiosæ. *Baub. pin.* 98.
prodr. 39.
Ptarmica alpina, Matricariæ foliis. *Triumf. obs.* 83.
t. 23. *Bocc. mus.* 2. *t.* 110. *Barrel. ic.* *t.* 991.
Corymbifera Millefolii umbella, fol. alato & laci-
niato. *Raii hist.* 345.
Leaves pinnate, pinnae gash-serrate, the outmost larger
and connected.
- [10. *Achillea impatiens*. Impatient Milfoil.
Lin. spec. 1266. *Reich.* 3. 868. *Gmel. fib.* 2. 197.
t. 83. *f.* 1.
Leaves pinnate, pinnae distant linear-lanceolate, acute
from the base upwards.]
11. *Achillea Clavennæ*. Silvery-leaved Milfoil.
Lin. spec. 1266. *Reich.* 3. 869. *Hall. belv. n.* 114.
Scop. carn. n. 1093. *Jacqu. austr.* 1. *t.* 76.
Abinthium alpinum umbelliferum. *Clus. hist.* 1.
340.—latifolium. *Baub. pin.* 139.
A. album. *Ger. herb.* 943. *f.* 2. *emac.* 1101. *f.* 1.
Raii hist. 345.—*f. umbelliferum* *Park. theat.* 99.
f. 6.
Dracunculus argenteus. *Mor. hist.* *f.* 6. *t.* 10. *f.* 5.
Leaves jagged flat obtuse tomentose.
12. *Achillea Ptarmica*. Sneezewort Milfoil.
Lin. spec. 1266. *Reich.* 3. 869. *mat. med.* 190.
f. succ. n. 771. *Huds. angl.* 375. *Wither.*
arr. 941. *Curtis lond.* 5. 60. *Lightf. scot.* 495.
Hall. belv. n. 117. *Pollich pal. n.* 819. *Fl. dan.*
t. 643. *Krock. files. n.* 1439. *Villars dauph.* 3. 255.
Ptarmica. *Camer. epit.* 354. *Ger. herb.* 483. *emac.*
606. 1. *Raii. hist.* 344. *syn.* 183.—*vulgaris.*
Clus. hist. 2. 12. *Park. theat.* 859. *Blackw.*
herb. t. 276.
Dracunculus pratensis ferrato folio. *Baub. pin.* 98.
Mor. hist. *f.* 6. *t.* 12. *f.* 1.
Leaves lanceolate acuminate finely serrate.
13. *Achillea alpina*. Alpine Milfoil.
Lin. spec. 1266. *Reich.* 3. 869. *hort. cliff.* 413.
Hall. belv. n. 116. *Gmel. fib.* 2. 196. *n.* 161.
Krock. files. n. 1440.
Leaves lanceolate tooth-serrate, toothlets very finely
serrate.
- [14. *Achillea ferrata*. Notch-leaved Milfoil.
Retz. obs. 2. 25. *n.* 83. *Ait. hort. kew.* 3. 241.
Leaves linear-lanceolate sessile tomentose, deeply serrate,
lacinate at the base.
15. *Achillea cristata*. Slender-branched Milfoil.
Retz. obs. 2. 25. *n.* 84. *Ait. hort. kew.* 3. 241.

- Leaves linear serrate, serratures transverse crested;*
stem branched weak.
16. *Achillea atrata*. Camomile-leaved or black Milfoil.
Lin. spec. 1267. *Reich.* 3. 870. *Hall. belv. n.* 111.
Scop. carn. n. 1094. *Jacqu. austr.* 1. *t.* 77.
Allion. pedem. n. 661.
Chamæmelum alpinum, &c. *Till. pisan.* *t.* 19.
Matricaria alpina Chamæmeli foliis. *Baub. pin.* 134.
Raii. hist. 348.
Parthenium alpinum. *Clus. hist.* 1. 336.
Pinnules pectinate almost entire, peduncles villous.
17. *Achillea moschata*. Musk Milfoil or Swiss Genipi.
Lin. syst. 778. *Hall. belv. n.* 112. *Jacqu. austr.*
5. 45. t. app. 33. *Allion. pedem. n.* 662.
A. Genipi. *De Sauss. itin.* 2. 13.
A. Livia. *Scop. insubr.* 6. *t.* 3.
Iva moschata. *Gesn. epist.* 66.
Tanacetum alpinum odoratum. *Baub. pin.* 132.
Millefolium alpinum affinis planta, quibusdam Iva mos-
chata. *Baub. hist.* *Raii hist.* 347.
Leaves pinnate dotted, pinnae remote linear subulate
almost entire, rays the length of the calyx.]
18. *Achillea nana*. Dwarf Milfoil.
Lin. spec. 1267. *Reich.* 3. 870. *Hall. belv. n.* 113.
Allion. pedem. n. 663. *t.* 9. *f.* 2.
Millefolium alpinum incanum, flore specioso. *Baub.*
hist. 3. 138. *Mor. hist.* *f.* 6. *t.* 11. *f.* 11. *Raii*
hist. 347.
M. alp. tomentosum nanum. *Bocc. mus.* 2. 166.
t. 120.
Leaves pinnate toothed extremely hirsute, flowers glo-
merate-umbelled.
- [19. *Achillea magna*. Great Milfoil or Yarrow.
Lin. spec. 1267. *Reich.* 3. 870. *Allion. pedem.*
n. 668. *t.* 53. *f.* 1. *Krock. files. n.* 1441.
Villars dauph. 3. 259.
Millefolium maximum umbella alba. *Baub. pin.* 140.
prodr. 72. *Raii hist.* 346. *Mor. hist.* *f.* 6. *t.* 11.
f. 5.
Leaves bipinnate rather hairy, the divisions linear and
toothed; earlets decussated.]
20. *Achillea Millefolium*. Common Milfoil or Yarrow.
Lin. spec. 1267. *Reich.* 3. 871. *fl. lapp. n.* 311.
succ. n. 770. *mat. med.* 101. *Huds. angl.* 374.
Wither. arr. 941. *Curtis lond.* *n.* 63. *Lightf.*
scot. 496. *Gært. fruct.* 2. 426. *Woodv. med.*
bot. 179. *t.* 64. *Hall. belv. n.* 107. *Scop.*
carn. n. 1095. *Fl. dan.* *t.* 737. *Neck. gallob.*
361. Pollich pal. n. 820. *Allion. pedem. n.* 665.
Krock. files. n. 1442. *Villars dauph.* 3. 260.
Millefolium vulgare. *Park. theat.* 694. 1. *Raii*
hist. 345. *syn.* 183.—*album*. *Baub. pin.* 140.
Blackw. herb. t. 18. *Mor. hist.* *f.* 6. *t.* 11. *f.* 6, 14.
Petiv. brit. *t.* 19. *f.* 4.
M. terrestre vulgare. *Ger. herb.* 914. 1, 2. *emac.*
1072. 1, 2.
 β. *M. purpureum majus*. *Baub. pin.* 140. *Raii*
hist. 347. *syn.* 183.
 γ. *M. alpinum*. *Clus. pann.* 562. *Hall. belv.*
n. 107. δ.
Leaves bipinnate naked, divisions linear toothed; stems
furrowed towards the top.
21. *Achillea nobilis*. Noble Milfoil.
Lin. spec. 1268. *Reich.* 3. 871. *Hall. belv. n.* 109.
Pollich pal. n. 821. *Allion. pedem. n.* 667.
Krock. files. n. 1444. *Villars dauph.* 3. 257.
Achillea. *Cord. hist.* 136. *Matth.* 713. *Camer.*
epit. 750.
Millefolium nobile. *Trag. hist.* 476. *Ger. herb.* 915.
f. 2. *emac.* 1073. *f.* 2. *Mor. hist.* *f.* 6. *t.* 11. *f.* 4.
Raii hist. 346. 3.
Tanacetum minus album odore Camphoræ, f.
Achillæa Dioscoridis. *Baub. pin.* 132.
Leaves bipinnate, the lower ones naked flat, the upper
obtusely tomentose, the flowers in convex and very
crowded corymbs.
- [22. *Achillea odorata*. Scented Milfoil.
Lin. spec. 1268. *Reich.* 3. 872. *Hall. belv.*
n. 107. γ. *Sauv. monsp.* 267. *Jacqu. collect.* 1.
259. t. 21. *Krock. files. n.* 1445. *Villars dauph.*
3. 258. Barrel. ic. t. 992. (*Millefolium*).
 E
 Millefolium

- Millefolium odoratum minus Monspeliensium.* Mor. blæs. Raii hist. 346. Magn. monsp. 177.
Leaves bipinnate oval almost naked, corymbs fastigiate crowded.
23. *Achillea cretica.* Cretan Milfoil.
Lin. spec. 1268. Reich. 3. 872.
- Millefolium creticum.* Bauh. hist. 3. 139. Raii hist. 347. Mor. hist. f. 6. t. 11. f. 12.
- M. incanum cret.* Bauh. pin. 140. prodr. 72.
Leaves linear, pinnae roundish imbricate backwards, stem tomentose.
24. *Achillea squarrosa.* Rough-headed Milfoil.
Ait. hort. kew. 3. 242.
Leaves lanceolate-linear pinnatifid, pinnae ovate, wedge-shaped, gasb-acuminate vertical, stem somewhat villous.
25. *Achillea herbærota.* Herbarota Milfoil.
Allion. pedem. n. 656. t. 9. f. 3. Villars dauph. 3. 255.
- Ptarmica alpina altera, floribus minus compactis.* Tournef. inst. 497.
- Ageratum flor. albis.* Ger. emac. 648. 4? Raii hist. 364.
- Agerati species rarior, umbellis prorsus candidis.* Camer. epit. 796?
- Herba-rotta.* Bauh. hist. 3. 144. Ambros. phytogr. 278.
Leaves wedge-shaped entire, toothed at the top.
26. *Achillea ligustica.* Marjoram-scented Milfoil.
Allion. pedem. n. 660. t. 53. f. 2.
Leaves pinnate, pinnae sharply toothed flat smooth.
27. *Achillea tanacetifolia.* Tansey-leaved Milfoil.
Allion. pedem. n. 666. Hall. herb. n. 108. Mor. hist. f. 6. t. 11. f. 3. Villars dauph. 3. 260.
- Ptarmica alpina Tanacetii foliis, flore purpureo.* Tournef. inst. 497.
Leaves pinnate, pinnae lacinate flat gasbed and entire.

DESCRIPTIONS, USES, &c.

Most of the Milfoils are hardy, herbaceous, fibrous-rooted perennials; with the flowers commonly in corymbs at the ends of the stalk and branches; the ray in some yellow, in others white, in a few purple: the leaves in many of the species are pinnate, bipinnate, or superdecompound; in a few they are simple. They are chiefly inhabitants of the Levant or the south of Europe: the 12th and 20th only are natives of England.

The species want to be better described; and probably it may be found that culture has produced some changes which have been taken for specific differences.]

1. This has large yellow flowers, which stand upon pretty long peduncles singly, not in close bunches, as in the common sort. It has leaves like those of Lavender-Cotton, which when rubbed, emit a strong oily odour. It flowers in June and July; [is an inhabitant of the Levant; and was cultivated by Mr. Miller in 1759*.

2. The root of *Sweet Maudlin* is woody, and the size of the little finger. Stems several, eighteen inches and more in height, slender, pale green or reddish, branching, covered from top to bottom with abundance of leaves†. These are alternate, oblong, toothed both at the base and extremity. There is sometimes a parcel of smaller leaves at the axils. Yellow, odorous flowers terminate the plant in a long, close corymb. The calyxes are somewhat oval, hard, brownish red, and scaly‡.

It is a native of Italy, about Florence, Leghorn, Nice, &c. of the South of France, about Montpellier, Orange, &c. and of Spain; by road sides: flowering from August to October. It was cultivated here in 1570§.

Being now scarcely used in medicine, it is not cultivated in the gardens for sale: or if it is asked for, the people in the markets give the thirteenth sort, which is a very hardy plant, and easily propagated. For though this is hardy in respect to cold;

yet in wet winters the roots are often killed, especially in good ground; but when the plants grow out of the joints of walls, or in rubbish, they will live many years without care. There are two varieties of this plant; one of them having longer and more compact corymbs; the other broader leaves and smaller flowers.

[It is sweet to the smell; bitter to the taste, and aromatic. Linneus sets it down as obsolete and superfluous. Allione, on the contrary, thinks it an efficacious plant, and recommends it in all disorders arising from a debility of the nerves. He prefers it much to Tansey.

3. The stem, leaves and calyxes are downy-white. Leaves resembling those of *A. cristata*; the serratures deeper, but turned the same way. Corymb as in *A. tomentosa*, but smaller; with sulphur-coloured flowers*. It is a native of the East, where it is used in medicine.

4. Stems many, leafy, a foot high. Leaves tomentose, finely cut, with a stem-clasping petiole; fifteen pairs of pinnae; first pinnules trifid, the rest simple. Flowers umbelled. Calyx smooth, pale, rather shining. The whole flower a fine yellow. The smell pleasantly aromatic†. Retz suspects that two distinct sorts are comprehended under this.]

It is often planted in gardens for the sake of variety: is of humble growth, but the flowers continue long in beauty. It grows naturally in Spain, the south of France, the Valais and Italy; but bears the open air very well in England, [and was cultivated in the Oxford garden in 1658§.

5. This has no chaffs to the receptacle, and therefore recedes in that circumstance from the generic character. It is a native of the Levant, and was cultivated in the botanic garden at Chelsea in 1739§.

6. A native of the Levant, and cultivated 1739, by Mr. Miller§.

It grows to the height of two feet and a half, having large corymbs of yellow flowers on the top. Leaves somewhat like those of common Wormwood, and cut into long narrow segments. It flowers in June and July.

7. Pinnules distinct, remote, blunt, small, quite entire. Native of the Levant||.]

8. This rises from nine inches to a foot in height. It has finely-cut silvery leaves, which remain all the year; and the plant growing close and low, makes a pretty appearance at all seasons. The flowers are produced in corymbs, on the top of the stalks; appear from June to September, and some of them frequently continue the greater part of the winter.— [It is a native of the Levant, and was cultivated 1712 in Chelsea garden§.]

9. *Feverfew-leaved Milfoil* produces many stalks which rise near three feet high, having loose branching corymbs of white flowers on their top, resembling those of the common Sneezewort, but larger. [The leaves are of the size of Tansey leaves. The stem is subpubescent. The scales of the calyx are edged with black¶. The whole plant smells like Sneezewort, but pleasanter, especially the flowers**.]

It is a native of the Alps, is very hardy, thrives in almost any soil, but loves an open exposure, and deserves a place in gardens. [It flowers in July and August; and was cultivated in 1759, by Mr. Miller††.

10. The stem of *Impatient Milfoil* shines, is slightly streaked, and at bottom is red; it is clothed with abundance of leaves from top to bottom, deeply cut into narrow sharp pinnae, dark green and shining on both sides, of different sizes; the four or five lowest pinnae on the upper side next the rib have an upright sharp tooth, reaching to the next pinna; but the eight or ten upper ones have no teeth. The stem terminates in a handsome umbel of white flowers, which are very large in proportion to most of this

* Hort. Kew. † Ray. ‡ Villars.
§ Lob. adv. 208. from Hort. Kew.

* Retz, obs. † Haller. § Hort. Kew.
|| Lin. hort. cliff. ¶ Linneus. ** Haller.
†† Hort. kew.

genus; the florets in the ray are elegantly cut. It is frequent in all Siberia*.]

11. *Silvery-leaved Milfoil* is a very humble plant, rarely rising above six inches high. The flowers are nearly as large as those of common Sneezewort; white, and growing in flat corymbs; they appear in June and July. The leaves have some likeness to those of common Wormwood, and are very hoary, growing close to the ground, and decaying in autumn.

[The whole plant hoary with a white nap. Stems near a foot in height, simple, leafy near the ground, but above almost naked, hairy. Leaves flat, pinnatifid; divisions as far as seven, unequal, dilated outwards, entire or with only one tooth. Flowers almost twenty in a corymb. Scales of the calyx rather hairy, with a brown edge. Florets in the ray eight or thereabouts. Seeds oblong, smooth. Chaffs lanceolate, cut †. Native of the Alps of Switzerland, Austria, Pannonia and Carinthia. Cultivated 1683 by Mr. James Sutherland ‡.

12. *Sneezewort* has the root perennial, creeping. Stems from one to two feet high or more, upright, firm; somewhat angular, villous and branching at top; but not so villous, slender or angular as in Common Milfoil: they are often tinged with red. Leaves alternate, half embracing the stem, two or three inches long, firm, smooth, dark green and somewhat shining; the ends of the serratures white, and almost as hard as bone; marked underneath with two longitudinal ribs besides the mid-rib. Flowers in a loose, compound, upright, villous, leafy corymb, at the end of the stem, fewer and larger than in *A. Millefolium*. Calyx hemispherical, somewhat tomentose, scales imbricate, but not so much as in Common Milfoil, keeled, bright green with membranaceous reddish brown edges. Florets in the centre numerous, white or dirty yellow: in the ray eight or ten, seldom more, ovate, broad, white, blunt at the end, and having three teeth. Seeds numerous, having a kind of wing on each side, truncate, shining. Chaffs of the receptacle membranaceous, blunt, scarcely the length of the florets §.

Sneezewort grows wild in all the temperate parts of Europe. In Britain it is found not very uncommon in meadows, by the sides of ditches, on the balks of corn fields, in moist woods and shady places.] It creeps greatly by the roots. In the spring the young tender shoots are put into salads, to correct the coldness of other herbs; and the roots being hot and biting, are used for the tooth-ach, whence some have given the title of field or bastard Pellitory to this plant. From the form of the leaf it is called Goose-tongue. [The dried powder of the leaves, snuffed up the nostrils, provokes sneezing, and hence its trivial and English name. In Siberia it is said to be used with success in internal hæmorrhages, taken in form of a decoction of the whole herb.]

There is a variety with double flowers, which is preserved in gardens, and is commonly known by the name of *double Ptarmica*, or *Batchelors Buttons*. When this is planted in pots, so as to confine the roots from creeping, the stalks will grow closer together, and then it makes a tolerable appearance when in flower, which is July and August.

13. *Alpine Milfoil* bears some resemblance to the last, but the leaves are longer, deeper cut on their edges, and of a darker green. It is very hardy; and is a native of Switzerland, Savoy and Siberia. Linneus questions whether situation may not have altered this from the last; and Gmelin suspects that it is only a variety. Cultivated 1731 by Mr. Miller ||.

14. Root perennial. Stem branched, panicled, angular, somewhat tomentose. Leaves half stem-clasping, with single, large, equal serratures, cut into little jags to the very rib near the base. Scales

of the calyx dusky violet-coloured about the edge. The flowers resemble those of the Sneezewort (n. 12); there are ten florets in the ray, each having two notches at the end: the disk is elevated and gray. It differs from *A. alpina*, in the serratures of the leaves, which are also whiter; and in having larger flowers. It has the appearance of *Ptarmica*; whereas *A. alpina* approaches nearer to the genuine Milfoils*.

It flowers in August and September: and was introduced in 1784, with the next species, by Mr. John Græffer †.

15. Root perennial. Stem roundish, somewhat tomentose. Leaves sessile, scarcely subtomentose; the serratures not parallel to the surface, but opposite to the edge, very finely ferrulate. Scales of the calyx white about the edge. Ray of the flower white, with from six to eight florets, each having two notches at the end. Disk flattish, yellowish. This is perhaps the same with n. 161. in the second volume of Gmelin's *Flora Sibirica*. It has been usually confounded with Linneus's *A. falcata*, which has yellow flowers, and is a native of the East*.

It flowers here in July and August †.

16. The edges of the scales in the calyx are black, and as it were mortified. The leaves are sometimes bipinnate ‡. Stems many, hard, nine inches or a foot high, simple, villous at the base. Leaves rather hairy, with ten or twelve pairs of linear pinnae. A corymb terminates the branch, with large flowers. Semiflorets from six to ten §. On the mountains of Switzerland, the Valais and Austria. Introduced 1774 by Doctors Pitcairn and Fothergill ||.

17. *Musk Milfoil* bears so much resemblance to the last, as not readily to be distinguished, unless its pleasant aromatic smell be attended to. The root however is not sharp, the stems are lower, the peduncles less tomentose. The leaves greener, more simple, with not more than ten pairs of pinnae, punctured, pulpy, and when magnified appearing to be netted. Scales of the calyx very slightly haired, shorter, more compact, brown not black. Flowers less ¶.

This is the true *Genipi* of the Swifs. In Savoy they call it *Genipi bâlard*, and give the name of true *Genipi* to the *Artemisia rupestris* **. Either of them is an excellent sudorific; but hot and frequently injurious in the pleurisy, when the fever is high ††.

It promises to be of much service in disorders arising from a debility of the solids: and is a grateful food to all sorts of cattle ‡‡.

It grows wild in Switzerland on the high Alps, in Savoy, Piedmont, and Austria: and was introduced 1775 by Doctors Pitcairn and Fothergill §§.

18. *Dwarf Milfoil* is a very small plant. The chaffs between the florets in the disk black at top |||. It is lower than the last; the stem often bent, and the leaves tomentose. These have more pairs of pinnae, which are nearly equal: the first from the root simple, the farther ones gashed, trifid or quinquefid, always lanceolate. The pinnae of the stem-leaves generally simple. The punctures less conspicuous, but full of balsam. Umbels compact, narrow, flat. Calyx hairy, with black edges. It never loses the nap. The smell is somewhat weaker than that of the last, for which it is sold ¶¶. On the high Alps of Switzerland, the Valais and Savoy. Allione observes, that the higher and colder the situation in which it grows, the thicker is the *to-mentum* or flock which covers it.] This is hardy, and will thrive with us in almost any soil, but loves an open exposure. It deserves a place in gardens.

[19. This sort very much resembles common Milfoil, but is twice the size. The stem has hairs, thinly scattered over it. The leaves also are like those of common Milfoil, but larger, and with two ears at the base, one under the leaf, the other prominent above the rib, as in *Athamanta Libanotis* ***. The whole plant is hairy. Florets and semiflorets five. Leaves confluent, with the

* Gmelin. † Haller, & Scopoli. ‡ Hort. kew.
§ Curtis, Withering, Reihan, Woodward, MS.
|| Hort. kew.

* Retz. obs. † Hort. kew. ‡ Linneus. § Haller.
|| Hort. kew. ¶ Haller. ** De Sauss. voy. †† Haller.
‡‡ Scopoli. § Hort. kew. ||| Linneus. ¶¶ Haller. *** Linneus.
leafy

leafy nerve flat, embracing the stem with two pairs of pinnules. Pinnas deep, pinnatifid; pinnules sharply toothed: small pinnules are interposed between the greater ones: the first are remote and have none of them; then they approach nearer till they are confluent with the leafy nerve*. In Italy. Cultivated 1683 by Mr. James Sutherland†.

20. *Common Milfoil* or *Narrow* has the *Root* perennial creeping. *Stem* a foot high or more, upright, almost round, or slightly angular; below smooth with a slight down like a cobweb; at top grooved, woolly, and branched. *Leaves* alternate, smooth above, a little hairy underneath, very long and finely divided, composed of 20—25 short pinnas, each subdivided into 3—7 pairs of pinnules, which are again cut into trifid or quinquefid lanceolate segments: those at bottom are petioled; but on the stem they are sessile, or somewhat stem-clasping. *Flowers* in a close, broad-topped corymb, on tomentose peduncles. Scales of the calyx lanceolate, with a green keel, and pale-brown membranaceous edges. Florets in the disk twelve or fifteen, but not more than four or five expanding at once; they are the length of the calyx, the tube dirty yellow, the border whitish and transparent; in the ray four or five, slightly three-toothed. *Seeds* oblong, compressed; the edge white‡.

Abundant in pastures and by road sides, flowering from June to September.

The inhabitants of Dalekarlia mix it with their ale, instead of hops, in order to increase the inebriating quality of the liquor. *Ut misere inebriet*, is Linneus's expression.

This plant has been generally execrated as a noxious weed in pastures; it is found however to be eaten by cattle, at least by sheep; and has lately been even recommended for cultivation§. Perhaps other plants besides this, may be of service to cattle in pastures, rather as medicine than as food.

Linneus recommends the bruised herb fresh as an excellent vulnerary and styptic: many foreign physicians still have an opinion of it in hæmorrhages; according to Dr. Hill, it is excellent in dysenteries, taken in form of a strong decoction: an ointment is made of it for the piles, and it is reckoned good against the scab in sheep. An essential oil is extracted from the flowers. It is not in use with us in the present practice.

The variety with purple flowers of different shades is not uncommon, wild; and is frequently seen in gardens. The *Alpine* is a variety arising merely from situation; and is different from the thirteenth sort. In cultivation they both approach to the common species.]

21. *Noble Milfoil* approaches near to the foregoing or common sort, but the leaves are of a pale green, and not so long, or so much cut: these have a strong sweet scent when bruised.

[The leaves on the upper flowering branches are simple, semipinnate, quite entire, tomentose, obtuse. Stems round, not furrowed. The ray of the flower becomes at length reflex, so as not to appear¶.

Stem a foot and half or two feet high, erect, furrowed, angular, hoary, roughish. Leaves pubescent, roughish. Corymbs flattish. Scales of the calyx with a yellowish edge, not so brown as in the common sort. The perianth is also less. The floscules of the ray are much smaller, and the white not so vivid: the disk is a whitish gray: the chaffs broad and lanceolate: the seeds naked. The flowers are much less. The scent is stronger, and the qualities appear to be more powerful than in common Milfoil. Native of Italy, Germany, Switzerland, Narbonne, Tartary**. Cultivated 1640 by Mr. John Parkinson.

22. *Scented Milfoil* has the leaves equally bipin-

nate; pinnules distinct, quite entire, acute. Stem scarcely more than a palm high*. Gerard and Haller make this only a variety of the foregoing. Native of Spain, Narbonne, Switzerland, &c.

23. *Cretan Milfoil* has the air of the common sort. Leaves subtomentose: pinnas kidney-shaped, above imbricate in four rows. Flowers white. Native of Crete*.

24. Introduced in 1775, by Monf. Thouin†.

25. The creeping roots of this species sometimes produce two or three packets of oblong, blunt, smooth leaves, enlarging towards the end, which is rounded and toothed, as in those of *Bellis* or common Daisy. The stems are bending, two or three inches high, and finish in a corymb of five or six white flowers. The stem-leaves are sessile, and toothed at the base, like those of *Achillea Ageratum*. The whole plant is green, odorous, and but little tomentose‡.

On the colder Alps the leaves are less firm, and toothed all round. This species is in great and general esteem among the peasants of the Alps: and is recommended as a sudorific; against worms, flatulencies and intermittent fevers§.

26. Stems inclined to woody, eighteen inches high and leafy, branching, streaked, smooth or a little hairy. Leaves rather thick and juicy. Flowers white. This species, as well as the last, has a very strong smell, like Maudlin§.

27. Stem eighteen inches high, erect. The leaves are much shorter and broader than in the common sort, with a broad nerve, and fewer pinnas, scarcely more than sixteen pairs: but each pinna is much broader, the lobes generally entire, but sometimes they have two or three teeth; and they are dotted. The calyx is smooth, and has brown edges. Native of the Grisons; and not uncommon in the pastures and valleys of the Alps||.

PROPAGATION AND CULTURE.

All the species of *Achillea* may be propagated by parting the roots either in spring or autumn. Many of them ripen their seeds, and may therefore be increased that way by sowing them in March or April; and transplanting them at Michaelmas. They will flower the summer following. Some also will grow from slips or cuttings, planted in a shady border in summer. They are mostly hardy, and require little care in the cultivation.

Those which are most commonly seen in gardens are, the purple variety of common Milfoil, the double variety of common Sneezewort, called double *Parmica*, and woolly Milfoil n. 4.

Whatever merit the alpine sorts may possess as medicines, it cannot answer to cultivate them with that view in gardens, for they owe their efficacy to their peculiar situation. But they who are desirous of having them for variety, will find that they are very hardy, and will thrive almost in any soil, but that they love an open exposure.]

The fifth and sixth sorts are of taller growth: being easily propagated and cultivated both by roots and seeds, and hardy enough to live in the open air, they may be allowed a place in gardens, where, by their hoary leaves, they will make a pretty diversity; and their flowers continuing long, though they are not the most beautiful, yet make a pretty contrast when intermixed with others.

The eighth must have a dry soil and a warm situation, where it will endure the cold of our ordinary winters in the open air: but being often destroyed in very severe frosts, a few plants ought to be sheltered under a frame. It rarely perfects seeds in England, and therefore is propagated by slips.

The eleventh should have a dry soil; for much wet in winter will rot it. This never perfects its seeds in England, and therefore is propagated only by parting the roots.

The thirteenth propagates fast enough by its creep-

* Allione. † Hort. kew. ‡ Haller, Curtis, Withering.
§ Anderson's Essays on Agriculture.
¶ Linneus. ** Pollich.

* Linneus. † Hort. kew. ‡ Villars. § Allione.
|| Haller.

ing root, like the Common Sneezewort, to which it is very nearly allied.

[The fixteenth will not admit of cultivation, according to Ray, nor can it be reconciled to a garden, whatever pains you take with it. This circumstance however is not peculiar to this species; for many of the Alpine plants cannot be kept long in gardens, even at the foot of the Alps, without difficulty.]

The twentieth or common Milfoil creeps greatly by its roots, and also multiplies by seeds, so that it is a troublesome weed in gardens. The variety with purple flowers is apt to lose its colour with cultivation.

The nineteenth and twenty-first forts are equally hardy with this, and therefore require little culture.

[ACHILLEA inodora. See Athanasia.

montana. See Senecio.

tanacetifolia of Miller. See Chrysanthemum.

ACHIMENES. See Columnea.

ACHRAS (The Greek name of a tree in Theophrastus, commonly translated the Wild Pear. Aristotle (Anim. 8. 6.) says, that swine were fattened with the fruit.)

Lin. gen. n. 438. Reich. 473. Schreb. 593. Loe-
fling. Jacq. amer. 56. Browne. Juss. 152.

Sapota Plum. 4. Mill. dict.

Engl. Sapota-tree. Fr. Sapotillier.

Class. 6. 1. Hexandria Monogynia.

Nat. order of Dumose. Sapota Juss.

GENERIC CHARACTER.

CAL. Perianth six-leaved: leaflets ovate, concave, erect; outer broader shorter, inner coloured.

COR. one-petalled, ovate; of the same height with the calyx: border cut into six subovate flat divisions: scales at the jaws of the corolla, equal in length to the divisions, narrower, spreading, emarginate.

STAM. Filaments short, awl-shaped, at the jaws of the corolla, alternate with the divisions, bent inwards. Anthers sharp.

PIST. Germ roundish, flattened. Style awl-shaped, longer than the corolla. Stigma obtuse.

PER. A globose very succulent pome, with twelve cells.

SEEDS, solitary, ovate, shining, scarred on one side and pointed at the base.

OBS. A. mammosa has a sixth part less in the parts of fructification.

ESSENTIAL CHARACTER.

Cal. six-leaved. Cor. ovate, sexfid: with six scales alternate, more within. Pome ten-celled. Seeds solitary, with a scar on the edge, and a tail or process at the top.

SPECIES.

1. Achras mammosa. Mammee Sapota.

Lin. spec. 469. syst. 341. Reich. 2. 103. Jacq. amer. 56. t. 182. f. 19. edit. 2. pi. p. 32. t. 59. Brown. jam. 201. n. 5. Sloan. jam. 2. p. 124. t. 218. Pluk. alm. t. 268. f. 2. Raii hist. 1800.

Sapota Achras. Mill. dict. n. 2.

β. The Bully, or Nisberry Bully Tree. Brown. 201. n. 3.

2. Achras Sapota. Common Sapota.

Lin. spec. 470. syst. 342. Reich. 2. 104. Swartz obs. 128. Jacq. amer. 57. n. 2. t. 41. edit. 2. pi. p. 33. t. 60. Loe. itin. 186. Brown. jam. 200. n. 1. t. 19. f. 3. Plum. gen. 43. Plenck. ic. t. 277.

Sapota Achras. Mill. dict. n. 1.

β. A. Zapotilla. Jacq. amer. 57. 2. β. t. 41. β. Catesb. car. 2. 87. Brown. jam. 200. n. 2. Sloan. jam. 2. p. 171. t. 230. & 172. t. 169. f. 2. Raii dendr. 78, 79.

Flowers solitary, leaves lanceolate-ovate.

[3. Achras dissecta. Cloven-flowered Sapota.

Lin. syst. 342. suppl. 210. Forst. pl. es. n. 13. fl. n. 155.

Flowers crowded, corollas cloven into eight parts, leaves obovate, bluntly notched at the end.

4. Achras falcifolia. Willow-leaved Sapota.

Lin. spec. 470. Reich. 2. 104. Brown. jam. 201. n. 8. t. 17. f. 4. Sloan. jam. 2. p. 98. t. 206. f. 2.

Bumelia falcifolia. Swartz prodr. 50. obs. 129.

Flowers crowded, leaves lanceolate-ovate, acuminate.]

DESCRIPTIONS, &c.

1. Mammee Sapota, otherwise called Nippled S. or American Marmelade, grows in America to the height of thirty-five or forty feet, having a straight trunk, covered with an ash-coloured bark. The branches are produced on every side, so as to form a regular head. The leaves are a foot in length, and near three inches broad in the middle. The flowers are cream-coloured, and are succeeded by large oval or top-shaped fruit, covered with a brownish skin, under which is a thick pulp of a ruflet colour, very luscious, called natural marmelade, from its likeness to marmelade of Quinces. This tree is commonly planted in gardens for the fruit, in Jamaica, Barbadoes, Cuba, and most of the West-India islands. [It was cultivated 1739 by Mr. Miller*.

There is a variety of this, called the Bully or Nisberry Bully Tree, because it generally grows the tallest of all the trees in the woods: its fruit is small; the seeds oblong and narrow. It is esteemed one of the best timber trees in Jamaica†.

2. Common Sapota is a large, tall, straight tree, without knots or branches, for sixty or seventy feet, or more. The head spreads into many small branches, which grow pretty thick and close together. The bark is dark gray, thick and rough, full of large chops. The fruit is bigger than a Quince, round, and covered with a thick gray rind, which when the fruit is ripe, becomes yellow and tough. The flesh is yellow as a carrot, and in the middle are two large rough stones, flat, and each much bigger than an almond. The fruit smells very well, and the taste is answerable§.

It is described by Swartz as a soft roundish Berry, the size of a small apple, having from six to twelve cells, with several seeds in each: he remarks, however, that most of the seeds are usually lost by cultivation. The corolla is white, and almost closed. The flowers come out both from the axils, and the ends of the twigs, singly, on peduncles the length of the petioles, bent down and thickish. The leaves are scattered chiefly at the ends of the twigs; they are petioled, oblong at the base and drawn to a point at the end, entire, membranaceous and stiffish, beautifully nerved and veined, smooth and bright green‡.

The Mammee Sapota (n. 1.) is not so big or so tall, neither is the fruit so large or so round: the rind is thin and brittle, the inside a deep red, and it has a rough flat long stone. It is pleasant and wholesome. There is a wild Mammee (n. 1. β.) which bears a fruit of no value, but the tree is straight, tall and tough, and therefore principally used for masts§.]

The American Sapota or Nisberry Tree is common about Panama, and some other places in the Spanish West-Indies, but is not to be found in many of the English settlements. [It was cultivated 1739 by Mr. Miller||.

The Sapodillia is thus described by Browne. It rises to a considerable height, throwing out its branches on all sides. Leaves smooth and beautiful; and the fruit, which generally grows among them, of a moderate size, and when ripe of a delicate mellow taste. All the tender parts are full of a milky juice, extremely harsh, and bitterish; but the fruit, though full of this while young, is very sweet and agreeable when it ripens. The shells that cover the seeds are generally of a shining or glossy brown cast, but the inward edge is always whitish and rugged. The kernel is bitter, and may be used occasionally in strengthening emulsions.

The Sapadillo-tree, says Dampier, is as big as a large Pear-tree, the fruit much like a Bergoma Pear;

* Hort. kew.

† Browne.

‡ Swartz obs.

§ Dampier.

|| Hort. kew.

in colour, shape and size; but in some trees the fruit is a little longer. When it is green or first gathered, the juice is white and clammy, and will stick like glue; then the fruit is hard, but when it has been gathered two or three days, it grows soft and juicy, and then the juice is clear as spring water, and very sweet; in the midst of the fruit are two or three black stones or seeds, about the bigness of a Pempion seed. This is an excellent fruit.

3. This is a lofty tree, with a thick upright trunk, and abundance of branches, tubercled, and bearing leaves and branches at the ends. Leaves crowded, quite entire, smooth, coriaceous, two inches long; on round slender smooth petioles, near an inch in length. Peduncles one-flowered, filiform, spreading, the length of the petioles; they come out on all sides of the twigs from the bosoms of the leaves, and frequently hang down. The flowers are white, and about half an inch in diameter. All the herbaceous parts of this tree are milky. It is cultivated in Malabar for the fruit, which is a Pome of the form and size of an Olive, succulent, the pulp of a sweetish acid flavour, and containing only one or two seeds, the rest of the cells being usually abortive. The leaves are used for cataplasms to tumours, being bruised and boiled with the root of Curcuma and the leaves of Ginger. It is supposed to be a native of the Philippine islands, whence it is called *Manilkara* and *Manil-gale*, and by the Portuguese *Fruita Manilha*. It probably grows also in China, for the Dutch call it *Chineesche pruynen*. Forster found it flowering in september, in the island of Tongatabu*.

4. The *Willow-leaved Sapota*, called in Jamaica *White-Bully tree* or *Galimeta wood*, grows to a considerable height, with many branches towards the top, rising irregularly, at distant stages, as in most firs. It is commonly straight and tapering, and most frequently found in the lower lands. The wood is pale yellow, and reckoned good timber, but is mostly used in such parts of the building as are least exposed to the weather. No part of the tree is milky †. It was cultivated in 1758 by Mr. Miller ‡.

The bark of the *Sapota* and *mammosa* is very astringent, and goes under the name of *Cortex jamaicensis*. It was once supposed by some to be the true Jesuit's bark, has been given as such to the Negroes with very ill effect, and has been tried in England. It is an excellent astringent, but very different from Jesuit's bark §.

Browne enumerates three other sorts of *Achras*, viz.

n. 4. Beef-wood.

6. Bastard Bully Tree.

7. Mountain Bastard Bully Tree.

These, together with the fourth species, and some others, are comprehended by Swartz under a new genus constituted by him, entitled *Bumelia*.]

PROPAGATION AND CULTURE.

As these trees are natives of very warm countries, they cannot be preserved in England, unless they are placed in the warmest stoves and managed with great care. They are propagated by planting the stones, but as these will not keep good long out of the ground, the surest method to obtain these plants is, to have the stones planted in tubs of earth, as soon as they are taken out of the fruit, and the tubs placed in a situation where they may have the morning sun, and kept duly watered. When the plants come up, they must be secured from vermin, and kept clear from weeds, but should remain in the country till they are about a foot high, when they may be shipped for England; but they should be brought over in the summer, and, if possible, time enough for the plants to make good roots after they arrive. During their passage they must have some water, while they continue in a warm climate; but as they come into colder weather, they should have very little moisture; and they must be secured from salt water, which will soon destroy the plants if it gets at them.

* Forster pl. etc.

† Browne.

‡ Hort. kew.

§ Browne.

When these plants arrive in England, they should be carefully taken out of the tubs, preserving some earth to their roots, and planted into pots filled with fresh earth, and then plunged into a moderate hot-bed of tanners bark, observing, if the weather is hot, to shade the glasses with mats every day, to screen the plants from the sun, until they have taken new root; observing also not to water them too much at first, especially if the earth in which they come over is moist; because too much water is very injurious to the plants before they are well rooted, but afterward they must be frequently refreshed with water in warm weather; and they must have a large share of air admitted to them, otherwise their leaves will be infested with insects and become foul; in which case they must be washed with a sponge to clean them, without which the plants will not thrive.

In the winter these plants must be placed in the warmest stove, and in cold weather they should have but little water given to them, though they must be frequently refreshed when the earth is dry; especially if they retain their leaves all the winter, they will require a greater share of water than when they drop their leaves; so that this must be done with discretion, according to the state in which the plants are. As these plants grow in magnitude, they should be shifted into pots of a larger size, but they must not be over-potted, for that will infallibly destroy them.

ACHYRANTHES (From *Αχρον* chaff, and *ανθη* a flower. Thus *Ananthes*, *Dianthes*, *Opsianthes*, *Proianthes*, *Phyllanthes*, &c. in Theophrastus.)

Lin. gen. n. 288. Reich. 311. Schreb. 404.

Juss. 88. Gertn. t. 188.

Achyranthes (From *αχρον* and *ανθη* a thorn.) Dillen. 7.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Amaranthi* Juss. *Miscellaneæ* Lin.

GENERIC CHARACTER.

CAL. Perianth outer three-leaved, lanceolate, acute, permanent: inner five-leaved, permanent.

COR. none. Nectary of five valves, surrounding the germ, bearded at the tip, concave, caducous.

STAM. Filaments filiform, the length of the corolla. Anthers ovate, incumbent.

PIST. Germ superior, turbinate. Style filiform, the length of the stamens. Stigma bifid, villous.

PER. Capsule roundish, one-celled, not gaping.

SEED single, oblong.

ESSENTIAL CHARACTER.

Cal. five-leaved. Cor. none. Stigma bifid. Seeds solitary.

SPECIES.

1. *Achyranthes aspera*. Rough *Achyranthes*.

Lin. spec. 295. Juss. 246. Reich. 1. 574. fl. zeyl. n. 105. hort. cliff. 42. Thun. jap. 105. Gertn. fruct. 2. 214.

α. *A. ficula*. Mill. diet. n. 1. Bocc. sic. 16. t. 9. Pluk. phyt. t. 260. f. 2.

β. *A. indica*. Mill. diet. n. 2. fig. t. 11. f. 2. Burm. zeyl. 16. t. 5. f. 3. Rumph. amb. 6. p. 17. t. 12. f. 1. Rheed. mal. 10. p. 155. t. 78. Pluk. phyt. t. 10. f. 4.

Stem shrubby erect; calyxes reflex, pressed to the spike.

2. *Achyranthes lappacea*. Burry *Achyranthes*.

Lin. spec. 295. Juss. 246. Reich. 1. 575. suppl. 160. fl. zeyl. n. 103. Mill. diet. n. 3. Gertn. fruct. 2. 214. Burm. zeyl. 47. t. 18. f. 1. Pluk. phyt. t. 82. f. 2. Rheed. mal. 10. t. 59.

Stem shrubby, diffused, prostrate; spikes interrupted; lateral flowers having a bundle of hooked bristles on each side.

[3. *Achyranthes muricata*. Prickly *Achyranthes*.

Lin. spec. 295. Reich. 1. 575. Rumph. amb. 5. 235. t. 83. f. 2.

Stem shrubby, patulous; leaves alternate; flowers in remote ovate spikes; calyxes squarrose.

4. *Achyranthes patula*. Spreading *Achyranthes*.

Lin. Juss. 246. suppl. 160.

Stem shrubby, patulous, pubescent; flowers in orbicular spikes, hedgehog-hooked.

5. *Achy-*

5. *Achyranthes alternifolia*. *Alternate-leaved Achyranthes*.
Lin. syst. 246. *suppl.* 159. *mant.* 50. 344. *Reich.* 575. 3. β . *Pluk. alm.* t. 260. f. 1. *Burm. zeyl.* 17. t. 4. f. 2.
Stem herbaceous, erect; flowers in subglobular burrs.
6. *Achyranthes corymbosa*. *Corymbed Achyranthes*.
Lin. spec. 296. *syst.* 246. *fl. zeyl.* n. 100. (*Celofia*) *Burm. zeyl.* 184. t. 65. f. 2. (*Paronychia*) *Bocc. mus.* 44. t. 39. (*Amaranthus*) *Pluk. alm.* 134. t. 86. f. 6. (*Elichryso-affinis*).
Leaves four-fold, linear; panicle dichotomous-corymbed.
7. *Achyranthes dichotoma*. *Dichotomous Achyranthes*.
Lin. syst. 246. *mant.* 51. *Reich.* 1. 576.
Stems suffruticose, leaves opposite linear flat acute; cyme dichotomous.
8. *Achyranthes prostrata*. *Prostrate Achyranthes*.
Lin. spec. 296. *Reich.* 1. 576. *Rumph. amb.* 6. 26. t. 11. *Bont. jav.* t. 150.
Stems prostrate shrubby; spikes oblong; floscules in pairs, with a hooked fascicle on each side.
9. *Achyranthes nivea*. *White Achyranthes*.
Ait. hort. kew. 286.
Leaves verticilled ovate tomentose, corymbs compact dichotomous, flowers corolled.
10. *Achyranthes altissima*. *Tall Achyranthes*.
Swartz prodr. 51. *Jacqu. amer.* 81.
Celosioides. Loeß. itin. 301.
Celofia. Brown. jam. 179. n. 2.
Blitum. Sloan. jam. 1. 142. t. 91. f. 2.
Amaranthus. Plum. spec. 6.
Stem suffruticose scandent, panicles terminating and axillary, branched.
11. *Achyranthes polygonoides*.
Retz. obs. 2. 12. n. 24.
Digera arvensis. Forsk. ægypt. 65.
Stem decumbent four-cornered, leaves ovate-cordate, spikes lax, short.]

DESCRIPTIONS, &c.

1. The Sicilian plant grows near three feet high, with oblong pointed leaves; the flowers come out in long spikes from the extremity of the branches. [Involucre two-leaved subulate pungent. Calyxes solitary, with converging chaffy leaflets covering the capsule, which being very thin and scarcely distinct from the seed, can hardly be called a capsule. Seed ovate-oblong, almost cylindric, with a little beak on the side, the colour of honey*.

As found in Malabar, Ceylon, Jamaica, and almost every where within the tropics, it has the leaves smooth and green on both sides, like *Plumbago zeylanica*; broader than in the Sicilian plant, and dotted underneath: but the appearance, spike, stature, flower, &c., being the same in both, they are not distinct species†. It was cultivated here in 1713‡.

2. Plant lofty. Stems quadrangular, obtuse, almost naked. Leaves opposite, lanceolate-ovate, extremely sharp-pointed both ways, quite entire. Branches from the axils, long and very straight, terminating in a single, long, interrupted spike. At each tooth of the peduncle three flowers, placed transversely: by the lateral flowers on each side a purple pencil of stiff hooked bristles, gradually expanding themselves into a burr, which when the seed is ripe separates and adheres to any thing§. Native of Malabar and Ceylon. Cultivated in 1759 by Mr. Miller||.

3. Leaves petioled, ovate, entire, almost naked. Spike alternate, peduncled, long, as in the first species, but the flowers more remote, more ovate, and not reflex, but three scales of the calyx shorter and spreading¶¶. Native of India. Introduced in 1777 by Monf. Thouin**.

4. Stem erect, three feet high, brachiate, round, pubescent, green. Leaves opposite, petioled, ovate, acute, pubescent. Spike terminal, sessile. Flowers distant, alternate, the lower opposite, whitish, each supported by a bracte, which is lanceolate, and re-

flex. Glume has three flowers, and is bivalve, the valves ovate, concave, membranous, acute. The middle floscule sessile; the calyx five-leaved, green, pubescent. The side-floscules have two bractes, opposite, resembling a calyx, expanding, contrary to the common glume, within which is a similar fascicle; with stiff, hooked, spreading, yellow bristles, between which is the five-leaved pubescent calyx. In a state of sleep, the opposite leaves are bent down under the branch, and approximate to the under surface. Native of the East-Indies*.

5. Stem flexuose, branching, angular, rough, purple. Lower branches wand-like, elongate, procumbent. Leaves alternate, petioled, remote, lanceolate, subflexuose, polished, ending in long purple petioles. Heads solitary, subsessile, opposite to the leaves. Outer calyx three-leaved, setaceous, the length of the inner, which is five-leaved, lanceolate, erect, permanent, reddish white. Stamens a little shorter than the corolla. Germ globose. Style purple. Two stigmas†. Native of the East-Indies.

6. An herb of a foot in height. Stem round, jointed. Stipules chaffy; and many leaflets from each axil in a fascicle, which perhaps are rudiments of future branches, but not verticillate as in *Galium*. The flowers resemble those of *Celofia*, and it was put into that genus formerly by Linneus.—Calyx five-leaved; petals five; style one, headed. Capsule trivalvular‡. Native of Ceylon.

7. Stems jointed, round, diffused. Leaves rough at the edge, twice as long as the joints of the stem, stiff, spreading, stipules opposite, membranous, lanceolate, broader than the leaves, the length of the joints, permanent, within the leaves. One or two cymes terminating, four-parted, dichotomous. Calyxes one-leaved, five-parted, leaflets awl-shaped, streaked, rigid, awned without the tips. A stamen between each leaflet of the calyx. Style simple. Capsule one-seeded. It resembles the foregoing. Native of Virginia§.

8. Stems often creeping, divaricating, dark purple, hairy. Leaves opposite, obovate, subpetioled, a little hairy, acute, purple about the edge. Spikes from the forks of the stem, peduncled, solitary, green, purple at the tip. Flowers minute, subpedicelled, with the common calyx three-leaved, pointed: by the side of every other floscule a purple pencil with hooked bristles. Fruits reflex, ovate, obtuse. Native of India||.

9. Is a native of the Canary Islands, whence it was introduced here by Mr. Francis Masson in 1780. It flowers from may to july¶.

10. The stalks of this species climb up trees to the height of twenty feet. The leaves are ovate, acute, smooth, entire, petioled, alternate, half a foot in length. The partial spikes have about seven flowers of a greenish white**. It is common among low bushes about Spanish Town and Kingston in Jamaica; and in the woods of Domingo. Browne calls it *Bastard Hoop-withe*.

11. Stems frequently eighteen inches high. Branches alternate; leaves entire, smooth, wrinkled, alternate; the petioles half an inch in length, striated, raised underneath, channelled above, ciliate about the edge. Peduncles axillary, upright, a span in length, naked for two inches at bottom, and thence having alternate, sessile flowers††. It was found in Arabia by Forskahl, and in Malabar by Koenig. It resembles *Polygonum orientale* in leaves and spikes, but the latter are less compact. It is entirely distinct from *Illecebrum sanguinolentum*‡‡. The Arabians call this plant *Didjar* and *Budjer*: from the first of these the trivial name is formed.]

PROPAGATION AND CULTURE.

1. The first sort has been long known in England; but neither this, nor any of the others, having much beauty to recommend them, they are only

* Gærtner.

† Lin. spec. & zeyl.

‡ Hort. kew.

§ Linneus.

|| Hort. kew.

¶ Lin. spec.

** Hort. kew.

* Lin. suppl.

+ Ibid.

‡ Linneus.

§ Ibid.

|| Linneus.

¶ Hort. kew.

** Jacqu. amer.

†† Forskahl.

‡‡ Retzius.

preserved in botanic gardens. The first may be raised on a hot-bed from the seeds, and when the plants have acquired strength, they may be removed into the full ground, where they will flower in July, and the seeds will ripen in September. If they are kept in pots, and set into a warm green-house in winter, they will live two or three years.

The other sorts must be placed in a stove to preserve them through the winter: except the ninth which will live in a green-house.

[ACIA (From the vernacular name *Aciona* in Guiana)

Lin. gen. Schreb. n. 1119.

Acioa Aubl. t. 280. Juss. 342.

Class. 16. 5. Monadelphia Dodecandria.

Nat. order of *Pomaceæ*.—*Rosaceæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* one-leaved, turbinate, curved: border five-parted; parts roundish, spreading; the uppermost and two lowest larger; the two middle ones smaller.

COR. *Petals* five, oblong, rounded; the three upper longer, ascending; the two lower shorter.

STAM. *Filaments* twelve, unequal, uniting at bottom in a linear fleshy membrane, inserted into the calyx between the two smaller petals. *Anthems* roundish, small.

PIST. *Germ* ovate, above the base adhering by the membrane of the stamens to a rib internally prominent from the bottom of the calyx. *Style* filiform, curved. *Stigma* acute.

PER. *Drupe* ovate, fibrous, chinked, large.

SEED. *Nut* ovate, with a brittle shell.

OBS. Compare with this *Couepia Aubl. 207.*

ESSENTIAL CHARACTER.

Cal. five-parted. Cor. five-petalled, unequal. Drupe full of chinks.

SPECIES.

1. *Acia guianensis.*

Acioa guianensis. Aubl. guian. 698.

DESCRIPTION, &c.

This is a tree, with a trunk sixty feet in height, and three or four feet in diameter, covered with a smooth gray bark. The branches which form the head are numerous, thick, and twisted. The leaves are alternate, smooth, entire, firm, waved about the edge, five inches long and three wide, on a very short petiole at the base of which are two small stipules which fall off. The flowers grow in corymbs at the extremities of the twigs. Calyx white. Corolla violet. Fruit the size of a walnut, covered with a thick woody fibrous coriaceous skin, of a brown colour, cracking irregularly and adhering to the stone, which is thin and easily breaks. It incloses a large kernel, of an irregular form, dividing into two lobes, and covered with a russet membrane. The taste of it is agreeable; the Creoles eat it, when it is brought to market in August at Cayenne, and reckon it good fruit. They also extract an oil from it as sweet as that of almonds. They call the tree *Coupi*. The timber of this tree is very hard, and heavy, of a white colour inclining to yellow*.]

[ACIDOTON.

Swartz. prodr. 83. Lin. gen. Schreb. n. 1443.

Class. 21. 7. Monoecia Polyandria.

GENERIC CHARACTER.

* Male flowers.

CAL. *Perianth* five-leaved: leaflets ovate-lanceolate, reflex.

COR. none.

STAM. *Filaments* numerous (35—40), placed on a globular receptacle; the outer shorter, the inner longer, upright. *Anthems* cordate-ovate, upright, small.

* Females on the same or a different tree.

CAL. *Perianth* six-leaved; leaflets linear-lanceolate, spreading.

COR. none.

PIST. *Germ* three-cornered. *Style* short, acute, thick, trifid at the tip. *Stigmas* tomentose, reflex.

* Aublet guian.

PER. *Capsule* three-grained, hirsute, three-celled.

SEEDS solitary, ovate.

ESSENTIAL CHARACTER.

MALE. Cal. five-leaved. Cor. none. Stam. fixed to a globular receptacle.

FEM. Cal. six-leaved. Cor. none. Style trifid. Capsule three-grained.

SPECIES.

1. *Acidoton urens.*

Swartz. prodr. 84. Sloan. Jam. 1. 124. n. 2. t. 83. f. 1.

DESCRIPTION, &c.

Height eight or nine feet. Trunk round, straight, woody, the size of the little finger, covered with a smooth, brownish bark. Leaves towards the top, alternate, narrow-lanceolate, three or four inches long, and three-quarters of an inch broad in the middle, even about the edges, except one small jag in some towards the top, making them appear as if eared. Petioles one-eighth of an inch in length: colour dark green, with several ribs on the under side; and on its surface and edges many long small prickles, which are said to sting very much. The shrub thus described by Sloane seems to have been young; and he never saw either the flower or fruit. Native of Jamaica.]

ACIDOTON. See *Adelia*.

ACINOS. See *Thymus*.

ACNIDA (From *α priv.* and *Κνιδν*, a nettle; to which it bears some resemblance, without having its pruriency.)

[*Lin. gen. n. 1114. Reich. 1219. Schreb. 1521. Gertn. t. 126. Juss. 85.*

Acnide. Mitch. n. 28.

Class. 22. 5. Dioecia Pentandria.

Nat. order of *Scabridæ. Atriplices.* Juss.

GENERIC CHARACTER.

* Male.

CAL. *Perianth* five-leaved: leaflets ovate, concave, acute, membranaceous on the edge.

COR. none.

STAM. *Filaments* five, capillary, very short. *Anthems* versatile, bilocular, forked each way.

* Female.

CAL. *Involucre* many-leaved, linear, deciduous. *Perianth* two-leaved, (three-cleft G.) linear, very small, permanent.

COR. none.

PIST. *Germ* superior, ovate. *Styles* five, long, reflex, pubescent. *Stigmas* simple.

PER. *Fruit* ovate, compressed, many-angled, (three-furrowed, three-sided G.) furrowed, covered with the succulent calyx.

SEED solitary, round, compressed.

ESSENTIAL CHARACTER.

MALE. Cal. five-leaved. Cor. none.

FEM. Cal. two-leaved. Cor. none. Styles five. Seed one, covered with the succulent calyx.

SPECIES.

1. *Acnida cannabina. Virginian Hemp.*

Lin. spec. 1457. Reich. 4. 251. Mitch. gen. 28.

Amæn. acad. 3. p. 19. Gron. virg. 192. 155.

Gert. fruct. 2. 197.

Cannabis virginiana. Baub. pin. 320.

DESCRIPTION, &c.

Leaves linear-lanceolate, quite entire, long, alternate. Racemes solitary in the axils, often simple, sometimes branched, naked, loose, upright*.

The calyx of the female flower is three-toothed, with a small linear-digitate scale at the base. There is no proper pericarp, but the calyx becoming succulent forms an obovate fruit, terminating in three acuminate toothlets, and in a manner three-winged. Seed very smooth and shining, of a dark chestnut colour†.] This plant grows naturally in Virginia, and in some other parts of North America, but is rarely cultivated in Europe, except in some few botanic gardens. It is near of kin to hemp, under which title it has been ranged by some former bota-

* Gronovius.

† Gærtner.

nists;

nifts; there is little beauty in it, and at present no use has been made of it.

[ACONITE, Winter. See *Helleborus*.]

ACONITUM (From *ακονιτος*, *pulveris expers*; because this plant grows on rocks destitute of soil. *Pliny*. Hence *Ovid*—

“Quæ quia nascuntur dura vivacia caute,

“Agrestes *Aconita* vocant.”

Theophrastus derives it from *Akonis*, a city of the Maryandini. *Pliny* gives another derivation from *Akonon*, a whetstone; but the first seems the best.)

Lin. gen. n. 682. *Reich.* 737. *Schreb.* 928.

Tournef. 239, 240. *Juss.* 234. *Gærtn. t.* 65.

Engl. Monk's-hood. Fr. Aconit.

Class. 13. 3. *Polyandria Trigynia.*

Nat. order of Multifloræ. Ranunculaceæ. Juss.

GENERIC CHARACTER.

CAL. none.

COR. Petals five, unequal, opposite in pairs. 1. The highest helmet-tubed, inverted, the back upwards, obtuse; the top reflected to the base, acuminate, to which top the connecting base is opposite. 2, 3. The two lateral ones broad, roundish, opposite, converging. 4, 5. The two lowest oblong, pointing downwards. Nectaries two, concealed under the first petal, fistulous, nodding; mouth oblique, tail recurved; sitting on long subulate peduncles. Six little, very short, coloured scales, in the same circle as the nectaries.

STAM. Filaments subulate, very small, broader at the base, inclining towards the first petal. Anthers erect, small.

PIST. Germs three (five) oblong, ending in styles the length of the stamens. Stigmas simple, reflex.

PER. Capsules as many as the styles, ovate-subulate, straight, one-valved, gaping inward.

SEEDS very many, angular, wrinkled.

ESSENTIAL CHARACTER.

Cal. none. Petals five: the highest arched, shaped like a hood or helmet. Nectaries two, peduncled, recurved. Capsules three or five.

SPECIES.

* With three capsules.

1. *Aconitum lycoctonum.* Great yellow Monk's-hood or Wolf's-bane.

Lin. spec. 750. *Reich.* 2. 615. *fl. lapp. n.* 221.

succ. n. 476. *hort. cliff.* 213. *Gærtn. fruct.* 311.

Hall. helv. n. 1200. *Scop. carn. n.* 653. *Krock.*

files. n. 834. *Villars, dauph.* 703. *Gmel. sib.* 4.

188. *t.* 81. *Jacqu. austr.* 4. *t.* 380. *Blackw.*

herb. t. 563. *Barrel. ic.* 599. *Rivin. pent.*

t. 127. (Napellus) *Beisl. exst. æst.* 1. *fol.* 11.

Dod. pempt. 439. *Camer. epit.* 827. *Ger. emac.*

970. *Park. parad.* 219. *f.* 2. *Raii hist.* 704.

n. 12.

A. lycoctonum luteum. *Baub. pin.* 183.

β. *Flore cæruleo.* *Fl. dan. t.* 123. *Lin. syst. edit.*

Reich. β.

γ. *Altissimum.* *Mill. dict. n.* 2.

Leaves palmate multifid villous.

[2. *Aconitum japonicum.* Japanese Monk's-hood.

Lin. syst. 504. *Thunb. jap.* 231.

Leaves trifid-palmate: divisions gashed, blunt.]

3. *Aconitum Napellus.* Common Monk's-hood or Wolf's-bane.

Lin. spec. 751. *Reich.* 2. 615. *fl. succ. n.* 477.

hort. cliff. 214. *Hall. helv. n.* 1197. *Scop.*

carn. n. 654. *Krock. files. n.* 835. *Villars,*

dauph. 704. *Jacqu. austr.* 4. 42. *t.* 381. *Mill.*

illustr. Ger. emac. 972. *f.* 3. *Raii hist.* 702.

n. 1.

A. cæruleum. s. Napellus 1. *Baub. pin.* 183.

β. *A. pyramidale.* Long-spiked Monk's-hood or Wolf's-bane. *Mill. dict. n.* 6.

Divisions of the leaves linear, broader above, and scored with a line.

4. *Aconitum pyrenaicum.* Pyrenean or fennel-leaved Monk's-hood or Wolf's-bane.

Lin. spec. 751. *Reich.* 2. 616. *hort. upf.* 152.

Raii europ. 367.

Leaves many-parted, divisions linear incumbent and squarrose.

** With five capsules.

5. *Aconitum Anthora.* Salutory Monk's-hood.

Lin. spec. 751. *Reich.* 2. 616. *hort. cliff.* 214.

upf. 152. *Hall. helv. n.* 1199. *Scop. carn.*

n. 655. *Allion. pedem. n.* 1501. *Krock. files.*

n. 838. *Villars dauph.* 704. *Jacqu. austr.* 4.

43. *t.* 382. *Barrel. ic.* 609. *Rivin. pent.*

t. 126. *Blackw. herb. t.* 562. *Ger. emac.* 969.

Raii. hist. 705. *n.* 13.

Flowers with five pistils: divisions of the leaves linear.

6. *Aconitum variegatum.* Variegated or small blue Monk's-hood.

Lin. spec. 750. *Reich.* 616. *hort. cliff.* 214.

upf. 151. *Krock. files. n.* 836. *Ger. emac.* 971.

f. 2. *Raii hist.* 703. *n.* 7.

Flowers with five pistils: divisions of the leaves parted half way, broader above.

7. *Aconitum album.* White Wolf's-bane or Monk's-hood.

Ait. hort. kew. 2. 246.

A. orientale. *Mill. dict. n.* 10.

A. lycoctonum orientale flore magno albo. *Tournef. cor.* 30.

Flowers with five pistils: leaves smooth three-parted, segments acutely gashed; the claw of the upper petal longer than the side ones.

8. *Aconitum Cammarum.* Purple Monk's-hood or Wolf's-bane.

Lin. spec. 751. *syst.* 504. *Reich.* 2. 617. *Hall.*

helv. n. 1198. *Allion. pedem. n.* 1500. *Krock.*

files. n. 837. *Villars, dauph.* 706. *Jacqu.*

austr. 5. 11. *t.* 424. *Rivin. pent. t.* 129. *Ger.*

emac. 973. *f.* 6. *Raii hist.* 702. *n.* 2.

β. *A. purpureum, s. Napellus 3.* *Baub. pin.* 183.

Clus. hist. 2. 96. *Raii hist.* 703. *n.* 5.

γ. *A. cæruleo-purpureum, flore maximo, s. Napellus 4.* *Baub. pin.* 183. *Mill. dict. n.* 7. *Raii hist.* 703. *n.* 8.

Flowers mostly with five styles; divisions of the leaves wedge-shaped, gashed, acute.

[9. *Aconitum uncinatum.* American Monk's-hood or Wolf's-bane.

Lin. spec. 750. *syst.* 504. *Reich.* 2. 617.

Flowers mostly with five styles; leaves many-lobed; helmet extended very far.

DESCRIPTIONS, &c.

The Aconites are hardy, herbaceous perennials, with tuberous or strong fibrous roots; stems from two to six feet in height, upright, strong, furnished with many digitate or palmate leaves, and terminated by panicles or loose spikes of blue or yellow flowers.

1. The root of *Yellow Monk's-hood* or *Wolf's-bane* is a great tuber or knob, emitting fibres. Stem eighteen inches high or more, very little branched, leafy. Leaves broader than in the other sorts, cut half way into three lobes, which are doubly-trifid, the side ones very deeply two-parted. Spike simple, with few flowers. Corolla pale yellow, villous*: helmet straight, narrow, wrinkled, cylindric spreading out at top, twice the length of the other petals. Nectary blunt, quite entire, running down the writhed peduncle. Stamens twenty-six, or thirty. Germs smooth†.

β. According to *Linneus*‡ and other northern writers, the corolla is not yellow, but of a blueish ash colour. Since however the plants of the north and south agree in other respects, they may be considered as varieties only.

γ. The second species of *Miller*, which he calls *Aconitum altissimum*, is another variety.] The common sort (he says) grows upwards of three feet high, but this is above four, in gardens. The leaves are broader and smooth, and the spikes of flowers are longer. They both flower about the middle of June, and if the season is not too hot, will continue in blow till August. [In Sweden it is reckoned among the earliest spring flowers. A decoction, or the powder of the root is used for destroying flies and other insects§. *Linneus* gives an account of its being

* *Haller.* † *Scopoli.* ‡ *Flora Lapponica.* § *Lin. succ.*

eaten in Medelpadia, a province of Sweden, without injury. It seems indeed to be milder than some of the other species; and goats and horses are said to eat it*. The mountains of Lapland, Sweden, Switzerland, Germany, Austria, Carniola, Italy, Siberia produce it, in a wild state: and it was cultivated here in 1596 by Gerard†.

2. Differs from the first, in having the leaves only deeply trifid; the divisions toothed, and the teeth rounded. The stem is round and smooth, and the spike of flowers short. Native of Japan, where it is called *Soo Hufo*‡.

3. *Common Monk's-hood* or *Wolf's-bane* has the root simple, woody, tuberous, unequal. Stem erect, firm, covered with leaves, eighteen inches high; terminated by a dense, cylindric spike of flowers. Leaves blackish green, shining, firm, three-parted to the very petiole; the side-lobes very deeply two-parted; the middle lobe three-parted; each small division acutely and unequally trifid: the side-lobes divided in the same manner, only more irregularly. The leaves are narrower than in *A. Cammarum*, less divaricating, not widening so much. Peduncles one-flowered, short; bracte simple. Corolla rather larger, the petals more collected, of a deeper blue; with the beak of the helmet shorter§.

Linneus says, that it is fatal to kine and goats, especially when they come fresh to it, and are not acquainted with the plant; but that it does no injury to horses, who eat it only when dry||. He also relates (from the Stockholm acts) that an ignorant surgeon prescribed the leaves, and on the patient refusing to take them, he took them himself and died.

The ancients, who were unacquainted with chemical poisons, regarded the Aconite as the most violent of all poisons; and accordingly fabled it to be the invention of Hecate, and to have sprung from the foam of Cerberus. Its real virulence is however sufficiently established by fatal experiment.] Some persons, only by taking in the effluvia of the herb in full flower by the nostrils, have been seized with swooning fits, and have lost their sight for two or three days. [But the root is unquestionably the most powerful part of the plant. Matthioli relates, that a criminal was put to death by taking one dram of it. Wepfer informs us, that a wolf would probably have died from a dose of two drams, had not the animal been dissected living, in order to observe the effects of the poison.] Dodonæus gives us an instance, recent in his time, of five persons at Antwerp, who ate the root by mistake, and all died. Dr. Turner also mentions, that some Frenchmen at the same place, eating the shoots of this plant for those of Masterwort, all died in the course of two days, except two players, who quickly evacuated all that they had taken, by vomit. We have an account, in the Philosophical Transactions, of a man who was poisoned, in the year 1732, by eating some of this plant in a salad, instead of Celery. [Dr. Willis also, in his work *De Anima Brutorum*, gives an instance of a man who died in a few hours, by eating the tender leaves of this plant also in a salad. He was seized with all the symptoms of mania.

The Aconite, thus invested with terrors, has however been so far subdued as to become a powerful remedy in some of the most troublesome disorders incident to the human frame. Baron Stoerck led the way by administering it in violent pains of the side and joints, in glandulous scirrhi, tumours, ulcerous tubercles of the breast, &c. to the quantity of from ten to thirty grains in a dose, of an extract, the method of making which he describes.

In Sweden successful experiments have been made of an extract of the juice of the leaves, in cases of rheumatism and intermittent fevers, given in doses of from a grain to a scruple twice or oftener in a day.

* Haller. † Hort. kew. ‡ Thunberg. § Haller.
|| Lin. suec.

A much larger dose has also been safely administered. It is recommended however to begin with a small quantity: a caution the more necessary when we consider the fatal effects, which the recent plant ignorantly eaten has sometimes produced*. According to Dr. Murray in his App. Med. the chief virtue of the plant is in rheumatic and other chronic disorders. In all these cases the extract above-mentioned is the best preparation. It has also been said to be of considerable service in venereal cases, even those of a confirmed nature; to have even dissolved nodes, and cured obstinate ulcers, &c. In the *Gutta Serena* its efficacy has been commended; but perhaps not so certainly as in the fore-mentioned disorders.

This species is often confounded with the eighth; and the figure which Stoerck has given, seems to agree better with that than with this. Their botanical differences have been already pointed out; and their medical qualities are in all probability nearly the same.] The sorts which have blue flowers appear to be more potent than those with yellow or white flowers.

This species comes into blow in august, and were it not for its noxious quality, would deserve a place in every garden. [It was cultivated in 1596, by Gerard†. And is found wild in Sweden, Switzerland, France, Germany, Austria, Carniola, Italy, Siberia, and Virginia.] There are two or three varieties, with white, rose-coloured, and variegated corollas. [Haller also mentions a smaller one, from Tragus, figured by Rivinus, t. 128: another with a dusky or brown corolla: and he affirms, with Cordus, that in gardens it has frequently five capsules.]

The variety β. which Mr. Miller named *A. pyramidale*, is the most common in our English gardens, being cultivated for the specious appearance made by its long spikes of blue flowers. It grows near four feet in height; the spikes are above two feet long; and being very hardy, growing in any soil or situation, and multiplying greatly by its roots, it has been allowed a place in most gardens, and plantations of shrubs. It ought however to be admitted with caution where children and ignorant persons frequent. May and June are the months of its flowering; the seeds ripen in September.

4. *Pyrenean* or *Fennel-leaved Monk's-hood* or *Wolf's-bane* grows wild on the Pyrenees, in Tartary and Siberia. The spike nods before the time of flowering; ‡] which in our gardens is July: the height there is about four feet, and it has a long spike of yellow flowers of a middling size. It may be allowed a place among shrubs, or in such parts of the garden as are not frequented by children. [It was cultivated in 1739 by Mr. Miller§.

5. In *Salutary Monk's-hood*, or *Wholesome Wolf's-bane*, as some absurdly call it, the root consists of from two to four angular, fleshy bulbs. The leaves have a furrow along the middle, they are narrow, three-parted, the side-lobes very deeply two-parted, the middle one doubly trifid, with long sharp gashes; the side-ones more irregular. Stem from a foot to eighteen inches high, little branching. Peduncles sustain one or two flowers. Corolla like that of the third, but of a greenish yellow, inelegant, hairy and pulpy: the lower petals more rounded, the helmet pointed. Stamens to fifty, or even more; filaments broad; anthers reflex: the filaments bearded on each side next the pedicels of the anthers. Pistils commonly three, sometimes four, rarely five. Capsules villous. Seeds wrinkled and multangular||.]

It flowers in the middle of August, and often continues in beauty till the middle of September; the flowers are not so large as those of some other sorts, but being of a sulphur colour, make a pretty appearance in the borders of the flower garden. [It was formerly made use of in medicine, and recommended

* Bergius. † Hort. kew. ‡ Linneus.
§ Hort. kew. || Haller.

as an antidote to the poisonous species: whence by some writers it is called *Anthora* or *Antithora*, the poisonous ones having been named *Thora*.

The taste of the root is sweet with a mixture of bitterness and acrimony. The smell is pleasant. It purges vehemently when fresh, but loses its qualities when dried; it is disused in the present practice; and is certainly poisonous, though in a smaller degree than the others. The native places are the Pyrenees, the Alps of Switzerland, Savoy and Piedmont; Dauphiné, Austria, Carniola, Siberia, &c. Cultivated in 1596 by Gerard*.

There is a variety of this with a white flower.

6. Is a native of Italy and Bohemia.] It flowers at the end of June; seldom grows more than two feet high, and the spikes of flowers are much shorter than in the first sort. The corollas will change from variegated to plain. [Cultivated 1752 by Mr. Miller†.]

7. Was found by Tournefort in the Levant, and was first raised in the royal garden at Paris, from the seeds which he sent, but afterwards became rare in Europe. Mr. Miller, who cultivated it in 1739, mentions, that he has seen it upwards of six feet high, and characterizes it, by its tall stem, palmate leaves, and large white flower.

[8. The flowers are of a paler blue, the helmet much longer, the raceme shorter, than in *A. Napellus*‡. The stem is also higher, reaching even six feet; the leaves broader and widening, with the divisions more divaricate; it is more branched; the spikes are more numerous, but less dense, from the axils of the leaves; the peduncles are longer, exceeding an inch, branching and many-flowered; the leaves at the origin of the branch are lacinate, the flowers looser, the petals more divaricate; the point of the helmet longer. Transplanted into a garden, the leaves become broader, almost like those of *Lycofotum*.

It is found wild in Switzerland, Austria, Stiria, Piedmont, &c. and was cultivated in 1748 by Mr. Miller. Haller found it with a white flower; and others have remarked it in Switzerland with flowers of a pale blue, variegated with white. This last is figured by Rivinus, t. 131.]

The variety γ. named by Mr. Miller *A. alpinum*, will grow to the height of five feet in good ground; the flowers are very large, but not many upon each spike; they are of a deep blue colour.

[9. This species, which is a native of Pennsylvania, has flowers resembling those of the last, but leaves approaching more to the third. The leaves are three or five-lobed, angular and toothed, naked. Flowers blue, coming out singly, the top of the helmet hooked, extended out straight, and farther than the tail§. Cultivated in 1770 by Mr. James Gordon||.]

PROPAGATION AND CULTURE.

All the sorts of Monk's-hood may be propagated by seeds, which should be sown in the autumn, in a shady situation; thus they will appear the spring following; whereas if they are sown in the spring, they generally lie till the year after, before they come up. The ground must be kept clean from weeds all the summer; and the plants should be watered in dry weather, till they are fit to transplant; when they are to be carefully taken up, and planted in shady borders, at the distance of fourteen inches each way, observing to water them till they have taken good root; after which they will require no other care, but to keep them clean from weeds, till the following autumn, when they may be transplanted to the places where they are to remain. They then require no attention but to cut down the stalks in autumn, after they have done flowering.

The common Monk's-hood will grow under the shade of trees, and is therefore proper to plant in ornamental woods and wildernesses. It will also increase very fast by means of its creeping roots,

every piece of which will grow. The other sorts may be increased the same way; though most of these delight in shade, yet few of them will thrive under the drip of trees; they should be planted therefore in shady borders, not immediately overhung by trees, and thus they will continue much longer in flower, and thrive better than in an open exposure.

[They are all hardy perennials, require little care or culture, and have mostly handsome spikes of specious flowers; and are therefore desirable plants for shrubberies, and wilderness quarters.]

ACONITUM HYEMALE. See *Helleborus*.

ACÖRUS (*Αcoros*, *Αcoron*, and *Acorum*, the name of an herb in Theophrastus, Dioscorides, and Pliny: said to be derived from *αρον*, the pupil, because it was esteemed good for disorders of the eye.)

Lin. gen. n. 434. Reich. 468. Schreb. 586.

Gertn. t. 84. Juss. 25.

Class. 6. 1. Hexandria Monogynia.

Nat. order of *Piperitæ*. *Aroideæ* Juss.

GENERIC CHARACTER.

CAL. *Spadix* cylindric, entirely simple, covered with floscules. *Spathe* none. *Perianth* none, unless the calyx be so named.

COR. *Petals* six, obtuse, concave, loose, thicker at the top, and in a manner truncate.

STAM. *Filaments* thickish, a little longer than the corolla. *Anthers* thickish, twin, terminal, adnate.

PIST. *Germ* gibbous, rather oblong, the length of the stamens. *Style* none. *Stigma* a prominent point.

PER. a short triangular *Capsule*, attenuated to both ends, obtuse, three-celled.

SEEDS many, ovate-oblong.

ESSENTIAL CHARACTER.

Spadix cylindric, covered with floscules. *Corollas* five-petalled, naked.

Style none. *Capsule* three-celled.

SPECIES.

1. *Acorus Calamus*. Common Sweet-Rush.

Lin. spec. 462. Reich. 2. 92.

α. *A. vulgaris*. European Sweet-Rush, sweet-smelling Flag, or *Calamus aromaticus*.

Lin. succ. n. 297. Gertn. fruct. 2. 27. Hudf. angl. 147. Wither. arr. 357. Hall. herb. n. 1307. Scop. carn. n. 426. Pollich. pal. n. 343. Krock. files. n. 540. Plenck. ic. t. 275.

Blackw. herb. t. 466. Mor. hist. 3. f. 8. t. 13. f. 4. Ger. emac. 62. f. 1, 2. Park. theat. 140.

Camer. epit. 5. Best. eyf. vern. 8. t. 9. f. 1. Raii hist. 1313.

[β. *A. verus*. Indian Sweet-Rush, or *Calamus aromaticus*.
Lin. zeyl. n. 132. Garz. in Clus. exot. 200. Rumph. amb. 5. 178. t. 72. f. 1. Rheed. mal. 11. 99. t. 60. Lour. cochinch. 208. Raii hist. 1910.

The point of the scape very long and leafy.

2. *Acorus gramineus*. Grass-leaved Sweet-Rush, or Chinese Sweet-Grass.

Ait. hort. kew. 1. 474. Smith. spicil. 15. t. 17.

The point of the stalk scarcely extending beyond the top of the spadix.

DESCRIPTIONS, &c.

1. The Common *Calamus aromaticus* is sufficiently distinguished by its long, sword-shaped leaves, resembling those of the Flag (*Iris Pseudacorus*), but narrower, of a brighter green, waved along one of the edges, and when broken yielding a strong, aromatic scent: and also by its oblong, cylindric spike of flowers, coming out from the side of the stem at the edge of the leaf. This spike is generally single, but sometimes double: Haller mentions it with three, and Blackstone with four spikes.

The root is like that of the Flag; long, cylindric, tuberos, spongy, marked with rings, and putting out abundance of fibres, which indeed are the proper roots. Linneus observes, that the root powdered might supply the place of foreign spices; and that it is the only native aromatic plant of northern climates. It has a strong aromatic smell, and a warm,

* Hort. kew.

† Ibid.

‡ Murray.

§ Linneus.

|| Hort. kew.

a warm, pungent, bitterish taste. The flavour is greatly improved by drying. The roots are commonly imported from the Levant; but those of our own growth are full as good. The Turks candy them, and regard them as a preservative against contagion. They are also said to have cured agues, when the Peruvian Bark has failed. No cattle whatever eat the plant*.]

Calamus aromaticus grows naturally on the banks of rivers, and in standing waters that are shallow. It is found wild in many parts of England, [as on Hounslow-heath, near Uxbridge and Harefield in Middlesex; near Hedley in Surry; in the river Yare near Norwich, and about Lynn and Hillington in Norfolk; in the river Waveney by Bungay in Suffolk; near Cambridge; in the Soar between Loughborough and Kegworth; about Tamworth; in the Avon near Pershore; and in many parts of Cheshire. With us it is not very abundant;] but it grows plentifully in most of the ditches and standing waters of Holland; [and is common in many other parts of Europe.

β. The *Indian Calamus*, which grows in marsh ditches in the East-Indies, differs little from the European, except that in all its parts it is more tender and narrow, and at the same time is of a more hot and biting taste†. According to Father Loureiro's description, the leaves of this are much shorter than in ours, for he says they are scarcely a foot in length.

2. The Chinese species, commonly called *Chinese Sweet-Grass*, has the roots in tufts, with a few thready fibres. Stem scarcely any, or very short. Leaves equitant, erect, somewhat alternate, linear-sword-shaped, pointed, a little thickened at the margin, smooth, evergreen, a span long, edged at the base, with a white, pellucid, thinning membrane. Stalk like the leaves, but a little shorter, erect, somewhat thickened under the spadix, afterwards narrower, and altogether leafy, about equal to it in length, scarcely longer. Spadix arising laterally from the stalk near its top, erect, cylindrical, obtuse, entirely covered with yellowish green sessile florets. No spathe nor bracte. Petals six, roundish, concave; of which the three innermost are a very little less than the others. Stamens six, the length of the corolla, the three outermost of which appear first. Anthers didymous, yellow. Germ globose. Stigma perfectly simple, blunt, without any style.

The whole herb has an aromatic smell when bruised, much resembling our English sweet flag; from which the present species is distinguished by the shortness of that portion of its stalk, which is above the spadix, as well as by all its parts, except the florets, being five times smaller than in that plant. It is probably a native of China; at least it is frequently cultivated, for the sake of its smell, in pots, about the habitations of the Chinese, from whence Mr. Aiton obtained it in 1786, by means of Allan Cooper, Esq. commander of the *Atlas Indiaman*. It flowers in the spring‡.]

PROPAGATION AND CULTURE.

1. The Sweet Flag will succeed very well in a garden, if the ground be moist; but never produces its spikes unless it grows in the water. It loves an open situation, and does not thrive well under the shade of trees. The spikes of flowers appear towards the latter end of June, and continue till August. When this plant is fixed in a proper situation, it will multiply by its creeping roots fast enough.

[2. The Chinese Sweet Grass must be kept in a dry stove, and does not require a great degree of heat.]

[ACROSTICHUM (*Ἀκρος* and *σῆχος*: *summus ordo*.)

Lin. gen. n. 1173. Reich. 1290. Schreb. 1625.

Ruta muraria. Tournef. 317.

Class. 24. 1. Cryptogamia Filices.

GENERIC CHARACTER.

The fructifications cover the whole under surface of the frond.

* Withering.

† Linneus.

‡ Smith spicil.

SPECIES.

* Frond simple undivided.

1. *Acrostichum lanceolatum*.
Lin. spec. 1523. Reich. 4. 384. zeyl. n. 380.
Amæn. 1. 268. 2. Rheed. mal. 12. p. 141. t. 33.
Lour. cochinch. 672. Reliqu. Rudb. t. 6. f. 3.
Fronds linear-lanceolate acute, shoot climbing.
 2. *Acrostichum citrifolium*.
Lin. spec. 1523. Reich. 4. 384. Amæn. 1. 269. 3.
Plum. fil. 107. t. 116.
Fronds lanceolate-ovate quite entire, shoot climbing.
 3. *Acrostichum heterophyllum*.
Lin. spec. 1523. Reich. 4. 384. zeyl. n. 378.
Amæn. 1. 268. 2. Raii suppl. 53. Pet. gaz.
t. 53. f. 12. Rheed. mal. 12. p. 87. t. 29.
Lour. cochinch. 673.
Fronds quite entire smooth petiolate; barren ones roundish, fertile linear.
 4. *Acrostichum crinitum*.
Lin. spec. 1523. Reich. 4. 385. Pet. fil. 145.
t. 13. f. 14.
Fronds ovate obtuse hirsute, crinite above.
 5. *Acrostichum punctatum*.
Lin. spec. 1524. Reich. 385.
Fronds heart-tongued, acuminate, quite entire, dotted above.
 6. *Acrostichum spicatum*.
Lin. syst. 928. suppl. 444. Smith icon. ined. fasc. 2.
t. 49.
Frond simple, petiolate, lanceolate, attenuated to both ends, quite entire, spike terminal linear.
 7. *Acrostichum Lingua*.
Lin. syst. 928. Thunb. jap. 330. t. 33.
Fronds oblong obtuse entire petiolate, shoot creeping.
 8. *Acrostichum hastatum*.
Lin. syst. 928. Thunb. jap. 331. t. 34.
Frond simple hastate.
- ** Frond simple divided.
9. *Acrostichum septentrionale*.
Lin. spec. 1524. Reich. 385. lapp. 380. suæc. 937.
amæn. 1. 269. 4. Hudf. angl. 450. Wither.
arr. 3. 48. Lightf. scot. 656. Oeder. dan.
t. 60. Berg. phyt. 2. 33. Scop. carn. n. 1259.
Pollich. pal. n. 955. Hall. belv. n. 1714. Lob.
ic. t. 47. 1. Park. 1045. 8. Ger. 343. 4.
emac. 1561. f. 8. Bauh. hist. 3. 755. 2. Bol-
ton. fil. 8.
Fronds naked linear laciniate.
 10. *Acrostichum australe*.
Lin. syst. 928. suppl. 444.
Stipes naked, quite smooth, dichotomous at top, with five or six subulate rays, and flowering from the sides.
 11. *Acrostichum pectinatum*.
Lin. spec. 1524. Reich. 385. Amæn. 1. 270. 6.
f. 4, 5. Berg. cap. 358. Pluk. alm. t. 95.
f. 7. Raii suppl. 629. Mor. hist. 3. 233. s. 8.
t. 9. f. 30. Reliqu. Rudb. t. 23. f. 2.
Naked, perfectly simple, spike crescent-shaped, on one side, ascending, compressed.
 12. *Acrostichum dichotomum*.
Lin. spec. 1524. Reich. 4. 386. Pet. gaz. t. 70.
f. 12.
Naked, dichotomous, spikes on one side, ascending, reflex, compressed.
 13. *Acrostichum digitatum*.
Lin. spec. 1524. Reich. 4. 386. zeyl. 379.
Amæn. 1. 269. 5. f. 1.
Stipes naked three-sided, frond digitate linear quite entire equal.
 14. *Acrostichum ferrugineum*.
Lin. spec. 1525. Reich. 386. Pluk. phyt. 89. f. 9.
Fronds pinnatifid; pinnae linear acute spreading quite entire connate; stipe smooth.
 15. *Acrostichum polypodioides*.
Lin. spec. 1525. Reich. 4. 386. Amæn. 1. 271. 8.
Brown. jam. 105. 2. Gron. virg. 198. Sloan.
jam. 1. 79. Pluk. alm. 153. t. 289. f. 1. Mor.
hist. 3. s. 14. t. 3. f. 5.
Fronds pinnatifid, pinnae linear obtuse quite entire spreading crowned, stipe scaly.

*** Frond

*** Frond pinnate.

16. *Acrostichum aurcum*.
Lin. spec. 1525. *Reich.* 4. 387. *hort. cliff.* 475. 1. *amæn.* 1. 273. 11. *Pet. fil.* 142. t. 8. f. 5. *Sloan. jam.* 1. 76. *Brown. jam.* 105. 4. *Plum. fil.* 87. t. 104. *amer.* 5. t. 7. *Raii suppl.* 63. *Pluk. alm.* t. 288. f. 2.
Pinnas alternate tongue-shaped quite entire smooth.
17. *Acrostichum rufum*.
Lin. spec. 1525. *Reich.* 4. 387. *hort. cliff.* 475. *Sloan. jam.* 1. 87. t. 45. f. 1. *Brown. jam.* 93. 10. (*Asplenium*.)
Pteris rufa. Lin. spec. edit. 1. 1074.
Pinnas oblong-ovate quite entire pubescent.
18. *Acrostichum punctatum*.
Lin. syst. 929. *suppl.* 444.
Leaflets alternate lanceolate quite entire, the lowest eared, the upper ones decurrent, the upper surface dotted smooth.
19. *Acrostichum forbifolium*.
Lin. spec. 1526. *Reich.* 387. *Pet. fil.* 153. t. 9. f. 8. *Plum. amer.* 8. t. 12. *Raii suppl.* 76. *Sloan. jam.* 85. t. 38. *Pluk. alm.* 153. t. 286. f. 3. *Mor. hist.* 3. p. 576.
Pinnas oblong-ovate entire ferrate acute, stipes scaly.
20. *Acrostichum areolatum*.
Lin. spec. 1526. *Reich.* 388. *amæn.* 1. 274. 12. *Gron. virg.* 124. 165.
Pinnas alternate linear ferrate at top.
21. *Acrostichum marginatum*.
Lin. spec. 1526. *Reich.* 4. 388. *Brown. jam.* 105. n. 6. *Sloan. jam.* 1. p. 84. t. 40.
Pinnas oblong quite entire waved acuminate, stipe naked.
22. *Acrostichum sanctum*.
Lin. spec. 1526. *Reich.* 4. 388. *Brown. jam.* 105. n. 5. *Sloan. jam.* 1. 91. t. 49. f. 2. *Pluk. alm.* 150. t. 283.
Polypodium sanctum. Swartz, prodr. 133.
Fronds lanceolate, pinnas linear-lanceolate gash-ferrate, the lower ferratures largest.
23. *Acrostichum platyneuron*.
Lin. spec. 1527. *Reich.* 388. *amæn.* 1. 272. 10. *Gron. virg.* 123. 165. *Pluk. alm.* 153. t. 289. f. 2. *Raii suppl.* 58. *Mor. hist.* 3. f. 14. t. 2. f. 5.
Pinnas alternate ovate crenate sessile bowed upwards.
24. *Acrostichum trifoliatum*.
Lin. spec. 1527. *Reich.* 389. *amæn.* 1. 274. 13. *hort. ups.* 476. *Sloan. jam.* 1. p. 88. t. 45. f. 2. *Brown. jam.* 106. 8. *Pet. fil.* 141. t. 8. f. 9. *Plum. fil.* 12. t. 144. *Mor. hist.* 3. p. 572. *Raii suppl.* 75.
Leaflets ternate lanceolate.
 **** Frond subpinnate.
25. *Acrostichum filiquosum*.
Lin. spec. 1527. *Reich.* 4. 389. *zeyl.* 376. *amæn.* 1. p. 270. 7. f. 3. *Pet. mus.* 741. *Rumph. amb.* 6. p. 17. t. 74. f. 1. *Pluk. alm.* 298. t. 215. f. 3.
Pinnas alternate, pinnulate upwards, linear, the lower ones two-parted.
26. *Acrostichum thalictroides*.
Lin. spec. 1527. *Reich.* 4. 389. *zeyl.* 377. t. 4. *amæn.* 1. 275. 17.
Pinnas alternate, on each side pinnatifid, the barren ones broader.
27. *Acrostichum Marantæ*.
Lin. spec. 1527. *Reich.* 4. 389. *Hall. belv.* n. 1715. *Barr. ic.* 858. 857. *Pluk. alm.* 150. t. 281. f. 4.
Fronds subbipinnate, pinnas oppositely coadunate, very hirsute underneath, a little toothed at the base.
28. *Acrostichum ilvense*.
Lin. spec. 1528. *Reich.* 4. 390. *lapp.* 383. *suec.* 938. *Huds. angl.* 451. *Fl. dan.* 391? *Pluk. alm.* 150. t. 89. f. 5. *Mor. hist.* 3. 576. f. 14. t. 3. f. 23.
Polypodium ilvense. Wither. arr. 3. 57.
Fronds subbipinnate, pinnas oppositely coadunate, obtuse, hirsute underneath, quite entire at the base.
29. *Acrostichum ebenenum*.

- Lin. spec.* 1528. *Reich.* 4. 390. *amæn.* 1. 272. 9. *Sloan. jam.* 1. p. 92. t. 53. f. 1. *Raii suppl.* 83.
Pinnas sessile oblong sinuate, the uppermost shortest and quite entire.
30. *Acrostichum furcatum*.
Lin. spec. 1529. *Reich.* 390. *Plum. amer.* 13. t. 20. *fil.* 22. t. 28. *Raii suppl.* 96. *Pet. fil.* 51. t. 5. f. 4. *Sloan. jam.* 1. p. 102. *Pluk. alm.* 156.
Polypodium dichotomum. Swartz, prodr. 133. *Thunb. jap.* 338. t. 37.
Dichotomous, leaflets pinnate; pinnas parallel lanceolate approximating, quite entire.
 ***** Frond bipinnate.
31. *Acrostichum aculeatum*.
Lin. spec. 1530. *Reich.* 391. *Sloan. jam.* 1. p. 99. t. 61. *Pluk. alm.* 156.
Trichomanes aculeatum. Swartz, prodr. 396.
Fronds super-decompound, pinnas bifid, stipes prickly.
32. *Acrostichum cruciatum*.
Lin. spec. 1529. *Reich.* 391. *amæn.* 1. 275. 16. *Plum. fil.* 26. t. 38. *amer.* t. 25. f. B. *Pet. fil.* 161. t. 9. f. 10.
Leaflets opposite lanceolate, the lowest appendaged crosswise.
33. *Acrostichum barbarum*.
Lin. spec. 1529. *Reich.* 391. *hort. cliff.* 476. *amæn.* 1. 274. 15. *Pluk. alm.* 156. t. 181. f. 5.
Leaflets opposite, pinnas lanceolate obtuse ferrate sessile alternate.
34. *Acrostichum calomelanos*.
Lin. spec. 1529. *Reich.* 392. *hort. cliff.* 476. *amæn.* 1. 274. 14. *Sloan. jam.* 1. 92. t. 30. f. 2. *Brown. jam.* 107. 12. *Plum. fil.* 30. t. 40. *Pet. fil.* 156. t. 9. f. 11. *Plum. amer.* 30. t. 44. *Pluk. alm.* 11. t. 124. f. 3.
Pinnas alternate lanceolate acuminate pinnatifid.
35. *Acrostichum viviparum*.
Lin. syst. 930. *suppl.* 444.
Fronds viviparous, pinnas in pairs one-sided, pinnules pinnatifid forked subulate, bearing the fructifications on the inner margin.
36. *Acrostichum velleum. Woolly Acrostichum.*
Ait. hort. kew. 457.
Fronds bipinnate; all the pinnas ovate cordate gashed on the side and very hirsute underneath.
37. *Acrostichum simplex*.
Swartz, prodr. 128.
Fronds entire smooth petioled; the barren ones lanceolate acuminate, the fertile ones linear-lanceolate.
38. *Acrostichum petiolatum*.
Swartz, prodr. 128.
Fronds entire smooth petioled; the barren ones linear-lanceolate, the fertile ones linear.
39. *Acrostichum latifolium*.
Swartz, prodr. 128. *Brown. jam.* 104. 1. *Plum. fil.* 135. (*Lingua cervina*.)
Fronds petioled, broad-lanceolate, very smooth, entire, margined; the fruit-bearing ones ovate-lanceolate; shoots creeping.
40. *Acrostichum villosum*.
Swartz, prodr. 128. *Plum. fil.* 127. f. D.
Fronds broad-lanceolate, somewhat crenulate, villous on both sides.
41. *Acrostichum muscosum*.
Swartz, prodr. 128. *Plum. fil.* 139.
Fronds petioled entire scaly; the barren ones oblong-lanceolate blunt, the fertile ones linear-lanceolate.
42. *Acrostichum ferrulatum*.
Swartz, prodr. 128.
Fronds linear toothed, fruit-bearing at the tip; shoots very short rooting.
43. *Acrostichum graminoides*.
Swartz, prodr. 128.
Fronds naked linear, subdichotomous and fruit-bearing at the tip.
44. *Acrostichum sulphureum*.
Swartz, prodr. 129. *Plum. fil.* 44. (*Filix aurea*.)
Fronds bipinnate, pinnas alternate ovate pinnatifid, leaflets retuse ferrate.

Of these forty-four species of Ferns, two only are natives of Great-Britain, the ninth and twenty-eighth. They both grow on rocks in Wales, and the former is found also in the northern counties, and in Scotland. The twenty-seventh is a native of Europe, but all the rest are the growth of hotter climates, as the East or West-Indies, Africa, and the southern provinces of North-America.

1. Fronds simple, quite entire, the whole of the lower surface crowded with elevated golden semiferous dots*. According to Linneus, these are towards the top of the leaf only. Native of the East-Indies and Cochinchina; sticking to trees.

2. Native of America.

3. Shoot parasitical, filiform, long, creeping; with few branches. Fronds thick, the whole under part of those which are fertile covered with fructifying dots†. Native of the East-Indies, Cochinchina and Africa, in woods.

5. This very much resembles *Harts-tongue*. Upper surface of the fronds naked, with a few very small dots; the lower has yellow feminal points crowded. Is it not therefore rather a species of Polypody? Stipe naked, subquadrangular. It is used medicinally in China, where it was first remarked by J. Fothergill‡.

6. *Roots* fibrous, branched, with tomentose fibrils. *Fronds* a foot long, upright, smooth, with a strong nerve, which is a continuation of the petiole running along the middle, and small partial veins, nearly opposite, flexuose, obscurely reticular, evanescent. *Fructifications* on a linear appendix, two inches long, in form of a spike, at the end of the frond, covering the whole lower surface of it, covered at first by the inflex edges of the appendix, but afterwards prominent; when these integuments become reflex. *Capsules* very numerous and minute, pedicelled, ovate, shining, pale yellow, each embraced on one side by a jointed, fulvous ring. Found by Commerfon in the island of Mauritius§.

7. Stipe three-cornered, villous, erect. Frond green and smooth on its upper surface, ferruginous and villous on its lower. Fructifications netted ferruginous, covering the whole under surface of the frond. Differs from *A. punctatum*, in the frond being oblong not cordate, thick, so as to be almost coriaceous, obtuse not acuminate. From *A. citrifolium* in having a smaller coriaceous frond, and a creeping shoot||.

8. Several four-cornered stipes from the same root, often flexuose, ascending, and covered with a ferruginous down. Frond erect, flat, with the edges rolled in, green and naked above, beneath tomentose and ash-coloured; the middle lobe lanceolate, the side-lobes ovate, and half the length. Thin, oblongish, ferruginous flowers cover the lower surface. Both these are natives of Japan¶.

9. It grows in tufts resembling at first sight some rushy grass. Fronds from one to four inches long; commonly a little curved, narrow, entire at the base, but dilated towards the extremity, and divided into two or three lanceolate segments, which are again irregularly cut into two, three or more smaller recurved ones. The fructifications first appear in small lines, but in the adult plant the lower surface of the leaf is totally covered with brown, dusty capsules**. On clefts of rocks and old walls, in Yorkshire, Westmoreland, Wales, and Scotland.

10. This much resembles the foregoing, but it is silvery, and more regularly divided; purple fructifications proceed from the inner edge, cleft longitudinally. The last divisions of the fronds are subulate, roundish, straightish. In the isles of France and Bourbon††.

11. *Stipe* a foot high, naked, erect, triangular, on one side somewhat convex, on the other concave. *Spike* kidney-form, compressed, the length of the human nail, the upper edge convex, the lower con-

cave, pectinate, fixed by one end, bowed back, composed of about sixteen linear pinnas, convex at the back, parallel, approximating, converging longitudinally by pairs, smooth, quite entire, the inner side covered with wool and fructifications. Hermann, Morison, Ray, and Plukenet took this plant for a species of grass. Petiver alone suspected it to be a fern, as it proves really to be*. Native of the Cape of Good Hope.

12. Resembles the *pectinatum* in stem and spike, but the stem has many more forkings, with spikes to each†. Native of China and the Society Islands.

13. Stipe linear, a foot high, smooth, contracted at top. Fronds several in a bundle, consisting of nine linear obtuse erect leaflets, almost equal, hardly so thick as a wheat straw, covered all over the inner side with fructifications. When these are not visible, this fern has the air of a fucus‡. Native of Ceylon.

14. Scarcely different from the following species, except in having a naked stipe, which is the case also in that sometimes§.

15. Fronds alternate, oblong. It has the appearance of common Polypody||: and having the fructifications distinct, is rather of that genus. The back of the frond is hoary and scaly, and has the fructiferous spots more or less confluent¶. Native of Jamaica and Virginia.

16. Stipes in bundles, of a very dark rufous colour, smooth, about nine feet high, the thickness of the little finger. Pinnae lanceolate, about twenty, subpetioled, a foot and a half long, bluntish**. Native of Jamaica, Dominica, and the Society Isles.

17. Eighteen or twenty inches in height. Stipe round, covered with ferruginous hair, leafy almost from the root. Pinnae about an inch from each other, on a small pedicel. Each pinna about an inch long, and half an inch broad at the base, whence they decrease to the end, which is round: they are covered all over with a rusty woolly hair. Native of Jamaica††.

18. Very much resembles *A. rufum*, but has longer leaflets, attenuated to both ends, naked and dotted. Native of the Isle of Bourbon‡‡.

19. Native of Jamaica and Domingo.

20. The little floriferous buds are divided into two phalanxes by the longitudinal nerves of the leaf, and are disposed in several parts transversely on each side§§. Native of Virginia and Maryland.

21, 22. The first of these is only a barren frond of *Pteris grandifolia*. The latter is a Polypodium|||.

23. Stipes naked, alternate, a palm in height. Fronds pinnate: pinnae obtuse, quite entire, obovate or oblong, coadunate at the base. The white part of the back of the leaf has a ferruginous dust sprinkled over it. This species has the air of common Polypody¶¶. Native of Virginia.

24. Root blackish. Stipes of a dark rufous colour, a foot in height. Fronds oblong, alternately pinnate. Leaflets subsessile, the middle one longer than those on the sides; the upper ones in pairs, and the uppermost solitary. The back of the frond is entirely covered with yellow dust***. Native of Jamaica.

25, 26. Natives of Ceylon. These are supposed by Koenig to be one and the same species†††.

27. Stipes about seven inches high, dark purple. Frond almost bipinnate, lanceolate, closely imbricate beneath with chaffy orange-coloured scales. Leaflets opposite, almost pinnate: pinnae ovate, obtuse, thick, quite entire; but the lower ones often toothed on each side at the base. The fructifications spread between the leafy scales over the whole under surface‡‡‡. Stipe blood-red, all hairy, from eight inches to a foot in height. Fronds like those of common spleenwort§§§. Native of the southern countries of Europe.

* Amæn. Acad. † Linneus. ‡ Ibid. § Swartz. obf.
|| Amæn. Acad. ¶ Swartz. obf. 394. ** Amæn. Acad.
†† Sloane. ‡‡ Linneus. §§ Gronovius. ||| Swartz. obf.
¶¶ Amæn. Acad. *** Ibid. ††† Retz. obf. 5. p. 7.
‡‡‡ Lianens. §§§ Haller.

* Loureiro. † Ibid. ‡ Linneus.
§ Smith ic. ined. 2. 49. || Thunberg. ¶ Ibid.
** Yalden in Lightf. †† Linneus.

28. This has a great similitude to the foregoing, but it is scarcely longer than the finger, never so high as seven inches. The stipe is green and not red. It is allied to the Polypodies by having the fructifications in dots, but they are closely crowded*.

29. Is only a young plant of *A. Calomelanes* †.

30. Is seldom found in flower ‡. It is a *Polypodium* §.

31. Is a species of *Trichomanes* ||.

They are all three natives of Jamaica.

32. Stipes in a bundle, smooth, yellowish, with imbricate scales at the base. Frond lanceolate; leaflets sessile, each pinnatifid, toothletted to the very rib; the lowest shorter, eared on both sides. Native of Dominica ¶.

33. Stipes smooth, two or three feet high, upright. Frond doubly-pinnate; pinnae sharply serrate, smooth. Native of Africa **.

34. Stipe black, but the leaves silvery white underneath ††.

Native of South America and Jamaica.

35. Frond ovate-oblong, with an angular stipe. Leaves on one side of the frond, binate, equal. Lower leaflets pinnatifid, upper forked, uppermost quite simple, subulate. The fructification breaks out from the inner edge of the divisions in an oblong spot, which is gradually dilated over the whole under surface of the leaf. Native of the Isles of France and Bourbon ‡‡.

36. Native of Madeira. Found there by Mr. Francis Masson. Introduced here in 1778 §§.

37—44. Natives of Jamaica.

PROPAGATION AND CULTURE.

Few of the species have been yet introduced into gardens. Those of Europe may be either preserved in pots, filled with gravel and lime rubbish; or planted on walls and artificial rocks. The thirty-sixth species, with some few others, may be preserved in the green-house; but the greater part, being natives of very hot climates, must be planted in pots, and plunged into the bark-pit.]

ACTÆA (From *ακταία*, *planta littoralis*, *shore-loving*.)

Lin. gen. n. 644. Reich. 700. Schreb. 877. Juss.

235. *Gärtn. t. 114. Christophoriana Tournef. 154.*

Class. 13. 1. Polyandria Monogynia.

Nat. order of Multifloræ. Ranunculacæ Juss.

GENERIC CHARACTER.

CAL. *Perianth* four-leaved: *leaflets* roundish, obtuse, concave, caducous.

COR. *Petals* four, acuminate to both ends, larger than the calyx, caducous.

STAM. *Filaments* usually about thirty, capillary, broader at top. *Anthers* roundish, twin, erect.

PIST. *Germ* superior, ovate. *Style* none. *Stigma* thickish, obliquely depressed.

PER. a *Berry* oval-globose, smooth, one-furrowed, one-celled.

SEEDS very many, semiorbicular, lying over each other in two rows.

OBS. *A. racemosa* has a coriaceous, not a pulpy fruit.

ESSENTIAL CHARACTER.

Cal. four-leaved. *Cor.* four-petalled. *Berry* one-celled. *Seeds* semiorbicular, in two rows.

SPECIES.

1. *Actæa spicata.*

Lin. spec. 722. Reich. 567. hort. cliff. 209. upf. 138. Gärtn. 2. 154.

α. *A. nigra.* Common black-berried Herb Christopher, or Bane-berry.

Lin. suec. 464. lapp. 217. Hudf. angl. 228. With. 546. Scop. carn. n. 633. Pollich, palat. n. 503. Flor. dan. t. 498. Blackw. t. 565. Hall. belv. n. 1076. Ger. 979. Park. 379. 1. Clus. hist. 2. 86. Besl. eyf. æst. 10. t. 3. f. 1. (Christophoriana.)

β. *A. alba.* American Herb Christopher with white berries.

* Linneus.

§ Swartz obs.

†† Linneus.

† Swartz obs.

|| Ibid.

‡‡ Lin. suppl.

¶ Linneus.

** Amæn. acad.

‡ Linneus.

§§ Hort. kew.

Mill. dict. n. 2. Corn. canad. 76. t. 77. Mon. hist. 2. p. 8. f. 1. t. 2. f. 7.

γ. *A. rubra.* American Herb Christopher with red berries.

Raceme ovate, fruits berried.

2. *Actæa racemosa.* American black or wild Snakeroot.

Lin. spec. 722. Reich. 567. Dill. elth. 79. t. 67. f. 78. Pluk. amaltb. 54. t. 383. f. 3.

Racemes very long; fruits dry.

[3. *Actæa japonica.* Japanese Herb Christopher.

Lin. syst. 488. Thunb. jap. 221.

Spikes very long; leaflets gashed, palmate, undivided.

4. *Actæa aspera.* Rough-leaved Herb Christopher.

Loureiro cochinch. 332.

Stem climbing; leaves lanceolate, rough: spikes interrupted.]

DESCRIPTIONS, &c.

1. The first sort grows naturally in several places in the northern counties of England: I found it in pretty great plenty in a wood near Kirkby Lonsdale, as also near Ingleborough hill in Yorkshire. It grows two feet and an half high, the footstalks of the leaves arise from the root; these divide into three smaller footstalks, each of which divide again into three, and these have each three lobes, so that each leaf is composed of twenty-seven lobes (or small leaves.) The flower stem which arises from the root, has leaves of the same form, but smaller. On the top of the stalk appear the flowers, which grow in ramose spikes, and are of a pure white; these come out in may, and are succeeded by black shining berries about the size of peas, which ripen in autumn.

[Petals rhomb-shaped, flat-membranaceous*. Between the petioles comes out a scape bearing ternate leaves, and an oval raceme. Peduncles simple, with a linear bracte. Stamens longer than the petals. Seeds twelve†. Leaves shining, smooth, resembling those of the umbellate plants‡.]

This plant is a powerful repellent. The root is useful in some nervous cases, but must be administered with caution. The berries are poisonous, the juice of them with alum yields a black dye. Toads allured by the foetid smell of this plant resort to it §. Dr. Withering observes very well, that this may be owing to its fondness for the same damp shady situations with the toad.]

β. The leaves of the American plant are not so deeply indented on their edges as in the European. The flowers grow in a more compact spike, and the berries are very white, and transparent when ripe. The roots are composed of thick tubers or knobs.

[γ. The variety with red berries differs only in the colour of the fruit.]

2. This species has large compound leaves, which rise immediately from the root, and are branched after the same manner with the first. The flower-stems frequently rise to the height of four or five feet. [Dillenius says eight feet and more.] The flowers are white, in a long spike, reflex at the top. [The petals are thick, gibbous, very small, pedicelled, with a bristly-acuminate point, and more in number than the leaflets of the calyx||.] It flowers in june, or the beginning of july, but does not perfect seeds in England. During the time of flowering it makes a good appearance in a garden, and therefore deserves a place in shady borders, or among shrubs, where, if it be not overhung by them, it thrives very well, and being hardy, will require no other care than the shrubs themselves. It is a native of North-America, where it is called *Black Snakeroot*, to distinguish it from *Common Snakeroot*. The root is much used in that country against many disorders, and is supposed to be an antidote against poison, or the bite of the rattle-snake. [It was cultivated at Eltham in 1732 by James Sherard, M. D.¶.]

3. Differs from the second in having simple, not pinnate leaves; the leaflets are heart-shaped, nearly

* Linneus.

|| Linneus.

† Scop.

¶ Hort. kew from Dill. elth.

‡ Haller.

§ Linneus.

§ Linneus.

¶ Hort. kew from Dill. elth.

of the same length and breadth, not oblong; the petioles longer than the leaflets; and the flowers sessile*.

4. Stem shrubby, climbing but without tendrils, unarmed, branched. Leaves subserrate, alternate, flowers white, axillary, in spiked racemes: spikes linear, interrupted. Corolla and calyx quadrifid. Stamens more than fifty. Berry gibbous, juiceless.

Native of China near Canton.

The leaves being extremely rough, the Chinese use them in polishing, particularly tin ware †.]

PROPAGATION AND CULTURE.

These plants may be propagated by seeds, which should be sown on a shady border, soon after they are ripe, where they can be obtained fresh; for if they are kept out of the ground till spring, the plants will not come up till the year after, so that a whole season will be lost. As the seeds seldom come up all at the same time, the border should not be disturbed till the following autumn, in order to see what plants may appear; when they should be transplanted into another shady border, where they may remain to flower. The seeds of the second sort are annually sent from North-America, and should be sown as soon as the season will permit.

[*ACTÆA CIMICIFUGA*. See *Cimicifuga*.

ACULEOSA. See *Gorteria*.

ADAM'S NEEDLE. See *Yucca*.]

ADANSONIA. (Named from M. Adanson, a French surgeon, who resided many years in Senegal, brought home a curious collection of seeds and plants, published his travels, and a new arrangement of vegetables, entitled *Familles des Plantes*.)

Lin. gen. n. 836. *Reich.* 900. *Schreb.* 1126. *Mem. acad.* 1761. *t.* 6. 7. *Cavan. diff.* 5. 198. *t.* 151.

Juss. 275. *Gært.* 135.

Class. 16. 5. *Monadelphia Polyandria*.

Nat. order of Columniferae. Malvaceae. *Juss.*

GENERIC CHARACTER.

CAL. Perianth one-leafed, semiquinquefid, cyathiform; divisions revolute, deciduous.

COR. Petals five, roundish, nerved, revolute, connected by the claws with each other and the stamens.

STAM. Filaments united at bottom into a tube, which they crown, expanding horizontally. *Anthers* kidney-shaped.

PIST. Germ ovate. *Style* very long, tubulous, variously intorted. *Stigmas* many (ten) prismatic, villos, radiate-expanded.

PER. Capsule ovate, woody, not gaping, ten-celled, (ten to fourteen *G.*) with farinaceous pulp, the partitions membranaceous.

SEEDS numerous, kidney-shaped, rather bony, involved in a friable pulp.

OBS. Very nearly allied to Bombax; the fructification differing only in the seeds being covered with meal instead of wool or cotton.

ESSENTIAL CHARACTER.

Calyx simple, deciduous. *Style* very long. *Stigmas* many. *Caps.* woody, ten-celled, with farinaceous pulp, and many seeds.

SPECIES.

1. *Adansonia digitata*. *Ethiopian Sour-gourd*, or *Monkies'-bread*.

Lin. spec. 960. *Reich.* 3. 332.

A. Baobab. *Gærtn. fruct.* 2. 253.

Baobab. *Alp. ægypt.* 66. *t.* 67. *Baub. hist.* 1. 110.

Vest. ægypt. 37. *t.* 17, 18. *Jonst. dendr.* *t.* 19.

Adans. voy. 54.

Abavo. *Baub. pin.* 434.

Guanabanus. *Baub. hist.* 1. 109. *Raii hist.* 1371.

DESCRIPTION.

The young plants, and also most of the new branches, have single spear-shaped leaves towards their lower part, but at their extremities the leaves have some three, and others five lobes, of the same size and form as the lower, which are disposed like a hand; these are entire, ending in a point, and fall off in winter. The stems are large and woody, but of a soft texture, and have generally a large swelling

* Thunberg.

† Loureiro.

near the root. The account which Monsieur Adanson gives of the trees he saw at Senegal and other parts of Africa, in regard to the size of them, is amazing; he measured several from sixty-five to seventy-eight feet in circumference; but their height was not extraordinary. The trunks were from twelve to fifteen feet high, before they divided into many horizontal branches which touched the ground at their extremities; these were from forty-five to fifty-five feet long, and were so large, that each branch was equal to a monstrous tree: and where the water of a neighbouring river had washed away the earth, so as to leave the roots of one of these trees bare and open to sight, they measured one hundred and ten feet long, without including those parts of the roots which remained covered.

Prosper Alpinus, in his history of Egyptian plants, describes this tree, to which he gives the title of *Baobab*, so that it also grows in that country; but he does not mention any of them to be near the size of those described by Monsieur Adanson.

[The fresh fruit is very pleasant, of an acid flavour, and is eaten with sugar. The pulp or juice mixed with sugar, or a syrup made of it, is used in putrid and pestilential fevers. At Cairo they reduce the pulp to a powder, and use it in these disorders, in the lientery, dysentery, and all sorts of fluxes*.]

PROPAGATION AND CULTURE.

It is propagated by seeds, which must be procured from the country where it grows naturally, for it does not produce any in Europe; these must be sown in pots, and plunged into a hot-bed, where, in about six weeks, the plants will come up, and in a short time after be fit to transplant, when they should be each planted into a separate pot, filled with light sandy earth, and plunged into a fresh hot-bed, observing to shade them until they have taken new root; after which time they should have free air admitted to them every day in warm weather, but must be sparingly watered; for as their stems are soft, especially when young, too much wet will cause them to rot. As the plants advance in their growth, they are to be shifted into larger pots, but must constantly be plunged into the bark-bed, being too tender to thrive in this country without this artificial heat, therefore they must constantly remain in the stove with other tender exotic plants: the plants when young make great progress in their growth, where they are properly treated; for in three years many of them have been more than six feet high, and have put out several lateral branches; their stems are also proportionable; but after four or five years' growth, they are almost at a stand, their annual shoots rarely exceeding two or three inches.

There were some plants of this sort in several gardens, which were raised from seeds obtained from Grand Cairo in the year 1724, by the late Dr. William Sherard, some of which were grown to the height of eighteen feet; but in the severe winter 1740, they were all lost, and since that time there had not been any of the seeds brought to England, till the return of M. Adanson to Paris in 1754, who sent some of the seeds over here, which have succeeded, and many of the plants grew upwards of twelve or fifteen feet high.

ADDER'S-TONGUE. See *Ophioglossum*.

ADELIA. (From *Ἀδελός*, *incertus, obscurus*.)

Lin. gen. n. 1137. *Reich.* 1245. *Schreb.* 1558.

Lamarck encycl. 1. 40. *Juss.* 388.

Bernardia. *Browne*.

Class. 22. 12. *Dioecia Monadelphia*.

Nat. order of Tricoccae. Euphorbiæ *Juss.*

GENERIC CHARACTER.

* *Male*.

CAL. Perianth one-leafed, three-parted; leaflets oblong, curved back.

COR. none.

* Ray.

STAM. *Filaments* many, capillary, the length of the calyx, united into a cylinder at the base. *Anthers* roundish.

* *Female*.

CAL. *Perianth* five-parted: parts oblong, permanent. COR. none.

PIST. *Germ* roundish. *Styles* three, very short, divaricate. *Stigmas* torn.

PER. *Capsule* trilocular, roundish, three-celled.

SEEDS solitary, roundish.

ESSENTIAL CHARACTER.

MALE CAL. three-parted. COR. none. STAM. many, united at the base.

FEM. CAL. five-parted. COR. none. STYLES three, torn. CAPS. trilocular.

SPECIES.

1. *Adelia Bernardia*. *Villous-leaved Bernardia*.

Lin. spec. 1473. *Reich.* 283.

Bernardia. *Brown. jam.* 361. n. 1.

Leaves oblong, tomentose, ferrate.

2. *Adelia Ricinella*. *Smooth-leaved Bernardia*.

Lin. spec. 1473. *Reich.* 283.

Bernardia. *Brown. jam.* 361. n. 2.

Leaves obovate, quite entire.

3. *Adelia Acidoton*. *Box-leaved Adelia*.

Lin. spec. 1473. *Reich.* 283.

Acidoton. *Small shrubby Acidoton*.

Brown. jam. 355.

Branches flexuose, spines gemmaceous.

DESCRIPTIONS, &c.

These shrubs grow naturally in the island of Jamaica, and are near of kin to the *Croton*. Dr. Houstoun constituted a genus of the two first by the title of *Bernardia*, in honour of Dr. Bernard de Jussieu.

[2. Grows to the height of eight or ten feet, and has slender flower-stalks.

3. It seldom rises above four feet in height. The branches are very slender and flexible; the leaves small, delicate, crowded, and associated with one or two flowers. It has much the appearance of a young Ebony*.

Introduced 1778 by John Fothergill, M. D. It flowers in June with us. In Jamaica early in April and May†.]

PROPAGATION AND CULTURE.

These plants are propagated by seeds, when they can be procured from the countries where they grow; for they do not produce good seeds in England. They must be sown upon a hot-bed in the spring, and when the plants are fit to remove, they should be each transplanted into a separate small pot, filled with light earth, and plunged into a hot-bed of tan, treating them in the same manner as is hereafter directed for *Croton*. In the autumn, the pots should be plunged into the tan-bed in the stove, where, if they are kept in a temperate heat in winter, and not overwatered during that season, the plants may be preserved, and the summer following will produce flowers; but as these have little beauty, the plants are seldom propagated except in botanic gardens.

ADENANTHERA. (From *ἀδένος*, glandulous, and *ἀνθήρα*, an Anther.)

Lin. gen. n. 526. *Reich.* 572. *Schreb.* 707.

Roy. lugdb. p. 462. *Juss.* 349. *Gartn. t.* 149.

Class. 10. 1. Decandria Monogynia.

Nat. order of *Lomentaceæ*. *Leguminosæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-toothed, very small.

COR. five-petalled, bell-shaped: petals lanceolate, sessile, convex inwards, concave underneath.

STAM. *Filaments* subulate, erect, a little shorter than the corolla. *Anthers* roundish, incumbent, bearing a globose gland at the outer tip.

PIST. *Germ* oblong, gibbous downwards. *Style* subulate, the length of the stamens. *Stigma* simple.

PER. A legume long, compressed, membranaceous

SEEDS very many, roundish, remote.

* Browne,

† Hort. kew.

ESSENTIAL CHARACTER.

CAL. five-toothed. Petals five. Globose glands affixed to the outer tip of the anthers. Legume membranaceous.

SPECIES.

1. *Adenantha pavonina*.

Lin. spec. 550. *Reich.* 2. 269. *vir. cliff.* 36:

zeyl. 160. *Gartn. fruct.* 2. 319.

Poinciana. *Lin. hort. cliff.* 158. *Rumph. amb.* 3:

173. t. 109. *Rheed. mal.* 6. 25. t. 14. *Raii hist.*

1752.

Leaves smooth on both sides.

[2. *Adenantha falcata*.

Lin. spec. 550. *Reich.* 2. 269. *Rumph. amb.* 3:

p. 176. t. III.

Leaves tomentose underneath.

3. *Adenantha scandens*.

Forst. florul. n. 187.

Leaves pinnate, two-paired; leaflets ovate, oblique,

smooth: claspers terminal, bifid.

DESCRIPTIONS, &c.

1. A tree with prodigious decomposed or doubly pinnate leaves. Leaflets ovate, obtuse, quite entire, on very short petioles, sometimes alternate, sometimes opposite. Panicle of simple, thick racemes; with the floscules on equal pedicels. Flowers comparatively very small, yellow*. Legume nearly a foot in length, repand at the futures and obscurely torulose at the seeds, smooth, one-celled, two-valved: the valves after they open are loosely and spirally twisted. Seeds few in proportion to the length of the legume (8—12.) obovate-rounded, convexly lens-shaped, highly polished, of a vivid scarlet colour, with a circular streak in the middle on each side†. This is one of the largest trees in the East-Indies, and the timber is in common use on account of its solidity. It flowers in September, bears fruit at the beginning and end of the year, and is never without leaves. The duration is two hundred years. The natives use the powder of the leaf in their ceremonies. The seeds, besides being eaten by the common people, are of great use to the jewellers and goldsmiths, on account of their equality, for weights, each of them weighing four grains; they also make a cement, by beating them up with water and borax. Of the bruised leaves they make a drink which they esteem good against pains in the loins‡.]

2. Trunk round, with a smooth, whitish bark. It is easily distinguished at a distance, by its resemblance to an umbrella on a stick. Branches large, a little streaked, and marked with small white dots. Leaves bipinnate, with from twelve to eighteen pairs of opposite pinnae, each of which has from ten to twenty-five pairs of leaflets. In old trees the number is less; but the upper pinnae are always longer than the lower ones. The leaves resemble those of the Tamarind, but the leaflets are smaller and narrower, dark green on the upper surface, but white on the lower. The flowers are very small, composed of four yellowish petals. Legumes very slender, above four inches long, and scarcely one broad. Seeds oblong, blackish. Native of the East-Indies§.

3. Native of Mallicollo, an island in the South-Seas||.]

PROPAGATION AND CULTURE.

1. This tree must be raised on a hot-bed from the seeds, which are of a shining black colour, and somewhat larger than those of the great Lentil, but nearly of the same shape. Afterwards it must be placed in the bark stove, where the fine branching leaves will make a very handsome appearance. It has not yet flowered in England.

Mr. Miller mentions another species or variety, with scarlet seeds, which he received from India, and found to be of a very slow growth.

[2. Of the second and third species we know very little, nor have they yet been cultivated in England.]

ADHATODA. See *Jussieu*.

* Linneus.

† Gartner.

‡ Ray.

§ Rumphius.

|| Forster.

ADIANTUM. (From *Adianton*, *οτι ου διαλυεται*: because it repels water, when plunged into it. Pliny. Others from *α* and *διαλυειν*, from its not withering.)

Lin. gen. n. 1180. Reich. 1297. Schreb. 1633. Tournef. 317.

Class. 24. 1. Cryptogamia Filices.

Engl. Maidenhair. Fr. Capillaire.

GENERIC CHARACTER.

Frustrifications assembled in oval spots, at the end of the fronds, which are turned back: or at the reflex tip of the frond underneath.

SPECIES.

* Frond simple.

- [1. *Adiantum reniforme*. Kidney-leaved Maidenhair.
Lin. spec. 1556. Reich. 4. 428. Pluk. alm. t. 287.

Fronds kidney-shaped, stalked, many-flowered.

2. *Adiantum philippense*. Philippine Maidenhair.
Lin. spec. 1556. Reich. 4. 429. Pet. gaz. 8. t. 4. f. 4.

Fronds kidney-shaped, alternate, petiolate, lobate, many-flowered.

3. *Adiantum repens*. Creeping Maidenhair.
Lin. suppl. 446. syst. 939.
Fronds trapezium-shaped, cordate, pinnatifid, divisions lance-shaped, serrate at the tip, the lower ones gashed.

** Frond compound.

4. *Adiantum radiatum*. Rayed Maidenhair.
Lin. spec. 1556. Reich. 929. Pet. fil. t. 14. f. 3.
Plum. amer. t. 49. fil. t. 100. Pluk. alm. t. 253. f. 3. Mor. hist. 3. f. 14. t. 4. f. 9. Brown. jam. 88. 6.

Frond digitate; leaflets pinnate: pinnae one-flowered.]

5. *Adiantum pedatum*. Canadian Maidenhair.
Lin. spec. 1557. Reich. 4. 429. Pluk. alm. 10. t. 124. f. 2. Mor. hist. 3. p. 588. f. 14. t. 5. f. 12. Corn. canad. 7. t. 6. Raii hist. 148. Park. theat. 1060. f. 3.

Fronds pedate; leaflets pinnate; pinnae gibbous before, gashed, fruit-bearing.

- [6. *Adiantum lanceum*. Surinam Maidenhair.
Lin. spec. 1557. Reich. 4. 430. Seb. thes. t. 64. f. 7. 8.

Fronds pinnate: pinnae opposite oblong, the end ones triangularly hastate.

7. *Adiantum hastatum*. Hastate-leaved Maidenhair.
Lin. suppl. p. 447. syst. 939.

Fronds pinnate: pinnae hastate-trilobate straight.

8. *Adiantum trilobum*. Three-lobed Maidenhair.
Lin. spec. 1557. Reich. 430. Pet. fil. t. 11. f. 9. Plum. fil. 82. t. 99. C.

Pinnae three-parted, obtuse, gashed, many-flowered.

9. *Adiantum ferrulatum*. Serrate-leaved Maidenhair.
Lin. spec. 1557. Reich. 4. 430. Sloan. jam. t. 35. f. 2. Pluk. phyt. t. 253. f. 1.

Fronds bipinnate; pinnules deltoid-oblong serrate; fructifications solitary superior.

10. *Adiantum caudatum*. Tail-leaved Maidenhair.
Lin. mant. 308. syst. 939. Reich. 430. Burm. zeyl. t. 5. f. 1. Lour. cochinch. 680.

Fronds pinnate sickled tailed at the tip.

*** Frond decomposed.

11. *Adiantum flabellulatum*. Fan-leaved Maidenhair.
Lin. spec. 1557. Reich. 431. Lour. cochinch. 680. Pluk. alm. t. 4. f. 3. Raii hist. 1853.

Fronds decomposed: pinnae alternate rhomboid rounded many-flowered, stipes pubescent above.

12. *Adiantum trifoliatum*. Ternate-leaved Maidenhair.
Lin. spec. 1558. Reich. 4. 431. Pet. fil. t. 11. f. 4. Plum. fil. 81. t. 99. B.

Frond decomposed; leaflets alternate ternate linear one-flowered.

13. *Adiantum chusanum*. Chinese Maidenhair.
Lin. spec. 1558. Reich. 431.
Fronds decomposed: pinnae alternate pinnatifid: lobes unequal.]

14. *Adiantum Capillus Veneris*. True Maidenhair.
Lin. spec. 1558. Reich. 4. 431. Hudf. ang. 460. Wilber. arr. 3. 64. Lightf. scot. 679. Lour. cochinch. 681. Jacq. misc. 2. t. 7. Allion. ped. n. 2417. Scop. carn. n. 1277. Hall. helv.

n. 1713. Park. 1049. Ger. 982. 1. 2. emat.

1143. 1. Bolton fil. 29.

Fronds decomposed: leaflets alternate; pinnae wedge-shaped, lobed, pedicelled.

- [15. *Adiantum villosum*. Hairy-stalked Maidenhair.
Lin. spec. 1558. Reich. 4. 431. mant. 505. Pluk. phyt. 253. f. 1. Brown. jam. 87. n. 4. Plum. amer. t. 46. fil. 97. Sloan. jam. 1. t. 55. f. 1.

Fronds bipinnate: pinnae rhomboid fructifying before and without, stipe villous.

16. *Adiantum pulverulentum*. Dusty Maidenhair.
Lin. spec. 1559. Reich. 4. 432. Pet. fil. t. 5. f. 7. Plum. amer. t. 47. fil. t. 55.

Fronds bipinnate: pinnae oval truncate, before one-flowered, stipe shaggy.

17. *Adiantum cristatum*. Crested Maidenhair.
Lin. spec. 1558. n. 11. Reich. 4. 432.

Fronds bipinnate: lowest leaflets two-parted: pinnae crescent-shaped, many-flowered above.

18. *Adiantum furcatum*. Forked Maidenhair.
Lin. syst. 940. suppl. 447. Pluk. mant. t. 350. f. 4?

Frond bipinnate: pinnae generally two-parted, linear; line of fructification single.

19. *Adiantum cafferorum*. Caffrarian Maidenhair.
Lin. suppl. 447. syst. 940.
Polypodium cafferorum. Lin. syst. edit. 13. 788.

Fronds bipinnate: pinnae ovate gash-toothletted chaffy underneath.

20. *Adiantum fragrans*. Sweet-scented Maidenhair.
Lin. suppl. 447. syst. 940.
Polypodium fragrans. Lin. mant. 307. syst. edit. 13. 789.

Fronds bipinnate: pinnae ovate sublobed obtuse, naked underneath.

21. *Adiantum truncatum*. Truncate-leaved Maidenhair.
Lin. syst. 940. Reich. 4. 432. Burm. ind. t. 66. f. 4.

Fronds decomposed, with pinnate leaflets: pinnae alternate wedge-shaped rather sickle-shaped truncate quite entire.

**** Frond superdecomposed.

22. *Adiantum clavatum*. Clubbed Maidenhair.
Lin. spec. 1559. Reich. 4. 432. Pet. fil. t. 14. f. 7. Plum. amer. t. 50. f. B. fil. 101. f. B.

Leaflets alternate: pinnae wedge-shaped, quite entire, alternate, one-flowered.

23. *Adiantum aculeatum*. Prickly-stiped Maidenhair.
Lin. spec. 1559. Reich. 4. 433. Plum. fil. t. 94. Pet. fil. t. 11. f. 6. Sloan. jam. 1. t. 61. Brown. jam. 99. 11.

Pinnae palmate many-flowered, stipe prickly.

24. *Adiantum trapeziforme*. Rhomb-leaved Maidenhair.
Lin. spec. 1559. Reich. 433. Sloan. jam. 1. p. 98. t. 59. Brown. jam. 88. 8.

Leaflets alternate; pinnae rhomboid, gashed, fruit-bearing on each side.

25. *Adiantum hexagonum*. Hexagon-leaved Maidenhair.
Lin. spec. 1560. Reich. 4. 433. Pet. fil. t. 10. f. 2. Plum. fil. 84. t. 37.

Pinnae hexangular, emarginate, quite entire, one-flowered on both sides.

26. *Adiantum pteroides*. Heart-leaved Maidenhair.
Lin. mant. 130. syst. 940. Reich. 4. 434.
Pinnae ovate entire crenulate, stipe polished.

27. *Adiantum æthiopicum*. Cape Maidenhair.
Lin. spec. 1560. Reich. 4. 434. Pluk. alm. t. 253. f. 2.

Pinnae rounded entire crenulate, petioles capillary.

NEW SPECIES.

** Frond compound.

28. *Adiantum triphyllum*. Three-leaved Maidenhair.
Smith ic. ined. 3. 74. Lamarck. encycl. 41.
Frond three-leaved: leaflets sessile lanceolate pinnatifid crenate.

29. *Adiantum cuneatum*. Wedge-leaved Maidenhair.
Forst. fl. austr. n. 461.

Fronds

- Fronds pinnate, leaflets opposite subpinnate, pinnae wedge-shaped retuse alternate.*
30. *Adiantum pumilum*. Dwarf Maidenhair.
Swartz prodr. 134. Brown. jam. 87. 1. Pluk.
alm. t. 251. f. 4.
Frond pinnate, stipe capillary, pinnae alternate roundish ferrulate, the uppermost larger trapezium-shaped, fructifications interrupted.
31. *Adiantum deltoideum*. Deltoid-leaved Maidenhair.
Swartz prodr. 134.
Frond pinnate, pinnae alternate deltoid obtuse, the uppermost triangular; fructifications continued above and in front.
32. *Adiantum macrophyllum*. Large-leaved Maidenhair.
Swartz prodr. 135. Brown. jam. 87. 2. t. 38. f. 1.
Trichomanes majus nigrum, &c. Sloan. jam. 81. n. 34.
Frond pinnate, pinnae opposite rhomboid acute, the lower larger, the lowest subbasate reflex; fructifications continued in front and below.
*** Frond decompose.
33. *Adiantum scandens*. Climbing Maidenhair.
Loureiro cochinch. 681.
Fronds decompose: leaflets wedge-shaped, equally gashed: stem climbing.
34. *Adiantum striatum*. Striated Maidenhair.
Swartz prodr. 135.
Frond bipinnate, pinnules rigid sickled-ovate, fructifications superior interrupted, stipe round rough.
35. *Adiantum strictum*. Stiff Maidenhair.
Swartz prodr. 135.
Frond bipinnate, pinnae four-cornered fastigate erect, pinnules alternate polished entire, fructifications superior continued.
36. *Adiantum microphyllum*. Small-leaved Maidenhair.
Swartz prodr. 135. Sloan. jam. 1. 98. n. 90. t. 13. f. 2.
Frond bipinnate, leaflets alternate oblong obtuse crenate, the lowest pinnatifid.
37. *Adiantum denticulatum*. Tooth-leaved Maidenhair.
Swartz prodr. 135. Pluk. phyt. t. 252. f. 5. Plum. fil. t. 52. (Lonchitis.)
Fronds decompose, pinnae alternate trapezoid acuminate crenate, notches toothletted, fructifications superior interrupted.
**** Frond superdecompose.
38. *Adiantum fragile*. Brittle Maidenhair.
Swartz prodr. 135.
Frond superdecompose bipinnate at top, pinnae obovate wedge-shaped entire, fructifications interrupted.
39. *Adiantum tenerum*. Tender Maidenhair.
Swartz prodr. 135. Brown. jam. 88. 7. Pluk. phyt. t. 254. f. 1.
Frond superdecompose, pinnules alternate rhomb-wedge-shaped blunted gashed, fructifications interrupted.

DESCRIPTIONS, &c.

In this large genus of Ferns one only (the fourteenth) is native of Great-Britain, and that in a single place or two of Scotland and Wales. The rest are chiefly the growth of hotter climates, particularly the West-Indies.

1. Native of the island of Madeira. Introduced here in 1778, by Mr. Francis Masson*.

2. Native of the Philippine islands.

3. Stems long chaffy creeping. Stipes erect chaffy. Fronds quite smooth; divisions at the base deeper than the others. The fructifying dots are in the serratures. Native of the Isle of France†.

4. This elegant little plant rises by a simple stalk to the height of six or eight inches, and then divides into five or more simple branches disposed in a radiated expanded form; these are sustained by a few simple leaves placed in the manner of an umbrella, under their insertions. The fronds are small‡. It is a native of Jamaica and Domingo.

5. Root small. Stipes dark purple, eighteen

inches high and more. Leaves resembling the comb of a cock. John Tradescant the son brought it into England from Virginia* before the year 1640. It is also a native of Canada, Japan, and the Society Isles. It flowers in August and September†.

6. Stipe smooth. Frequently two pair of leaflets to the frond, with the odd one longer. Pinnae recurved, obtuse; the end ones larger, oblong, acute‡. Native of Surinam.

7. Stem undivided, smooth, dark purple, half a foot high. Pinnae subsessile, three-lobed; the side-lobes short; the lower opposite, obtuse, the upper alternate, acute; edge crenulate, recurved. Native of the Cape of Good Hope§.

8. Native of America.

9. Height about six inches. Footstalk black and shining, sometimes hairy, and three inches long. Pinnules alternate very close, trapezium-shaped, dark-coloured, without prickles. It has some small jag on the edges. Native of Jamaica||.

10. Fronds in a bunch, like *Aspl. Trichomanes*. Stem from seven inches to a foot high, bending to one side, ferruginous, subpubescent. Pinnae minute, remote, towards the end of the frond, running out there into an almost naked thread, by which it often takes root. Pinnae alternate, subsessile, wedge-shaped, halved, the upper side dilated, gash-multifid to the midst, obtuse, streaked. Fructifications covered by the reflex tips of the pinnae¶. Native of the East-Indies and Japan.

11. Stipe, branches and pedicels channelled above and ferruginous-villous. Stature of *Arum pedatum***.

Native of China.

12. Native of America.

13. Frond lanceolate, smooth: leaflets alternate, lanceolate, alternately pinnate. Lobes of the pinnae linear-wedged, gashed††. Native of China.

14. Fronds, branches and petioles shining, blackish. Leaves at first roundish, afterwards wedge-shaped‡‡. Stem slender, dark purple. Petioles of the branches very large, sustaining three leaves, which are smooth, tender, toothed in the farther part, fan-shaped, dilated, either cut shortly into lobes, or more deeply, three-four-seven-lobed, the lobes obtuse. One or two fruit-bearing dots to each tooth, to which the edge of the leaf is attracted. Maidenhair is a very succulent plant, yielding almost its whole weight of juice: but neither taste nor smell promise any efficacy. If the syrup of Capillaire, which they make from it, be good for any thing, it is from the orange flower water which they put into it§§.

Native of the south of Europe, and the Levant. Wales and Scotland, but rare.

15. Height two feet. Stem black, strong, triangular, covered with a hairy, ferruginous, mossy substance. The fronds proceed from this about a foot from the ground. Pinnae alternate. Pinnules an inch long, and about half as broad, the figure of a trapezium. Native of Jamaica|||.

16, 17. Natives of South-America.

18. Stem two feet high, smooth. Leaflets alternate, alternately-pinnate elongate: pinnae mostly two-parted, quite entire. Fructification in the divisions of the pinnae, at the upper edge, in the middle of which are two membranes, cloven like the divisions, and each emits one fructification¶¶.

19. Stipe wholly covered with chaffs. The whole frond also covered thick with a chaffy villosity. Pinnae sharply and deeply serrate, or rather gash-notched***.

20. Introduced in 1758 by Mr. Fr. Masson†††. Native of Madeira.

21. Pinnae sessile, obliquely truncate, the lower angle mucronate‡‡‡.

22. Native of Dominica.

23. Native of Jamaica and Dominica.

* Ray. † Hort. kew. and Forster. ‡ Linneus.
§ Lin. suppl. || Sloane. ¶ Lin. mant.
** Linneus. †† Ibid. †† Scopoli. §§ Haller.
||| Sloane. ¶¶ Linneus. *** Ibid.
††† Hort. kew. ††† Linneus.

24. Native

* Hort. kew. † Lin. suppl. ‡ Brown jam.

24. Native of New Zealand and between the tropics*.

25. Is *Pteris heterophylla* †.

26. Stipe seven inches high, purple, smooth. Pinnae streaked: edge covered underneath with as many white scales as there are notches, covering the fructifications ‡. Native of the Cape of Good Hope; and introduced in 1775, by Mr. Francis Masson §.

27. Native of the Cape of Good Hope and Japan.

28. This is a very beautiful little Fern, tender, entirely smooth, a span high. Stipe simple, almost upright, filiform, black, shining. Leaflets an inch long, spreading, nearly equal, sharpish, irregularly and not deeply pinnatifid, with large notches, cartilaginous on the edge at the sinuses and the base; they are white underneath, and have a black, shining, flexuous nerve, which is very strong at the base, and vanishes towards the middle of the leaflet. Fructifications solitary at the tips of the notches, each covered with a roundish, membranaceous scale, entirely distinct from the substance of the leaflet. Found by Commerson in Buenos Ayres ¶.

30. This little plant seldom rises above two or three inches from the root; its leaves and stalk are very delicate; and the fructifications but few. Native of Jamaica, in dry and rocky places ¶.

31. Native of Jamaica **.

32. Stalk seldom branched or divided. Leaves commonly from one to two inches in length, and about one inch and a quarter in breadth. Native of Jamaica, in moist and shady places ††.

33. Stipe filiform, long, slender, pale, branching, climbing, and frequently twining. Leaflets blunt, smooth, petioled; with marginal toothlets embracing the fructifications. Native of Cochinchina ‡‡.

34, 35. Natives of Jamaica §§.

36. Height nine inches. Stipes black, covered with a rusty moss. Pinnules small, distinct, dark green. Native of Jamaica, among rocks near St. Jago de la Vega, by the river |||.

37, 38. Natives of Jamaica ¶¶.

39. Height from fourteen to eighteen inches. Stipe black, shining, branched. Native of Jamaica, in shady places ***.

PROPAGATION AND CULTURE.

The only species that have been cultivated with us are the first, fifth, fourteenth, fifteenth, twentieth, twenty-fourth and twenty-sixth. The fourteenth may be preserved in pots filled with gravel and lime rubbish, in which it will thrive much better than in good earth. Although the fifth or *American Maidenhair* will live through the winter in the open air in moderate seasons, yet in severe frosts it is sometimes destroyed, and therefore it will be prudent to keep a plant or two under shelter. This grows naturally in Canada in such quantities, that when the French were in possession of that country, they sent it to France as package for goods, and the apothecaries at Paris used it instead of the true Maidenhair.

The fifteenth and twenty-fourth growing naturally in hot countries, must be preserved in a stove, where their shining black stalks and odd-shaped leaves will afford an agreeable variety among other exotic plants.

The first, twentieth and twenty-sixth, may be kept in the green-house.

ADIANTUM NIGRUM. See *Asplenium*.

ADONIS. (So named from Adonis, the favourite of Venus.)

Engl. *Adonis flower*, or *Pheasant's-eye*. Fr. *Adonide*, [*Oeil de Perdrix*].

Lin. gen. n. 698. Reich. 756. Schreb. 952.

Dill. gen. 4. Gertn. t. 74. Juss. 232.

* Forster.

§ Hort. kew.

** Swartz.

|| Sloane.

† Swartz obs.

|| Smith ic. ined.

†† Browne.

‡‡ Swartz.

‡‡ Loureiro.

‡ Linneus.

¶ Browne.

§§ Swartz.

*** Browne.

Class. 13. 7. Polyandria Polygynia.

Nat. order of *Multifiliqueæ*. *Ranunculaceæ* Juss.

GENERIC CHARACTER.

CAL. Perianth five-leaved; leaflets obtuse, concave, a little coloured, deciduous.

COR. Petals five to fifteen, oblong, obtuse, shining.

STAM. Filaments very short, subulate. Anthers oblong, inflex.

PIST. Germs numerous, in a head. Styles none. Stigmas acute, reflex.

PER. none. Receptacle oblong, spiked.

SEEDS numerous, irregular, angular, gibbous at the base, reflex at the top, a little prominent, naked.

ESSENTIAL CHARACTER.

Cal. five-leaved. Petals five or more, without a nectary. Seeds naked.

SPECIES.

1. *Adonis æstivalis*. Tall *Adonis*.

Lin. spec. 771. Reich. 2. 650. Pollich, pal.

n. 525. Krock. files. n. 866. Villars, dauph.

755. 2. Mill. dict. n. 2. fig. t. 14. f. 2.

Corollas five-petalled, heads of seeds ovate.

2. *Adonis autumnalis*. Common *Adonis*. Bird's-eye.

Pheasant's-eye. Red Maithes, or Red Morocco.

Lin. spec. 771. syst. 514. Reich. 2. 650. Hudf.

aug. 239. With. 570. Curtis, lond. 2. 37.

Scop. carn. n. 677. Hall. belv. n. 1158. Krock.

files. n. 868. Villars, dauph. 755. 1. Mill.

dict. n. 1. Park. par. 291. 5. Ger. 310. 1.

emac. 387. Petiv. brit. t. 39. f. 8. Raii syn.

251. hist. 596.

3. *Adonis vernalis*. Perennial or Spring *Adonis*.

Lin. spec. 771. syst. 514. Reich. 651. fl. succ.

n. 492. Gertn. fruct. 355. Gouan illustr. 33.

Mill. dict. 3. fig. t. 14. f. 1. Curt. mag. 134.

Blackw. t. 504. Scop. carn. n. 678. Hall.

belv. n. 1157. Pollich. palat. n. 526. Krock.

files. 867. Jacqu. austr. 1. t. 44. Park. parad.

291. f. 6. Dod. pempt. 261. Raii hist. 597. 1.

(*Bupthalmum*.)

Flower twelve-petalled: heads of seeds ovate. (Seeds equal thicker at the tip, styled below the tip, hirsute. Gouan.)

4. *Adonis apennina*. Apennine *Adonis*.

Lin. spec. 772. syst. 514. Reich. 651. Jacqu.

austr. 1. t. 44. Gouan illustr. 33.

Flowers fifteen-petalled. (Seeds angular acuminate-mucronate smooth. Gouan.)

5. *Adonis capensis*. Cape *Adonis*.

Lin. spec. 772. syst. 514. suppl. 272. Reich. 652.

Berg. cap. 149. Burm. afr. 147. t. 51. Comm.

hort. 1. t. 1. Raii suppl. 316.

Flowers ten-petalled; heads depressed; leaves biternate, leaflets serrate heart-shaped.

6. *Adonis velicatoria*. Blister *Adonis*.

Lin. syst. 515. suppl. 272.

Imperatoria, &c. Pluk. alm. t. 95. f. 2.

Flowers ten-petalled; leaves biternate, leaflets serrate smooth.

DESCRIPTIONS, &c.

The leaves are multifid in some species, in others biternate. The flowers are terminating, varying in the number of petals from five to twelve or more; these are long, narrow, red or yellow, without any nectary as in *Anemone*, which genus the flowers of *Adonis* resemble. In the fruit this genus approaches more to *Ranunculus*; having the seeds on a receptacle more or less lengthened out, forming a bunch, pretty much as in that genus.

1. *A. æstivalis*. Linneus observes, that this is so nearly allied to the second species, as to be doubtful whether it is really distinct. Crantz unites them; and Mr. Curtis thinks it will most probably be found that they are the same. The number of petals is no certain character; and the time of flowering is none. Linneus says, the corolla in this is red, in that dark purple: but the variation even from scarlet to pale yellow, is no essential difference; the dark purple at the base of the petals remaining the same in all the varieties.

According

According to Monsieur Villars, this differs from *autumnalis*, in having the flower smaller, with the colour a higher red; the branches more open, and the fruit of an oval form.

Haller and Pollich, though they both quote Linneus's specific character, yet affirm that the corolla has eight petals; or, according to the former, very seldom five. Reichard says, that it has from five to eight.

Native of the southern countries of Europe, among corn: flowering in may and june. Cultivated in 1768, by Mr. Miller.

A variety of this, with a pale yellow corolla, is mentioned by several authors.

2. Our Common Adonis has the stalk about a foot high, upright, somewhat angular, hollow, purplish, hoary, branched quite to the bottom. The branches are generally taller than the stalk which produces the first flower. Leaves alternate, yellowish green; the lower ones petioled; the upper ones sessile; all superdecompound; the segments numerous, capillary, pointed, on the under side shining. Leaflets of the calyx subovate, unequal, purple, shorter than the corolla; the tips toothed, and appearing as if bitten. Corolla consisting of eight petals, seldom more but often fewer, unequal, obcordate, the tip irregularly notched; of a scarlet colour, with the bottom internally black, externally greenish. Stamens about forty; filaments filiform, white; anthers ovate, obtuse, compressed, of a blackish purple colour; pollen saffron-coloured. Head of germs short, somewhat conical. Stigmas pointed, the points turned back. Seeds somewhat angular, pointed, reticulate and wrinkled*. According to Krock, the stalk is above a foot and half high, terminated by solitary flowers. The leaves less extended than in the first sort; the flowers smaller and darker coloured; the receptacle of the fruit cylindric and longer; the claws of the petals and the filaments of a darker red colour.

Native of most of the southern parts of Europe. Though now common in corn fields with us near London, yet not being mentioned as indigenous by any of our old writers, it is probably of no very long standing†, and was originally conveyed from gardens, by the intervention of the dungheap.]

It grows in Kent, particularly by the side of the river Medway, between Rochester and Maidstone, where it is found in great plenty, in the fields sown with wheat. Among spring corn, there is rarely a plant of it to be found; which shows the propriety of sowing the seeds in gardens in autumn; for those fields of spring corn, if suffered to remain undisturbed after the harvest, will abound with this plant the following year. Great quantities of the flowers are annually brought to London, and sold by the name of *Red Morocco*. Both these annual sorts flower in the beginning of june; and the seeds ripen in august and september: this must be understood of those plants which grow from seeds sown in autumn, or such as have fallen to the ground; for when any plants come up from seeds sown in the spring, they do not flower till july or august, and their seeds seldom ripen before october. [May not this circumstance have given occasion to the forming of these two species out of one? since they seem to agree sufficiently in most respects, except the time of flowering. Dr. Smith however assures me that they are distinct in their habit, and that the first species, which he found near Verona, has the petals narrow; whereas in this they are round.

Adonis flammæa, and *miniata*, figured by Jacquin in *Flora austriaca*, vol. 4. t. 354 and 355, do not seem to be different from *A. autumnalis*. It is remarked by Chev. Murray‡, that the latter is very frequent in Germany, among the corn, at the beginning of summer, with oblong petals of a paler red: but that in gardens the petals are rounder, and deeper coloured.

* Curtis.

† Raii hist.

‡ Syft. veget.

He also mentions another elegant variety with lemon-coloured flowers.

3. *A. vernalis*, according to the observation of Linneus, is sister to *A. apennina*; as *A. æstivalis* is to *autumnalis*. He adds, that this is a one-flowered plant, with barren branches: whereas the following species is a many-flowered plant, with the side-shoots bearing flowers. He confesses however that it is difficult to distinguish them.

Mr. Curtis does not scruple to assert positively that they are one species, differing merely in the number of petals, which are found to vary from situation and culture*. I will give the distinctions that Linneus and Gouan have made, and then leave the matter to be decided by future observation and experience.

Stem branched from the bottom, hairy but finally becoming bald, streaked, scarcely a foot high, equal or not swelling at the joints. Several leaves burst forth together from the root early in the spring, and cover the young stem; afterwards some of these sit at the bottom of the stem, whilst others are placed at the insertion of the branches, on very wide long sheaths, terminated by a multifid leaf, only one-third of the length of the sheath. Hence it follows, that properly speaking there are no root-leaves. The stem and branch-leaves however are entirely different from the former; for the nearer they approach to the top of the stem the more decompounded they are, which is not usual. Their sheaths are very short, and half-stem-clasping; all the leaflets are scarcely two lines in length, rigid and pungent. There are no calluses at the insertion of the leaflets. Peduncle terminating, one-flowered, half an inch in length. The calyx, scarcely emerging from the uppermost leaf, has the leaflets yellowish green or of a sordid colour, hirsute, concave, or flat, lanceolate-ovate, half the length of the corolla. The petals are more narrowed or lanceolate, than in the following species, so as even to be linear†. Seeds thicker at the tip, hirsute, with a very slender dagger-point below the tip‡.

Spring Adonis is a native of the mountains of Oeland, Switzerland, Austria, Carniola, Silesia, Prussia, Bohemia, the Palatinate, and other parts of Germany; where the root is often used for the true Black Hellebore. Its large yellow flowers are produced at the end of march or the beginning of april; and the seeds ripen in august. It is an old inhabitant of the English gardens; and was cultivated by Mr. Miller in 1731§.

4. In the Adonis of the Apennines the stem is a foot and half in height; in a young plant ash-coloured from pubescence; but in a more advanced state, bald and entirely smooth; marked with lines: branches alternate, thicker at the joints. Root-leaves very large, almost orbicular, four-fold pinnate; pinnas opposite, pinnules alternate; leaflets lanceolate-linear, acuminate, smooth and even; all the insertions marked with a white callus: petiole half a foot long, grooved, sheathing the stem at its base. The lowest stem-leaf, at the base of the lowest branch, resembles the root-leaves, but is smaller; the sheath is wide, embracing the stem, but the petiole is scarcely half an inch in length. The leaves on the stem and branches are hardly petioled; they half embrace the stem, have scarcely any sheaths, and the pinnules are so near to each other, that the leaves in general seem to be digitate-multifid. The sheaths do not lose their pubescence. Flower terminating, one on each branch: the petals obovate or lanceolate-ovate: calyxes hairy, subglobose, coloured, concave, with lines or streaks of a different colour. Peduncles grooved; but the stem is not so. Seeds ovate, surrounded with a raised rim, having a dagger-point curved back, and being smooth.

* Botan. magaz. 134.

† The word in the original is *lineata*, which signifies marked with lines, but since the author is speaking of the form of the leaves, it seems probable that the word should have been *linearia*.

‡ Gouan illustr.

§ Hort. kew.

According to the distinctions of Linneus, *A. vernalis* has hairs scattered over its stem, whereas this has mealy transparent dots; the shoots of that proceed from the lower part of the stem, of this from the upper; the peduncle in Spring Adonis is very short, in the Apennine species longer; the leaves in the former are less pinnate, in the latter more divided, broader, and more shining; the calyx in that is gray, striated, villous, concave; in this greenish yellow, smooth, veinless, and flat; the petals in that lanceolate, usually twelve; in this ovate, imbricate, usually fifteen; the flower in that one, in this many. The stamens in this very much bent back, and the flowers continuing farther into the summer; whereas that is truly vernal. It is found wild in the Apennines, and in Siberia*.

5. Leaves radical; leaflets rigid; petioles rough with hairs. Scapes leafless, round, hairy, terminated by a compound umbel. Universal and partial involucre six-leaved, lanceolate. Partial peduncles, three outer, three inner, and one central, bearing one flower; the rest four-flowered. Calyx ovate-oblong, concave, whitish; petals lanceolate, white, twice the length of the calyx; filaments linear, half the length of the petals: anthers two, ovate, small; styles bent outward, the length of the stamens. Stigmas obtuse. Foliation involuted. Found wild near the Cape of Good Hope†.

6. This is perfectly smooth, with hard firm leaves. It is also a Cape plant, and the Africans use it for raising blisters‡. Cultivated in 1691, in the royal garden, at Hampton Court§.

There is another species recorded in the Supplement of the younger Linneus, (p. 271.) and named there *Adonis Folia*. It is characterized as having bipinnate leaves; with the leaflets linear and pinnatifid: and is farther described as having the leaves much resembling those of the carrot; the lower partial leaves on long petioles; the proper leaves pinnatifid; and the pinnae unequally toothed. It is set forth as the daughter of *A. capensis*; from which it is said not to differ in the stem, umbel of flowers, calyx, petals, stamens and pistils. This is also a native of the Cape. These three species require farther investigation, in order to ascertain them decisively.]

PROPAGATION AND CULTURE.

1, 2. The two first sorts are annual, and if the seeds are sown in autumn, the plants will come up the following spring; but when they are not sown till spring, they rarely come up the same year: so that when the seeds are permitted to fall on the ground, they generally succeed better than when sown by art. They will thrive best in a light soil, but by sowing some in a warm situation, and others in the shade, they may be continued longer in flower. The seeds ought to be sown where the plants are to remain to flower, for they do not bear transplanting, especially if they are not removed while the plants are very young: and when the plants come up, they should be thinned, leaving three or four in each patch, which will make a better appearance than where they grow single.

3, 4. The third and fourth are perennial, the seeds ripen in august, and should be sown soon after, otherwise they seldom succeed. When the plants come up, they must be carefully kept clean from weeds; and, in very dry weather, if they are now and then refreshed with water, it will promote their growth. They should remain in the place where they are sown until the second year, for they make but slow progress while young. The best time to transplant them is in autumn, when they ought to be planted where they are to remain; for if often removed, they will not produce many flowers, nor those flowers be so strong as on the plants which are unremoved.

[They may be increased by parting the roots, either in autumn or spring. Being hardy and easily cultivated, and producing their showy flowers early

in the season, they are desirable plants for the garden.

The Cape species must be treated as other plants from that country.]

ADOXA. (From *α priv.* and *δοξα gloria*. An ignoble plant, one of no show.)

Lin. gen. n. 501. Reich. 543. Schreb. 684.

Fuss. 309. Gärtn. t. 112.

Moschatellina. Tournef. 68. (from a slight odour of musk which it possesses.)

Class. 8. 4. Octandria Tetragynia.

Nat. order of Succulentæ. Saxifragæ Juss.

GENERIC CHARACTER.

CAL. Perianth inferior, bifid, flat, permanent.

COR. monopetalous, flat, quadrifid; clefts ovate, acute, longer than the calyx.

STAM. Filaments subulate, the length of the calyx. Anthers roundish.

PIST. Germ below the receptacle of the corolla. Styles simple, erect, the length of the stamens, permanent. Stigmas simple.

PER. a globose Berry, between the calyx and corolla, the calyx being united below with the berry, umbilicate, four-celled.

SEEDS solitary, compressed.

OBS. Such is the terminal fructification, but all the lateral ones add a fifth part of the whole number.

ESSENTIAL CHARACTER.

Cal. bifid, inferior. Cor. four or five-cleft, superior. Berry four or five-celled, united with the calyx.

SPECIES.

1. Adoxa Moschatellina. Bulbous Fumitory. Hollow-root. Tuberous Moschatell.

Lin. spec. 527. Reich. 2. 222. hort. cliff. 152.

succ. 347. Hudsf. angl. 172. With. 417. Curtis

lond. 2. 26. Relb. cantab. n. 162. Lightf.

scot. 209. Gärtn. fruct. 2. 141. Mill. illustr.

Berg. phyt. 2. 37. Oeder dan. t. 94. Pollich

palat. n. 390. Scop. carn. n. 170. Hall. herb.

n. 1005. Mor. hist. f. 4. t. 28. f. 14. Ger.

933. 10. emac. 1091. 10. Park. 326. 6. Raii

hist. 684. syn. 267. (Moschatellina.)

DESCRIPTION.

[1. Root perennial, creeping, toothed, white. Root-leaves three or four, triternate, deeply cut, smooth and shining; segments or lobes ovate, with a short point: two leaves on the stalk with shorter petioles, and opposite. Stalk somewhat taller than the leaves, simple and nearly square. Peduncle square, naked, terminal. Head cubical, consisting of four lateral flowers, and terminated by a fifth: in the former, ten, in the latter, eight stamens; in the former, five, in the latter, four styles. The flowers vary much in the divisions of the calyx and corolla, and in the number of the stamens*.]

This plant grows naturally in shady places, and woods; as in Hampstead and Charlton woods, &c. The flowers appear the end of march or the beginning of april, and the berries ripen in may, soon after which the leaves decay. These and the flowers smell like musk, from whence it has by some been called *Musk Crowfoot*.

PROPAGATION AND CULTURE.

The roots may be transplanted any time after the leaves are decayed, till winter. They must be planted in the shade, under shrubs; for if they are exposed to the open sun, they will not thrive.

ÆGICERAS. (From *Αἴξ*, a Goat, and *κερας*, a horn.)

Gärtn. t. 46. Lin. gen. Schreb. n. 398.

Rhizophoræ species Lin.

Class. 5. 1. Pentandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth one-leaved, bell-shaped, half-five-cleft, coriaceous, permanent.

COR. Petals five.

STAM. Filaments five. Rumph.

PIST. Germ oblong. Style single.

PER. Capsule bowed, coriaceous, one-celled, one-valved, gaping on the convex side.

* Linneus. † Ibid. ‡ Ibid. § Hort. kew. from Pluk.

* Curtis.

SEED single.

ESSENTIAL CHARACTER.

Cal. bell-shaped, half-five-cleft. Capsule bow-shaped, one-celled, gaping on the convex side. Seed inverted.

SPECIES.

1. *Ægiceras majus*.

Gærtn. fruct. 1. 216.

Rhizophora corniculata. Lin. syst. 442. spec. 635. Reich. 2. 413.

Mangium fruticans corniculatum. Rumph. amb. 3. 117. t. 77—item. M. floridum. Ejusd. 125. t. 83. Leaves ovate quite entire; legumes long sickle-shaped.

2. *Ægiceras minus*.

Gærtn. fruct. 1. 216.

Umbraculum maris. Rumph. amb. 3. 124. t. 82. Leaves ovate sometimes notched; legumes short crescent-shaped.

DESCRIPTIONS, &c.

1. The first species is a shrub about twelve feet in height at the most, with several stems a foot in thickness, putting out many twigs and suckers. Leaves three, four or five inches long, and two broad, thick, smooth, the edges bent downwards, not tomentose on the back. Flowers axillary, many together, on pedicels near an inch in length. Corolla white, with an agreeable odour. Capsules small, crooked, about an inch in length, and the thickness of a quill. Native of the Molucca Islands*.

2. The capsule in this is only one-fourth of the length of the foregoing, rather shaped like a crescent than a sickle, short and thick, coriaceous, rufous, very smooth, marked with very fine streaks. Seed fixed to the bottom of the capsule, ovate, bay or rufous: integument thickish, coriaceous and spongy; whereas in the other it is extremely thin†. Native of Ceylon.]

[ÆGILOPS. (From *Αἴγος* ωψ, Goats-face: from its roughness.)

Lin. gen. n. 907. Reich. 1256. Schreb. 1572.

Juss. 30. Gærtn. t. 175.

Class. 23. 1. Polygamia Monoecia.

Nat. order of Gramina or Grasses.

GENERIC CHARACTER.

* Two lateral flowers, hermaphrodite.

CAL. a large bivalvular glume, sustaining three flowers: valves ovate, truncate, streaked, with various awns.

COR. a bivalvular glume: the outer valve ovate, terminated by a double or triple awn; the inner lanceolate, erect, awnless, with the edge bent in longitudinally. Nectary two-leaved; leaflets ovate, flat, transparent, very small.

STAM. Filaments three, capillary, with oblong anthers.

PIST. Germ turbinate. Styles two, reflex: with hairy stigmas.

PER. none.

SEEDS oblong, convex on one side, grooved on the other; with the inner valve of the corolla adhering to it, and not opening.

* One male flower between the two former.

Resembling them, except that the germ is often abortive.

ESSENTIAL CHARACTER.

Cal. a Glume. Subtriflorous, cartilaginous. Cor. a Glume, terminating in a threefold awn. Stam. three. Styles two. Seeds one.

SPECIES.

1. *Ægilops ovata*.

Lin. spec. 1489. Reich. 4. 316. hort. ups. 301.

Gærtn. fruct. 2. 467. Scheuch. agr. 11. Scop.

carn. n. 78. (Phleum) Dod. pempt. 73. Camer.

epit. 928. f. 2.

Spike awned, all the calyxes with three awns.

2. *Ægilops caudata*.

Lin. spec. 1489. Reich. 4. 316. Tournef. cor. 29.

(Gr. creticum, &c.)

Spike awned, all the calyxes with two awns.

3. *Ægilops triuncialis*.

Lin. spec. 1489. Reich. 4. 316. mant. 501. Schreb.

gram. 30. t. 10. f. 1. Sch. agr. 12.

* Rumphius.

† Gartner.

Spike awned, the lower calyxes with two awns.

4. *Ægilops squarrosa*.

Lin. spec. 1489. Reich. 4. 317. Schreb. gram. II.

p. 44. t. 27. f. 2. Cavan. bisp. t. 90. f. 2.

Spike awl-shaped, longer than the awns.

DESCRIPTIONS, &c.

1. Spike oblong, not oval, composed of three or four sessile spikelets. Calyx two-flowered, with the rudiment of a third; as in *Melica*: outer glume striated, scabrous, with three awns, longer than the spike; inner somewhat shorter, with two similar awns*. Scopoli makes no account of the sex in this Grass, for the flowers are some hermaphrodite, others male, others without either stamens or germ: from the structure of the flower therefore he makes it a *Phleum*. According to Gartner there are sometimes two male flowers, differing in nothing from the others but in being only one-third of their size; no calyx; the larger valve of the corolla awned, the smaller not; both calyx and corolla permanent, covering the seed, and at length letting it drop.

2. Spike slender; the glumes ending in two very long sharp awns†: all of them, except the last, have two teeth‡.

3. Spike oblong, with the awns much longer than the flower. One valve of the calyx has three awns; the other, two. One valve of the corolla has also three awns, but the other has only one§.

4. Culms six inches high and more, at bottom prostrate. Leaves shorter than the sheath, ciliate. Spike from two to three inches long: flowers sessile, pressed to the hollowed rachis. Valves of the calyx coriaceous, emarginate, one toothlet shorter than the other; in the streaks very short, upright spinules. Outer valve of the corolla shortly awned: inner ovate, awnless; the awns longest in the upper flowers: the males have no awns to the corolla||.

The first of these grasses is wild in the southern countries of Europe, and was cultivated in 1683 by Mr. James Sutherland¶. The second was found by M. Tournefort in Crete. The third grows about Montpellier, Marseilles, Nice and Smyrna; and was introduced in 1776 by M. Thouin**. The last was found by Tournefort in the Levant, and by Cavanilles in Spain. They all seem to be annual.]

ÆGILOPS. See *Avena*, *Andropogon*, *Bromus*, *Quercus*.ÆGINETIA. See *Orobanchæ*.[ÆGIPHILA. (From *αἴξ* and *φιλέω*. Goats being fond of it.)

Lin. syst. 1290. p. 160. Gen. Reich. 158. Schreb.

173. Jacq. obs. 2. 27.

Manabea. Aubl. guian. 61. t. 23—25.

Class. 4. 1. Tetrandria Monogynia.

Nat. order of Vitices. Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, bell-shaped, four-toothed; loose, very short, permanent.

COR. one-petalled, salver-shaped; tube cylindric; narrower and longer than the calyx, border quadrifid, flat, equal; clefts oblong.

STAM. Filaments capillary, inserted into the mouth of the tube, erect. Anthers roundish.

PIST. Germ roundish, superior. Style capillary, deeply bifid. Stigmas simple.

PER. a roundish two-celled berry, furrounded with the permanent calyx.

SEED either in pairs or solitary.

ESSENTIAL CHARACTER.

Cal. four-toothed. Cor. quadrifid. Style semibifid; Berry four-seeded.

SPECIES.

1. *Ægiphila martinicensis*.

Lin. mant. 198. syst. 160. Reich. 1. 334. Jacq.

obs. 2. t. 27. amer. pict. t. 16. Swartz prodr. 151.

Leaves ovate-lanceolate acuminate smooth, branches diffused, panicles terminating or axillary, calyxes smooth.

2. *Ægiphila elata*.

Swartz prodr. 31.

Knoxia. Brown. jam. 140. n. 2.

* Scopoli.

† Tournef.

‡ Linneus.

§ Lianeus.

|| Cavanilles.

¶ Hort. kew.

** Ibid.

Leaves

Leaves elliptic acuminate membranaceous, panicles terminating, calyxes pubescent.

3. *Ægiphila fœtida*.

Swartz prodr. 32.

Leaves ovate-lanceolate, beneath hirsute, as are also the petioles, peduncles axillary solitary.

4. *Ægiphila trifida*.

Swartz prodr. 32.

Leaves ovate-lanceolate smooth, peduncles axillary trifid crowded.

DESCRIPTIONS, &c.

1. *Æ. martinicensis* is a shrub six feet high; branches opposite, four-cornered, smooth. Leaves simple, opposite, petioled, lanceolate-ovate, acuminate, very smooth, quite entire. Panicles terminal and axillary, leafy, compound, stiff. Flowers white. Native of Martinico, at the edge of the woods*. It flowers in november; and was introduced in 1780, by Mr. Francis Masson†.

2. It is a climber, and rises frequently to the height of six or seven feet, or more. This, and the two following species, are natives of Jamaica‡.]

ÆGOCERATOS. See *Hugonia*.

[ÆGOPODIUM. (From Αἴξ, a goat, and ποδῖον a diminutive of Πούς: a foot.)—Engl. Goutweed. Fr. Podagraire.

Lin. gen. n. 368. Reich. 398. Schreb. 500.

Gærtn. t. 140. Juss. 219.

Class. 5. 2. Pentandria Digynia.

Nat. order of Umbellatæ or Umbelliferæ.

GENERIC CHARACTER.

CAL. Umbel universal manifold, convex: partial similar, but flat. Involucre none. Proper perianth scarcely observable.

COR. universal uniform, with every floscule fertile: particular with five petals, obovate, concave, inflex at the tip, and equal.

STAM. Filaments simple, twice as long as the corolla, with roundish anthers.

PIST. Germ inferior. Styles simple, erect, the length of the corolla, with headed stigmas.

PER. none. Fruit ovate-oblong, streaked, bipartile.

SEEDS two, ovate-oblong, convex and streaked on one side, and flat on the other.

ESSENTIAL CHARACTER.

Fruit ovate-oblong, streaked.

SPECIES.

1. *Ægopodium Podagraria*. Herb Gerard. Goutweed. Ashweed. Wild Masterwort.

Lin. spec. 379. Reich. 1. 726. Gærtn. fruct. 2.

274. Hudf. angl. 129. Relb. cantabr. 126.

Wither. arr. 317. Fl. dan. t. 670. Rivin.

t. 47. Mor. f. 9. t. 4. f. 11. Scop. carn. n. 359.

Hall. herb. n. 759. Ger. 848. emac. 1001. 2.

Park. theat. 943. Pet. herb. t. 25. f. 10.

DESCRIPTION, &c.

This is a weed not uncommon in hedges, orchards, &c. It is a perennial, and being a great creeper, cannot be admitted into gardens without great caution. It requires no care, but to plant it in the shade and to confine the roots. The stem grows from two to three feet in height, is branching and furrowed: the upper leaves are ternate, and opposite: leaflets lanceolate, ferrate. The umbels have about fourteen rays; the flowers are white, and appear from may to july.

Though it has the quality of most umbellate plants in being aromatic, yet it is not used at all in medicine: nor has it any title to its name of Goutweed, though the Germans formerly used it to assuage the pains both of the gout and piles. Linneus says it is eaten in Sweden, boiled for greens, when tender in the spring.

Ash-weed, one of the English names, is probably a corruption from Ach-weed.]

ÆGOPODIUM. See *Cicuta*, *Smyrniium*.

[ÆGOPRICON. (It seems to be derived from Αἴξ and πρίω or πρίζω, to fasten, tie or fasten.)

But what is the meaning of it?

* Linneus,

† Hort. kew.

‡ Browne and Swartz.

Lin. suppl. p. 63. Syst. 840. n. 1429. Schreb.

1396. Gærtn. t. 138. Smith 2. t. 42.

Maprounea. Aublet Guian. 895. Juss. gen. 391.

Class. 21. 1. Monoecia Monandria.

GENERIC CHARACTER.

* Male flowers small, in an ovate ament.

CAL. one-leafed, tubulous, trifid.

COR. none.

STAM. Filaments one, longer than the calyx, erect; with an ovate Anther.

* Female flowers on the same plant, solitary.

CAL. and COR. same as in the male.

PIST. Germ ovate, superior; Styles three, divaricate; with simple permanent stigmas.

PER. a globular berry, tricoccus and trilocular within, with a bifid point. (Capsule tricoccus, elastic. G.)

SEEDS solitary, angular on one side.

ESSENTIAL CHARACTER.

Male an ament. Cal. common trifid; partial tubulous. Anther four-lobed.

Female flowers solitary. Cal. as in the male. COR. none. Styles three, coadunate at the base. Capsule tricoccus.

SPECIES.

1. *Ægopricon betulinum*.

Lin. suppl. 413. Syst. 840. Smith icon. ined.

fasc. 2. t. 42. Gærtn. fruct. 2. 266.

Maprounea guianensis. Aubl. guian. 895. t. 342.

DESCRIPTION, &c.

This is a tree very much branched. Branchlets alternate, bent different ways, leafy, flowering at the ends. Bark somewhat wrinkled, except in the younger shoots. Leaves alternate, petioled, ovate, acute, quite entire, resembling those of Myrtle, smooth and even on both sides, veined, deciduous. No stipules. Petioles linear, roundish, smooth and even. Panicles small, terminating. Common peduncles tubercled; partial two or three, divaricate, smooth and even, one-flowered. Male ament usually solitary, terminating the common peduncle, like that of the Alder, scarcely so big as a grain of wheat. Leaflets of the common calyx concave obtuse, containing from twenty to thirty florets: partial trifid or quadrifid. Stamen standing out from the centre of the partial calyx, and twice its length: anther ovate four-lobed. In the female flowers, germ globular smooth, stigmas obtuse. Capsule the size of a pea, obscurely tricoccus, smooth and even, crowned with the permanent styles.

Dalberg noticed it in Surinam; and Aublet in Guiana*.]

ÆSCHYNOMÈNE. (From Αἰσχύνωμαι, pudisco: on account of its retreating from the touch.)

Lin. gen. n. 888. Reich. 960. Schreb. 1202.

Gærtn. t. 155. Juss. 362.

Class. 17. 4. Diadelphia Decandria.

Nat. order of Papilionaceæ or Leguminosæ.

GENERIC CHARACTER.

CAL. Perianth one-leafed, bell-shaped, subbilabiate; lips equal; upper bifid, lower three-toothed.

COR. papilionaceous: Banner subcordate, scarcely gaping, large: wings subovate, obtuse, shorter than the banner: keel lunate, acuminate, the length of the wings.

STAM. Filaments ten. (single and nine-cleft.) Anthers small.

PIST. Germ oblong, villous, columnar. Style subulate, rising. Stigmas simple, rather obtuse.

PER. Legume long, flat, jointed, rough, one-celled, opening at the truncate joints.

SEEDS solitary, between the joints, kidney-shaped.

OBS. Gærtner is for expunging this genus, and dividing it between Hedyсарum and Galega.

ESSENTIAL CHARACTER.

Cal. bilabiate. Legume with truncate, one-seeded joints.

SPECIES.

1. *Æschynomene grandiflora*. Great-flowered *Æschynomene*.

* Smith,

Lin. spec. 1060. Reich. 3. 498. Swartz obs. 283. Raii hist. 1734. Rumph. amb. 1. t. 76. Rheed. mal. 1. t. 51.

Stem arboreseent, flowers very large, legumes filiform.

2. *Æschynomene arborea*. Arboreseent *Æschynomene*.
Lin. spec. 1060. Reich. 3. 499.

Stem arboreseent, smooth, joints of the legumes semicordate, smooth.

- [3. *Æschynomene coccinea*. Scarlet-flowered *Æschynomene*.

Lin. syst. 671. Suppl. 330. Forst. flor. n. 273.

Toeri-Mera. Rumph. amb. 1. t. 77.

Stem arboreseent, leaves pinnate; leaflets numerous, linear, obtuse, dusty, legumes compressed, equal.]

4. *Æschynomene aspera*. Rough-stalked *Æschynomene*.

Lin. spec. 1060. Reich. 3. 499. hort. cliff. 365.

hort. ups. 233. fl. zeyl. 298. Raii hist. 982.

Breyn. cent. t. 52.

Stem herbaceous, rugged; joints of the legumes rugged in the middle.

5. *Æschynomene americana*. Hairy *Æschynomene*.

Lin. spec. 1061. Reich. 3. 499. Gært. fruct.

2. 347. Swartz obs. 284. Sloane jam. 1. t. 118.

f. 3. Brown. jam. 295.

Stem herbaceous, hispid; joints of the legumes semicordate; leaflets acuminate, bractes ciliate.

- [6. *Æschynomene indica*. Indian *Æschynomene*.

Lin. spec. 1061. Reich. 3. 499. Rumph. amb. 4.

t. 24. Rheed. mal. 9. t. 18.

Stem herbaceous, smooth: legumes smooth, swelling on one side, obtuse; leaflets obtuse.]

7. *Æschynomene Sesban*. Egyptian *Æschynomene*.

Lin. spec. 1061. Reich. 3. 499. Alp. Egypt.

t. 82. Burm. zeyl. t. 41. Mor. hist. 2. 79.

n. 9.

Stem herbaceous, smooth: legumes cylindric, equal: leaflets obtuse.

8. *Æschynomene pumila*. Dwarf *Æschynomene*.

Lin. spec. 1061. Reich. 3. 500. Fl. zeyl. 551.

Rheed. mal. 9. t. 20.

Stem herbaceous, smooth: legumes ferrate on one side, rough in the middle; leaflets acuminate.

- [9. *Æschynomene sensitiva*.

Swartz prodr. 107. Plum. cat. 1. ic. 149. f. 2:

Stem shrubby smooth; leaflets obtuse; legumes smooth and even, obtuse; stipules acute deciduous.

10. *Æschynomene heterophylla*.

Loureiro cochinch. 446.

Stem shrubby, lower leaves ternate ovate, upper pinnate roundish.

11. *Æschynomene lagenaria*.

Loureiro cochinch. 446.

Stem herbaceous, leaflets obtuse in several pairs, legumes muricate.

12. *Æschynomene cannabina*.

Retz. obs. 5. p. 26, n. 71.

Stem herbaceous, leaflets obtuse acuminate, peduncles solitary, legumes compressed smooth and even.

DESCRIPTIONS, &c.

1. *Æ. grandiflora*. A shrub from ten to fifteen feet in height. Trunk upright, without spines. Branches spreading a little, round, pubescent. Leaves pinnate, alternate, scattered, a foot long: petioles round, thicker at the base, smooth: leaflets from twelve to eighteen pairs, opposite, oblong, obtuse, entire, smooth on both sides; on very short petiolules. Peduncles axillary, few, short, bifid or trifid: pedicels short, one-flowered. Flowers pendulous, white, very large (the size of a hen's egg*). Calyx obtusely five-toothed, ovate-globose, swelling a little. Corolla resupinate; banner wide, reflex, subcordate at the base, elliptic, entire, waving on the edge; wings oblong, fickle-shaped, with claws at the base, sharp, pressed close to the keel, which is a little shorter than the banner, undivided, fickle-shaped, angular in the middle, curved; the outmost tip bifid. Legume two feet in length, linear, compressed, with a membranaceous isthmus between the seeds, which are roundish†.

Native of the East-Indies. Cultivated in gardens

at Jamaica*: and in England, by Mr. Miller, in 1768†. By the French it is called *Pois du Duc de Choiseul*. The seeds are agreeable to domestic birds‡.]

2. *Æ. arborea* grows to the height of six or seven feet, with a single stem; the leaves are smooth, and come out towards the top of the stalk, forming there a sort of head; they are composed of many pinnae, placed alternately on the mid-rib. The flowers come out from the wings of the leaves, two or three together, are of a copper colour and large.

[3. *Æ. coccinea* is a smaller and lower tree than the first sort; but the head and leaves are more dense. The latter are about a foot long, and have twenty pairs of leaflets. From the axils a single peduncle comes forth, dividing into two, each of which bears a large flower, but somewhat smaller than that of *Æ. grandiflora*; the colour is red mixed with purple. Legume a foot and half long§.

Native of the East-Indies, and of the islands Otaheite and Huaheine in the South-Seas.]

4. *Æ. aspera* rises to the height of four or five feet, with a single herbaceous stem, which is in some parts rough. The leaves come out on every side towards the top, forming a sort of head; they are composed of a great number of smooth glaucous pinnae. The flowers come out from between the leaves, two or three together upon long petioles: they are yellow. The legume is about four inches long. Native of the East-Indies.

[5. *Æ. americana*. Root annual. Stem from one to two feet in height; sometimes, but rarely it reaches three feet, but it seldom stands upright; it is subdivided, round, and somewhat hirsute, delicate and slender. Branches filiform, patulous, round, streaked, hirsute. The hairs are ferruginous at the base. Leaves pinnate, alternate: leaflets sessile, alternate, minute, fickle-shaped, ferrulate, three-nerved beneath, smooth on both sides. Petioles thicker at the base, round, hirsute. Stipules fickle-shaped above and below the petiole, opposite, acuminate, somewhat hirsute. Peduncles longer than the leaves, axillary, solitary, erect. Flowers pedicelled, alternate, whitish, or brownish yellow. Bractes sessile, ovate-acuminate, ferrate, streaked, hirsute at the edge. Calyx, upper lip ferrate at the tip or bluntly three-toothed, pubescent at the edge. Corolla, banner streaked; wings obovate; keel ovate, fickle-shaped, upright, bifid. Legume almost upright, pendulous, margined, wrinkled, pubescent||: linear-oblong, compressed, straight at the suture next the seeds, lobed and crenate on the other suture; joints six or seven, semiobovate, gibbous in the middle, compressed at the edge, separating spontaneously. Seeds crescent-kidney-shaped, turgidly lenticular, smooth, shining, black¶. This species is somewhat sensitive; during the night, and at the approach of rain, the leaves fold together.

Native of Jamaica, on the south-side of the island, in dry pastures**. It was cultivated in 1739, by Mr. Miller††.

6. Native of the East-Indies.]

7. *Æ. Sesban* has woody stems and branches, with smooth leaves, composed of many blunt opposite pinnae. The flowers, which are small, and of a deep yellow colour, come out from the axils in long spikes hanging down. Legumes smooth and taper-pointed, not jointed: [columnar and equal. Calyxes bell-shaped, equal, five-toothed, spreading‡‡. It was cultivated in 1680, in the Oxford botanic garden; and flowers in July and August§§. Native of Egypt.

8. *Æ. pumila* is an annual, about half a foot in height, branching at bottom. The leaves are pinnate and lanceolate; the leaflets crowded and linear. Native of the East-Indies|||.

9. Native of the West-Indies¶¶.

10. Stem arboreous, weak, eight feet high, with

* Swartz obs. † Hort. kew. ‡ Swartz. § Rumphius.
|| Swartz obs. ¶ Gartner. ** Swartz and Browne.
†† Hort. kew. ‡‡ Linneus. §§ Hort. kew.
||| Linneus. ¶¶ Swartz prodr.

spreading tomentose branches. Lower leaves petioled; leaflets of the upper ones roundish, sessile. Flowers white small, axillary, on many-flowered peduncles. Calyx four-toothed. Keel of the corolla ovate, longer than the wings, shorter than the banner. Filaments united in one body. Legume linear compressed hairy, with many truncate cordate joints. Seeds kidney-shaped. It has the corolla and legume of this genus, but not the calyx and stamens. Native of Northern Cochinchina*.

11. Stem herbaceous, three feet high, upright, thick, round, spongy: with abundance of very short spreading branches. Leaves unequally pinnate; leaflets ovate-oblong, blunt, quite entire, smooth, smallish. Flower yellow, on lateral many-flowered peduncles. Legume long straight stiff, compressed muricate, with truncate longish deciduous joints. Seeds compressed kidney-shaped. The sheath of the stamens is cleft towards the keel, as in *Bauhinia*, and not towards the banner, as usual in Papilionaceous flowers. The stem, being spongy and elastic, is used for stopping bottles in a country where there are no corks. Native of Cochinchina, in marshy places†.

12. Stem angular, streaked, with a few hairs. Leaflets numerous opposite linear hairy, glaucous underneath. Petioles, at the insertion of the partial ones, bearded. Peduncles axillary one-flowered. Flowers small. Legume long linear. Native of the East-Indies. Treated as hemp, it may be used for the same purposes‡.]

PROPAGATION AND CULTURE.

The first sort is with difficulty preserved through the winter in this country. The seedling plants should be brought forward on a hot-bed, and then plunged into the bark-bed in the stove, where if they be tenderly treated, they will live through the winter, and flower the summer following.

The second, third and seventh may in like manner be preserved through the winter in a warm stove, and will flower early the following summer, and their seeds will ripen in the autumn. The other sorts usually flower in July, and their seeds ripen in October. As their stalks are succulent, they must be kept dry in winter, otherwise they are very subject to rot. They should be plunged into the tan-bed, for when put into a dry stove, the fibres of their roots soon grow dry, and their leaves hang and fade, which shows their want of moisture; but when they have water given them, it causes the tender fibres of their roots to perish, and the plants soon after decay.

The fourth, fifth, sixth and eighth species are annual, and therefore must be brought forward like the first, early in the year, otherwise they will not perfect their seeds. All the sorts are propagated by seeds, which should be sown on a hot-bed early in the spring; and when the plants have strength enough to be removed, they should be put each into a separate small pot, filled with light earth, and plunged into a fresh hot-bed, to bring them forward; and as they advance in their growth, they should be shifted into larger pots, but great care should be taken not to over-pot them, for if the pots be too large, the plants will not thrive.

ÆSCULUS. (From *esca* food. It had the old names *Hippocastanum* and *Castanea equina*, from the similitude of the fruit to that of the Chestnut, and from its being given to horses.)

Lin. gen. n. 462. *Reich.* 498. *Schreb.* 628. *Juss.* 251.

Hippocastanum. *Tournef.* 382.

Pavia. *Boerb.* 260.

Class. 7. 1. *Heptandria Monogynia.*

Nat. order of Tribilatae. *Acera* *Juss.*

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, ventricose, small, five-toothed.

COR. *Petals* five, roundish, plaited and waving about the edge, flat, spreading, claws narrow, inserted into the calyx, irregularly coloured.

* Loureiro,

† Ibid.

‡ Retz.

STAM. *Filaments* subulate, the length of the corolla, declining. *Antbers* ascending.

PIST. *Germ* roundish, ending in a subulate style. *Stigma* acuminate.

PER. *Capsule* leathery, roundish, three-celled, three-valved.

SEEDS two, subglobular.

OBS. One seed only commonly occurs in the capsule, but on inspection of the embryos it is evident that the natural number is two.

Van Royen De Necker and Miller observed both hermaphrodite and male flowers in this genus.

ESSENTIAL CHARACTER.

Cal. one-leafed, five-toothed, ventricose. *Cor.* five-petalled, irregularly coloured, inserted into the calyx. *Capsule* three-celled.

SPECIES.

1. *Æsculus Hippocastanum.* *Common Horse Chestnut.*

Lin. spec. 488. *Reich.* 2. 137. *hort. cliff.* 142.

hort. ups. 92. *Hunter Evel. sylv. p.* 159. *Mill.*

illustr. fig. *Plenck. icon.* 1. 293. *Woodv. med.*

bot. 349. *t.* 128. *Neck. gallob.* 413. *Hall. helv.*

n. 1029. *Raii hist.* 683. *Ger.* 1253. *f.* 2.

emac. 1442. 2. *Park. theat.* 1400. *f.* 2.

The flowers with seven stamens: leaves digitate with seven entire leaflets; capsules prickly.

2. *Æsculus flava.* *Yellow-flowered Horse-Chestnut.*

Ait. hort. kew. 490. *n.* 2.

Leaves digitate, with five leaflets; the laminas of the corolla cordate-roundish; the claws twice the length of the calyx.

3. *Æsculus Pavia.* *Scarlet Horse-Chestnut.*

Lin. spec. 488. *syst.* 352. *Reich.* 2. 137. *hort.*

cliff. 143. *Swartz obs.* 140. *Mill. fig.* 198.

Trew. Euret. t. 15. *Dubam. arb.* 2. *p.* 98.

Hort. angl. 54. *t.* 19. *Boerb. lugdb.* 2. 260.

Pluk. alm. t. 56. *f.* 4.

Flowers with eight stamens: leaves digitate with five or six serrate leaflets; capsules smooth, laminas of the corolla obovate, claws the length of the calyx.

DESCRIPTIONS, &c.

1. [The *Common Horse-Chestnut* is sufficiently known by the beautiful parabolic form in which the branches are disposed, when the tree stands single: by its digitate leaves, composed of seven leaflets, serrate about the edge, the middle one largest, the outer ones smallest: and by its handsome, upright, pyramidal thyrses of white flowers, variegated with yellow or red towards the centre. Some of these, towards the top of the thyrses, are imperfect and abortive. The capsule, or nut, as it is commonly called, is divided internally into three cells according to Linneus; but into two only, as others affirm*.]

This tree was in much greater esteem for avenues and walks formerly, than at present. It is come into disrepute, because the leaves decay early in the summer, so that it occasions a litter in gardens and plantations, from July till they are all fallen; but notwithstanding this inconvenience, the tree has great merit, for it affords a noble shade very early; and during the time of its flowering, no tree has more beauty, for the extremities of the branches are terminated by fine spikes of flowers, so that every part of the tree seems covered with them, and being intermixed with the large digitate leaves, they make a noble appearance. [There is however another inconvenience to which this beautiful tree is subject, namely, that it does not well resist stormy winds†.]

In the old way of planting these trees in avenues, great part of their beauty was lost; for when their branches meet, fewer flowers are produced, and most of these are hid from sight; their leaves will also decay much sooner in close plantations than in single trees: the great beauty of them is to stand singly upon lawns, or in parks, where their fruit will be of use to the deer, who are very fond of them. In such situations, especially when they can be placed so as to terminate a view, there is not a finer object than they afford during their season of flowering, which is in May; and when the weather is moderate, they will continue in beauty near a month.

* Moench. *haff. n.* 315.

† Evelyn.

[In the opinion of Mr. Gilpin, the Horse-Chestnut is a heavy disagreeable tree. It forms its foliage generally in a round mass, with little appearance of those breaks which contribute to give an airiness and lightness, at least a richness and variety to the whole mass of foliage. This tree is however chiefly admired for its flower, which in itself is beautiful: but the whole tree together in flower is a glaring object, totally unharmonious, and unpicturesque. In some situations indeed, and among a profusion of other wood, a single Horse-Chestnut or two, in bloom, may be beautiful. As it forms an admirable shade, it may be of use too in thickening distant scenery; or in screening an object near at hand: for there is no species of foliage, however heavy, nor any species of bloom, however glaring, which may not be brought, by some proper contrast, to produce a good effect*.]

Few trees make a greater progress than this. I have known some raised from nuts, which in twelve or fourteen years were large enough to shade two or three chairs under the spread of their branches, and were covered with flowers. There are many old trees now standing, which having been planted singly, are grown to a large size, their heads forming a fine natural parabola. I have measured some of them, whose branches have extended more than thirty feet, and their heads have been so close as to afford a perfect shade in the hottest seasons. These were planted in 1679; so that although they are of quick growth, yet they are not of short duration.

As the wood is of little value, this tree should not however be propagated in too great plenty; but a few of them only placed at proper distances in parks, for ornament, and for the deer, who keep much about them in windy weather, watching the falling of the nuts, and greedily devouring them as they fall. In Turkey, the nuts are ground, and mixed with the provender for their horses, especially those which are troubled with coughs or are broken winded.

[Hanbury affirms, that swine will fatten on them; while others on the contrary assert that they are so bitter, that even hogs will not eat them, either raw, boiled or baked. Haller relates, that sheep have been fed with the nuts whole, and have done very well with them: and that poultry have been kept with them boiled. He also observes, that having a saponaceous quality, they may be used to spare soap in washing: and that the bark of the tree has been given in Italy not without success, in intermittent fevers. This bark has also been used with good success, in dying several sorts of yellow colours.

The timber, though of inferior quality, does not merit the character that Mr. Miller gives of it, namely, that it is not fit even for burning, nor any other use that he knows of. Mr. Boucher, though he affirms that the timber, except for fuel, answers no valuable purpose; yet allows that for pipes, to convey water under ground, it will last longer than many harder woods. Dr. Hunter informs us, that it is chiefly used by the turner, and in the north is worth about sixpence a foot. And Mr. Hanbury not only admits it to be useful for most sorts of turners' ware; but that as the tree grows to a great magnitude, it sells at such a price, as to make it well worth the planting, for the sake of the timber. He prescribes the felling to be performed in November or December.]

The Horse-Chestnut was brought from the northern parts of Asia into Europe about the year 1550, and was sent to Vienna about the year 1558. [From Vienna it migrated into Italy and France: but it came to us from the Levant immediately †. Gerard, in his herbal ‡, speaks of it only as a foreign tree. In Johnson's edition of the same work §, it is said,—“ Horse-Chestnut groweth in Italy, and in sun-

“ dry places of the East countries; it is now growing with Mr. Tradescant at South-Lambeth.” Parkinson* says: “ our Christian world had first the knowledge of it from Constantinople.”

The same author† places the Horse-Chestnut in his orchard, as a fruit-tree, between the Walnut and the Mulberries. How little it was then (1629) known, may be inferred from his saying not only that it is of a greater and more pleasant aspect, for the fair leaves, but also of as good use for the fruit, which is of a sweet taste, roasted and eaten as the ordinary sort. He also describes and figures the corolla with four petals.

This tree does not seem to have been so common even at the beginning of the present century as it is now. Mr. Houghton (1700) mentions some at Sir William Ashhurst's at Highgate, and especially at the Bishop of London's at Fulham. Those now standing at Chelsea-college were then very young. There was also a very fine one in the Post-house garden near Old-street, and another not far from the Ice-house under the shadow of the Observatory in Greenwich-Park‡.

2. Native of North-Carolina. Cultivated in 1764, by Mr. John Greening. It flowers in May and June§.]

3. The *Scarlet Horse-Chestnut* rises to the height of twenty feet, but does not spread its branches to any great extent. The bark is smooth. The leaves are of a light green, opposite, and on long red petioles. The flowers are produced from the ends of the branches, upon long naked peduncles, each sustaining four or five flowers; these are much smaller than in the common sort, wholly red, tubulous without any brims, opening a little at the top, where the stamens appear, seven or eight in number, terminated by roundish anthers. They appear in June, and are sometimes succeeded by fruit in England; but the seeds rarely ripen here||. It grows naturally in Brazil, Carolina, Florida, Japan, and several parts of the East; [and was cultivated here in 1712 ¶.]

PROPAGATION AND CULTURE.

1. The *Common Horse-Chestnut* is propagated by sowing the nuts; the best time for doing this is early in the spring; but the nuts should be preserved in sand during the winter, otherwise they are apt to grow mouldy and rot. They may indeed be put into the ground in autumn, but then they will be in danger of rotting, if the winter should prove very wet, as also of being disturbed and eaten by vermin. [Others however affirm, that if they are kept till spring, many will miscarry.]

When the nuts succeed, and have a proper soil, the plants will shoot near a foot the first summer; so that where they grow pretty close together, it will be proper to transplant them the following autumn, [or February and March**] planting them in rows at three feet distance, and one foot asunder in the rows: in this nursery they may remain two years, by which time they will be fit to plant where they are designed to be continued; for the younger these trees are planted out, the larger they will grow. But there are many who will object to their being planted out young in parks, because they will require a fence to secure them against cattle; which will also be necessary whatever size they are when planted; and if large, they must be well staked to prevent their being displaced by strong winds: and when we consider how much faster a young tree will grow than one which is removed at a greater age, there can be no excuse for planting large trees.

The Horse-Chestnut requires little care in the management, [is never injured by cold in our climate,] and will thrive in most soils and situations: but in a sandy loam it makes the greatest progress; and if the soil be inclining to moisture, the leaves will continue in verdure much longer than in very dry ground.

* Forest Scenery, I. 61.
‡ Printed in 1597.

† Evelyn.
§ Printed in 1633.

* Theat. printed 1640. † Parad. 595. ‡ Collect. 3. 85.
§ Hort. kew. || Mill. fig. ¶ Hort. kew. ** Boucher.

When

When these trees are transplanted, their roots should be preserved as entire as possible, for they do not succeed well when torn or cut; nor should any of the branches be shortened, for there is scarcely any tree which will not bear amputation better than this; so that when any branches are by accident broken, they should be cut off close to the stem, that the wound may heal over.

There is something very singular in the growth of this tree, which is that the whole shoot is completed in less than three weeks, after the buds are opened, in which time I have measured shoots a foot and half long, with their leaves fully expanded: and no sooner are the flowers fallen, than the buds for the succeeding year are formed, which continue swelling till autumn, at which time the folding covers are spread over with a thick tenacious juice, serving to defend the tender buds from the frost and rain in winter; but upon the first return of warmth in the spring, this melts and runs off, leaving the bud at liberty to extend. This juice is never so far hardened as to injure the tender buds, which are always formed at the extremity of the former year's shoot; a plain direction not to shorten them, for by so doing, the future shoots are entirely cut off.

There are varieties of this tree in the nurseries, both with gold and silver striped leaves. These are increased by layers, and by budding or ingrafting them upon stocks of the common sort.

3. The *Scarlet Horse-Chestnut* may also be propagated by the nuts, which must be procured from the countries where the trees naturally grow. They should be sown in pots early in the spring; and the pots must be plunged into a moderate hot-bed to forward their growth; toward the end of may, the pots should be plunged into the ground in a south-east border, and in dry weather the plants should be duly watered, that they may acquire strength by the autumn; when it will be very proper to screen the plants from early frosts which often pinch the top buds, and occasion their decay in the winter; for while the plants are young they are impatient of frosts, but when they have obtained strength, it seldom hurts them: the spring following, the plants should be carefully separated and planted at the distance of a foot from each other, in a sheltered situation; and the following winter, when it proves cold, it will be proper to cover the plants with some light covering. After the second winter they will require no farther sheltering.

[Others think it sufficient to sow the nuts on a warm border, in a rich, loose, sweet mould; to remove them the succeeding spring to a situation and soil of the same quality, where they may remain three years, when they will have acquired strength enough for any situation not too much exposed.]

The common method practised by the nurserymen, who propagate this tree for sale, is to graft or bud it upon stocks of the common *Horse-chestnut*; but as the stock greatly outgrows the bud or graft, the trees make a bad appearance, nor do they last long.

[ÆTHIÖPIS. See *Salvia*.

ÆTHŪSA. (From Αἰθουσα, mendica, beggarly.)

Lin. gen. 355. Reich. 385. Schreb. 487. Gærtn. t. 22. Juss. 220.

Meum. Tournef. 165. Gærtn. 23.

Class. 5. 2. Pentandria Digynia.

Nat. order of *Umbellatæ* or *Umbelliferae*.

GENERIC CHARACTER.

CAL. *Umbel* universal spreading, the rays gradually shortening towards the middle: *partial* also spreading but small. *Involucre* universal none: *partial* placed on the outside, only consisting of three very long, linear, pendulous leaflets. *Proper Perianth* scarcely observable.

COR. *universal* nearly uniform, with all the floscules fertile: *partial* has the petals bent in, heart-shaped and unequal.

STAM. *Filaments* simple with roundish anthers.

PIST. *Germ* inferior. *Styles* reflex with obtuse stigmas.

PER. none. *Fruit* roundish, streaked, bipartile.

SEEDS two, roundish, streaked, except on a third part of the surface, which is plane.

ESSENTIAL CHARACTER.

Partial Involucre halved, three-leaved, pendulous. *Fruit* streaked.

SPECIES.

1. *Æthusa Cynapium*. Common *Fool's-Parsley*:

Lin. spec. 367. Reich. 1. 703. succ. n. 254. hort. cliff. 100. Gærtn. 1. 94. Hudf. ang. 123. Wither. arr. 300. Curtis lond. 1. 18. Lighf. scot. 165. Hall. helv. n. 765. Scop. carn. n. 339. Allion pedem. n. 1333. Rivin. t. 76. Morisf. f. 9. t. 7. f. 2. Ger. emac. 1063. 1. Park. theat. 933. 2. Petiv. brit. t. 28. f. 3. Plenck, icon. t. 202. Blackw. herb. t. 517.

Leaves conform.

2. *Æthusa Bunius*. *Coriander-leaved Fool's-Parsley*.

Lin. syst. 286. Reich. 1. 703.

Carum Bunius. Syst. edit. 12. 733. mant. 733:

Gouan illustr. 20. Jacq. hort. 2. t. 198.

Saxifraga montana, &c. Morisf. f. 9. t. 2. f. 16.

Bunius. Da'ech. hist. 774. Bauh. hist. 3. 29.

Daucus petroselinifolius vel coriandri. Bauh. pin. 150.

Radical leaves pinnate, cauline manifold-setaceous.]

3. *Æthusa Meum*. *Spignel*, *Meu*, or *Bawd money*.

Lin. syst. 287. Reich. 1. 704.]

Athamanta Meum. Lin. spec. 353. hort. cliff. 93.

mat. med. 78. Mill. dict. n. 1. Hudf. ang. 116.

Jacq. austr. 4. t. 303. Plenck, ic. t. 201. Hall. helv. n. 761.

Ligusticum Meum. Crantz. austr. p. 199.

Seseli Meum. Scop. carn. n. 352.

Meum. Riv. t. 62. Blackw. t. 525.

All the leaves manifold-setaceous.

4. *Æthusa fatua*. *Fine-leaved Fool's-Parsley*.

Ait. hort. kew. 1. 355.

All the leaves many-parted-setaceous, leaflets subverticillate, stem many-leaved, sheaths of the petioles narrow, universal involucre many-leaved.

DESCRIPTIONS, &c.

1. Stem from one to two feet high, branched, slightly furrowed. Leaves smooth, glossy: leaflets divided into three segments, which are again deeply cloven into three or five. The umbel has often eighteen rays or more. Petals whitish. Seeds very large*.

Fool's-Parsley, called also *lesser Hemlock*, is a very common weed in kitchen-gardens, and in a slight degree poisonous. It is easily distinguished when in flower (July and August) from true Parsley and Chervil, by the three narrow pendent folioles or leaflets of the involucre, placed on the outer part only of the umbel; whereas those of the partial umbels in Chervil surround them entirely, growing equally on every side: and as to Parsley, it has only a few short leaflets fine almost as hairs, and distributed indifferently at the base of both umbels. *Fool's Parsley* is a much humbler plant than either of the others. They can only be confounded in a very young state, and even then the leaves may be observed to have a different form, a darker hue, and on being bruised, to emit in a slight degree a disagreeable venomous smell. The safest way to avoid all doubt is to cultivate the curled Parsley.

Most cattle eat it: but it is said to be noxious to geese.

2. Lobes of the root-leaves ovate, pinnatifid, gashed, shining. The leaves on the stem resemble those of *Carui*, are bipinnate, linear, and extremely narrow. The petioles are sheathing, and have the edges rolled in. The involucre of the outer side are generally three, setaceous, and longer than the floscules. Umbels seven-cleft. Umbellules seven-flowered. Flowers white, equal, abortive. Seeds rather oblong, furrowed with the dorsal ribs membranaceous-compressed. Native of the Pyrennees†. Perennial.]

3. *Spignel* is a perennial plant, rising a foot and a half high, with channelled stalks, terminated by

* Withering.

† Linneus.

an umbel of flowers, that are white with a little tincture of green, and are succeeded by oblong, smooth seeds. The leaves are much branched, and composed of fine capillary leaflets, set close, and of a deep green.

The root is thick and branching. It has no universal involucre, except sometimes a single leaflet; but having the partial involucre on one side, it has been removed to the genus *Æthusa*. The old name is *Meum*, but it stood in the genus *Althamanta* in Linneus's works, till the fourteenth edition of the *Systema Naturæ*. It grows wild in the mountains of Switzerland, Germany, Austria, Carniola, Italy and Spain. Also in the high pastures of Westmoreland, Cumberland, Lancashire, and Merionethshire. The roots and seeds are aromatic and acrid: they are recommended as carminatives and stomachics; in the stone, stoppage of urine, and all uterine disorders; sometimes they are given to cure tertians. Spignel is an ingredient in Theriaca and Mithridate; and appears to be of the same nature with Lovage.

4. It is not known where this is a native, but it was introduced here in 1781, by Monf. Thouin; and flowers in august and september.

PROPAGATION AND CULTURE.

1. Fool's Parsley is an annual, and may easily be kept down in gardens, by not suffering it to seed, which it does abundantly.]

3, 4. Are hardy perennial plants, and may be increased, either by parting the roots at Michaelmas, or by sowing the seeds soon after they are ripe: the plants should have a shady situation and moist soil. The seeds ripen in july and august.

[2. May be propagated by seeds like the foregoing. It flowers in july.

AFRICAN BLADDER-NUT. See *Royena*.

AFRICAN FLEA-BANE. See *Tarchonanthus*.

AFRICAN MARYGOLD. See *Tagetes*.

AFRICAN RAGWORT. See *Othonna*.

AGALLOCHA. See *Excoecaria*.]

[AGAPANTHUS. (q. ἀγανθος ἀνθος, a pleasant or delightful flower.

L'Herit. fert. 17. Ait. kew. 3. p. 509. *Crinum*

Gært. 2. t. 83. *Maublia* Dahl. diff. 25. Lin. gen. Schreb. n. 1742.

Class. 6. 1. Hexandria Monogynia.

Nat. order of *Lilia* or *Liliaceæ*.—*Spathaceæ* Lin. *Narcissi* Juss.

GENERIC CHARACTER.

CAL. *Spathe* common gaping at the side.

COR. one-petalled, funnel-shaped, regular. Tube cornered, as if composed of six claws. Border fix-parted: parts oblong, spreading.

STAM. Filaments six, inserted into the throat, shorter than the corolla, declinate. Anthers kidney-shaped, incumbent.

PIST. Germ superior, oblong, three-cornered. Style filiform, length of the stamens, declinate. Stigma simple (trifid. G.)

PER. Capsule oblong, three-sided, three-celled, three-valved: valves navicular, with contrary dissepiment.

SEEDS numerous, oblong, compressed, enlarged with a membrane.

ESSENTIAL CHARACTER.

Cor. inferior, funnel-shaped, hexapetaloid, regular.

SPECIES.

1. *Agapanthus umbellatus*. African Blue Lily.

L'Herit. fert. angl. 17. Ait. hort. kew. 1. 414.]

Crinum africanum. Lin. spec. 419. Gært. fruct. 2.

15. Mill. dict. n. 1.

Polianthes floribus umbellatis. Lin. vir. cliff. 29.

hort. 126. Mill. fig. t. 210. Ehret, pict. t. 10.

[*Tulbaghia*. Heist. Brunsv. 10. n. 6.

Maublia africana. Dahl. obs. bot. 26.

Hyacinthus africanus tuberosus, fl. cæruleo umbellato.

Breyn. prodr. 1. 25. icon. 23. t. 10. f. 1. Trew comm. liter. 1744. p. 351. t. 4. f. 3, 9, 10.

Comm. hort. 2. 133. t. 67. Seba thes. 1. 29.

t. 19. f. 4. Pluk. phyt. t. 195. f. 1.]

DESCRIPTION, &c.

The root is composed of many thick fleshy fibres, diverging from the same head, striking deep into the ground, and putting out many smaller fibres, which are white and fleshy: from the same head arises a cluster of leaves surrounding each other at the base, so as to form a kind of herbaceous stalk about three inches high, from which the leaves spread only two ways, appearing flat the other two. The leaves are thick, succulent, about a foot long, and near an inch broad, compressed, and of a dark green. Between these comes out the flower-stalk, from two to three feet in height, round, as large as a man's little finger, naked to the top, where it supports a large head or umbel of blue flowers, inclosed in a sheath, which splits into two parts, and is bent back. Each flower stands on a pedicel about an inch long. The petals are blunt, and waved on their edges. The umbel being large, the flowers numerous, and of a bright blue colour, make a fine appearance. They come out at the end of august, or the beginning of september, and frequently continue in beauty till spring.

[The flowers are absolutely those of *Hemerocallis*, but this genus is distinct from that in its spathe*.]

Native of the Cape of Good-Hope, from whence it was brought to the gardens in Holland. [In 1692, it was cultivated in the Royal Garden at Hampton-Court†.]

PROPAGATION AND CULTURE.

This plant is propagated by offsets, which come out from the side of the old plants, and may be taken off the latter end of june, at which time these plants are in their greatest state of rest; when the plants should be turned out of the pots, and the earth carefully cleared away from the roots, that the fibres of the offsets may be better distinguished, which should be separated from those of the old roots, being careful not to break their heads. But where they adhere so closely to the old plant, as not to be so separated, they must be cut off with a knife, taking great care not to wound or break the roots of either the offsets or the parent plant. When these are parted, they should be planted each into a separate pot, filled with light kitchen-garden earth, and placed in a shady situation, where they may enjoy the morning sun, giving them a little water twice a week, if the weather proves dry; but they must not have too much wet, especially at this season, when they are almost inactive; for as the roots are fleshy and succulent, they are apt to rot with great moisture. In about five weeks time the offsets will have put out new roots, when the pots may be removed to a more sunny situation, and then they may have a little more water, which will strengthen their flowering, but it must not be given them too liberally, for the reasons before given. In september they will put out their flower-stalks, and toward the end of that month the flowers will begin to open, when, if the weather should not be good, they should be removed under shelter, to prevent the flowers from being injured by frost or too much wet; but they should have as much free air as possible, otherwise the flowers will be pale-coloured and weak. Toward the end of october they should be removed into the green-house, and placed where they may enjoy as much free air as possible, and not be over-hung by other plants; and during the winter, they may have a little water once a week or oftener in mild weather, but in frost they should be kept dry. This plant only requires protection from frost and moisture, it should not therefore have any artificial warmth in winter, and must be placed in the open air in summer.

[AGARICUS. (From *Agaria*, a city, or from *Agarus*, a river of Sarmatia, now Malowouda.)

Lin. gen. n. 1209.

Agaricus and *Amanita* Dillen.

Class. 24. 4. Cryptogamia Fungi.

* L'Heretier.

† Hort. kew. from Pluk.

GENERIC CHARACTER.

Pileus or *Cap* with gills underneath.
Gills differing in substance from the rest of the plant,
 composed of two laminas.
Seeds in the gills.

SPECIES.

In the thirteenth edition of Linneus's *Systema Vegetabilium*, we have no more than 27 species of *Agaricus*. In the fourteenth by Murray there are only 35. Micheli on the contrary has given 634. In the third edition of Ray's synopsis are 57 species, 14 of which are added by Dillenius. Gleditsch reduces the *Agarici* to 32 species, but informs us that there are 120 more, involved in much obscurity. Haller describes 134; and Scopoli 114, of which 11 only have Linneus's names. Mr. Hudson enumerates 46; and Mr. Lightfoot accurately describes 20, in his *Flora Scotica* *. Allione enumerates 82. But in the third part of Dr. Withering's *Botanical Arrangement*, the number of British species ascertained and described amounts to 213.

Out of all these, one only has been selected for cultivation in our gardens; namely—

Agaricus campestris. *Common Mushroom*, or *Champignon*.

Lin. spec. 1641. *Huds. angl.* 610. *Wither. arr.* 3. 342. *Lightf. scot.* 1016. *Relb. cant. n.* 450. *Bulliard* 514, 134. *Fl. dan. t.* 714. *Bolton* 45. *Mill. illustr. Sterb. fung. t. i.* Schæff. 310, 311. *Lob. ic.* 271. *Bauh. hist.* 3. 824.

Gills crowded, irregular, pink changing to liver-colour; *cap* convex, white to brown; *stem* white, cylindrical; *curtain* white.

DESCRIPTION, &c.

Gills loose, in contact but not united with the stem, very thick set, some forked next the stem, some next the edge of the cap, some at both ends, and generally in that case excluding the intermediate smaller gills. *Cap* white, changing to brown when old, and becoming scurfy, fleshy, regularly convex, but flat with age, and liquefying in decay; flesh white: diameter commonly from two to four, but sometimes nine inches. *Stem* solid, two to three inches high, and half an inch in diameter †.

This species is esteemed the best and most savoury of the genus, and is in much request for the table in England. It is eaten fresh either stewed or broiled; and preserved, either as a pickle or in powder. The sauce vulgarly called *Catchup* ‡ is made from its juice with salt and spices §. The wild mushrooms, from fresh undunged pastures, are more delicate than those which are raised on artificial beds; the flesh of the latter being less tender ||: those who are much accustomed to them, can immediately tell the difference by their smell. Mr. Miller is of a different opinion, probably because the cultivated ones are more slightly, and may be collected in a proper state for eating more easily: they are firmer and better for pickling.

The *Agaricus Georgii* of Linneus much resembles this, but is far inferior to it in flavour, though not poisonous, as generally supposed. It is very common: the cap turns yellow, but the gills are always white.

The *Agaricus procerus*, or tall Mushroom, which is common in woods and dry hilly pastures, is sometimes exposed to sale in Covent-garden market. It may be easily distinguished from the genuine sort by the sponginess of its flesh; and from all others by its tallness, its bulbous base, its large volva or ruffle, and the flakiness or scaly texture of its spongy cap: the gills are numerous, brittle and whitish ¶.

Agaricus caesareus or imperial *Agaric*, is the most splendid of all the species. It is common in Italy, and is brought to the markets there for sale. The ancient Romans esteemed it one of the greatest luxuries of the table. Having been made the vehicle for poison to Claudius Cæsar, by his wife Agrippina, it has been celebrated by Juvenal and Martial. It

was first found wild in this country in Red-Rock plantation, Edgbaston, by Dr. Withering's daughter, on the sixth of July, 1791 *.

Agaricus orcadæ of Bolton and Withering is very different from all these. It is a small pale brown, or rather buff-coloured mushroom, very common in dry pastures, particularly in the Fairy Rings. It is also found in woods and hedges; but in such situations the flavour is inferior. Those from dry pastures have a very pleasant smell, and a most luscious flavour, either stewed alone, or in ragouts, hashes, &c. I have eaten them in great quantities, above forty years, without the least injury, nor did I ever perceive any thing of that toughness like leather, which is so much complained of, except in very dry weather, or when they are in too advanced a state: they should be gathered young, early in a morning, and there is some nicety in dressing them. This sort makes excellent catchup, and is admirable in the form of powder.

It is thus described by Dr. Withering. *Gills* loose, but the part attached to the cap juts up very close to the stem, so as to give them almost the appearance of being fixed; they are of a watery brownish white, two or four in a set, the small ones often very minute, and the large ones sometimes splitting at the outer end; not numerous, rather broad for the size of the plant; frequently connected to the cap by ligaments. *Cap* pale brown buff colour, convex, irregular; a sudden depression of the border, at some distance from the centre, often giving the appearance of a large rounded boss in the middle; central colour generally deeper; it is from an inch to an inch and three quarters in diameter, the edge turning up with age, and frequently much torn. *Stem* solid, white, changing to watery brown, cylindrical, but thicker and flattened just under the cap, very tough, mostly crooked, twisted when dry, rarely central, an inch and half high, the thickness of a crow quill †. It is in season during September and October, but may be dried so as to be in use for the table all the winter. Dr. Withering is satisfied that the circles in pasture fields, called *Fairy Rings*, are caused by the growth of this *Agaric*. Where the ring is brown or almost bare, upon digging up the soil to the depth of two inches, the spawn of the fungus will be found of a greyish white colour; but where the grass has again grown green and rank there is no spawn. These observations have been confirmed by my own experience long since for many years together. I have frequently remarked the same ring to increase in diameter, till a part of it has been cut off by a fence of the inclosure.

This *Agaric* is the twenty-seventh Fungus of Ray's Synopsis, edit. 3. p. 6.—*Ag. pratensis* of Hudson, and *coriaceus* of Lightfoot. The latter supposes it to be the *Mouceron* of the French, who frequently indeed use it in ragouts instead of that, and acknowledge it to be equal in flavour, only more tough. But the *Mouceron* has a very thick and fleshy cap; the gills are fixed to the stem, are extremely narrow and numerous; and its stem is thick and short. Dr. Withering has carefully distinguished several other species from our *Fairy Ring* *Agaric*, or *Scotch Bonnets*, as it is called by Mr. Ray ‡.

Agaricus Chantarellus of Linneus may be eaten with safety, but it is more tough and less highly flavoured than *Ag. Orcades*. The *Chantarelle* is now considered as generically distinct from the *Agarics*, because the gills are of the same substance with the stem and cap. It is *Merulius Cantharellus* of Withering; and is distinguished as a species by its solid stem, often compressed; and by its decurrent, branched, anastomosing gills §.

Allione enumerates the following as eatable—*Agaricus candidus*—*bulbosus*—*Chantarellus*—*nitens*—*deliciosus*—*mutabilis*—*brunneus*—*excoriatus*—*Georgii*—*crassipes*—*varius*—*violaceus*—*sylvaticus*.

* Withering arr. 3. 331.
 † Bot. arr. p. 337. 338.

† Bot. arr. 3. 336.
 § Idem. p. 281.

* Curtis fl. lond.
 † From the Japanese Kit-jap.
 ‡ Withering.
 § Lightfoot.
 ¶ Curtis fl. lond. 4. 69.

It is singular that he does not mention the *campestris* among them.

In many parts of Europe several other sorts are eaten, which we fancy to be poisonous. Even *Ag. piperatus*, though the most acrid and suspicious of all the Agarics, is eaten in great quantity by the Russians. They fill large vessels with these mushrooms in the autumn, season or pickle them with salt, and eat them in the ensuing Lent*. Caution however is not amiss, where several of the species are confessedly injurious, at least when taken in large quantities.

The nature of this work does not require that we should enter more minutely into the consideration of the Agarics. The bare enumeration and description of the species contained in the class Cryptogamia, would make a large volume. See FUNGI.]

PROPAGATION AND CULTURE OF MUSHROOMS.

In order to cultivate Mushrooms, if you have no beds in your own, or in neighbouring gardens, which produce them, you must look abroad in rich pastures, during the months of august and september, that being the season when they are naturally produced: open the ground about the roots of Mushrooms, where you will find the earth very often full of small white knobs, which are the offsets, or young Mushrooms; these should be carefully gathered, preserving them in lumps with the earth about them: but as this spawn cannot be found in the pasture, except at the season when Mushrooms are naturally produced, you may probably find some in old dung-hills, especially where there has been much litter amongst it, and the wet has not penetrated to rot it; as likewise in old hot-beds; shooting out in long strings: or it may be procured by mixing some long dung from the stable, which has not been thrown on a heap to ferment, with strong earth, and put under cover to prevent wet getting to it; the more the air is excluded from it, the sooner the spawn will appear; but this must not be laid so close together as to heat, for that will destroy the spawn; in about two months after, the spawn will appear, especially if the heap is closely covered with old thatch, or such litter as has lain long abroad, so as not to ferment, then the beds may be prepared to receive the spawn: these should be made of dung, in which there is good store of litter, but this should not be thrown on a heap to ferment; that dung which has lain spread abroad for a month or longer, is best. These beds should be made on dry ground, and the dung laid upon the surface; the width of them at bottom should be about two feet and a half or three feet, the length in proportion to the quantity of Mushrooms desired; then lay the dung about a foot thick, covering it about four inches with strong earth. Upon this lay more dung, about ten inches thick; then another layer of earth, still drawing in the sides of the bed, so as to form it like the ridge of a house, which may be done by three layers of dung and as many of earth. When the bed is finished, it should be covered with litter or old thatch, to keep out wet, as also to prevent its drying; in this situation it may remain eight or ten days, by which time the bed will be in a proper temperature of warmth to receive the spawn; for there should be only a moderate warmth in it, great heat destroying the spawn, as will also wet; therefore when the spawn is found, it should always be kept dry until it is used, for the drier it is, the better it will take in the bed; for I had a parcel of this spawn, which had lain near the oven of a stove upward of four months, and was become so dry, that I despaired of its success; but I never have yet seen any which produced so soon, nor in so great quantity as this.

The bed being in a proper temperature for the spawn, the covering of litter should be taken off, and the sides of the bed smoothed; then a covering of light rich earth about an inch thick should be laid all over the bed, but this should not be wet;

upon this the spawn should be thrust, laying the lumps four or five inches asunder; then gently cover this with the same light earth above half an inch thick, and put the covering of litter over the bed, laying it so thick as to keep out wet, and prevent the bed from drying: when these beds are made in the spring or autumn, as the weather is in those seasons temperate, the spawn will then take much sooner, and the Mushrooms will appear perhaps in a month after making; but those beds which are made in summer, when the season is hot, or in winter, when the weather is cold, are much longer before they produce.

The great skill in managing these beds is, that of keeping them in a proper degree of moisture, never suffering them to receive too much wet: during the summer season the beds may be uncovered, to receive gentle showers of rain at proper times; and in long dry seasons the beds should be now and then gently watered, but by no means suffer much wet to come to them; during the winter season they must be kept as dry as possible, and so closely covered as to keep out cold. In frosty or very cold weather, if some warm litter shaken out of a dung heap is laid on, it will promote the growth of the Mushrooms; but this must not be laid next the bed, but a covering of dry litter between the bed and this warm litter; and as often as the litter is found to decay, it should be renewed with fresh; and as the cold increases, the covering should be laid so much thicker. If these things are observed, there may be plenty of Mushrooms produced all the year; and these produced in beds, are much better for the table than any of those which are gathered in the fields.

A bed thus managed, if the spawn takes kindly, will continue good for several months, and produce great quantities of Mushrooms; from these beds when they are destroyed, you should take the spawn for a fresh supply, which may be laid up in a dry place until the proper season of using it, which should not be sooner than five or six weeks, that the spawn may have time to dry before it is put into the bed, otherwise it will not succeed well.

Sometimes it happens, that beds thus made do not produce any Mushrooms till they have lain five or six months, so that beds should not be destroyed, though they do not at first answer expectation; for I have frequently known these to have produced great quantities of Mushrooms afterward, and to have continued a long time in perfection.

[This practice of propagating Mushrooms by the spawn, or the white fibrous radicles, which produce tubercles in the manner of potatoes, is the most common. But they may also be increased by the seed. When this method is used, the gills are cut out and put into the beds: or else they are infused in water, and the beds are sprinkled with the infusion. In the same manner any other species of Fungus may be cultivated; and experiments have been made on the *Boletus* and *Phallus* with success*.]

[AGATHOPHYLLUM. (From *αγαθος*, good, and *φυλλον*, a leaf; which is the meaning of the Madagascar name *Raven-tsara*.)

Lin. gen. Schreb. 1754. Juss. gen. 431. Raven-sara. Sonnerat. ind. 2. p. 226. t. 127. Euodia. Gertn. 2. t. 103.

Class. II. 1. Dodecandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth very small, truncate, entire, permanent.

COR. Petals six, ovate, somewhat villose within, inserted into the calyx.

STAM. Filaments twelve, broadish, very short, alternately placed at the base of the petals and alternately on the calyx. Anthers roundish.

PIST. Germ superior, very small. Style very short. Stigma pubescent.

PER. Drupe somewhat globose, crowned with the calyx.

* Lightfoot 1014.

* Lightfoot.

SEED. Nut somewhat globose, terminated by a truncate point, half-fix-celled. Kernel convex, beneath fix-lobed: with coriaceous partitions separating the lobes.

ESSENTIAL CHARACTER.

Cal. superior, very short, toothless. Cor. fix-petalled, somewhat villose. Stam. alternately inserted into the calyx and petals. Drupe juiceless, with a half-fix-celled nut, and one seed.

SPECIES.

Agathophyllum aromaticum.

Euodia Ravenfara. Gærtn. fruct. 2. 101.

Ravenfara aromatica. Sonner. it. ind. 2. 226. t. 127.

DESCRIPTION, &c.

The *Ravenfara* is a large bushy tree, with a pyramidal head like the Clove-tree, and a reddish odorous bark; the wood is hard, heavy, white with some reddish fibres, and has no smell. Leaves alternate, simple, oval, entire, sometimes a little pointed, but more often obtuse, smooth on both sides, whitish and somewhat glaucous underneath, of a firm texture like those of the bay, with a strong longitudinal nerve; they are on petioles half an inch in length. Flowers extremely small, towards the end of the branches, in several little panicles, one terminating, and two or three axillary: petals only half a line in length, with some short hairs on the outside. There is a single fruit at the end of each branch, the size of a large cherry, shaped like a pear, with a roundish body: it consists of a nut divided into fix parts, in the same manner as the walnut is into four, covered with a hard coriaceous shell, and that with a thin green shell or bark very closely adhering to it; both these are aromatic; but the nut has an acrid biting taste, which is almost caustic. This tree bears at five or six years' growth, and flowers in january and february. The fruit is ten months in ripening. The natives of Madagascar gather it before it is ripe, as a spice, for the purpose of seasoning their meat. It has a fine aromatic smell when fresh; and the caustic taste may be abated by keeping it some months; after which it may be thrown into boiling water for four or five minutes, and then dried in the sun. The leaves may be prepared as a spice, in the same manner*.

The flowers being in panicles, and the fruit solitary, perhaps they may grow on different trees. If it be considered as polypetalous, the *Ravenfara* is allied to *Heisteria*; but if we consider the corolla as a perianth, it will rather be allied to the *Lauri*†.]

AGAVE. (From *Ἀγαυός*, admirable, glorious.)

Lin. gen. n. 431. Reich. 465. Schreb. 582. Juss. 51.

Class. 6. 1. Hexandria Monogynia.

Nat. order of *Coronarieæ*. *Bromeliæ* Juss.

GENERIC CHARACTER.

CAL. none.

COR. one-petalled, funnel-shaped: border fix-parted, equal: parts lanceolate, erect.

STAM. Filaments filiform, erect, longer than the corolla. Anthers linear, shorter than the filaments, versatile.

PIST. Germ oblong, growing thinner towards both ends, inferior. Style filiform, the length of the stamens, three-cornered. Stigma headed, three-cornered.

PER. Capsule oblong, three-cornered, three-celled, three-valved.

SEEDS numerous.

OBS. Linneus has separated this genus from the *Aloe*, because the stamens and style are extended much longer than the corolla, and the corolla rests upon the germ. There is also another difference in the growth of the plants; which is, that all the *Agaves* have their central leaves closely folding over each other, and embracing the flower-stem, which is formed in the centre; so that these never flower until all the leaves are expanded; and when the flower is past, the plants die. Whereas the flower-stem of the *Aloe* is produced on one side of the centre, annually from

the same plant, and the leaves are more expanded than in this genus.

ESSENTIAL CHARACTER.

Cor. erect, superior. Filaments longer than the corolla, erect.

SPECIES.

1. *Agave americana*. Common American Agave.
Lin. spec. 461. Reich. 2. 89. Amæn. 3. 22.
hort. upf. 81. cliff. 130. Hall. herb. n. 1249.
Raii hist. 1197. n. 5. Baub. hist. 3. 701. Ger.
409. emac. 507. Park. theat. 150.
- β. *A. Karatto*. Red-spined American Agave.
Mill. dict. n. 5.
Stemless; leaves tooth-thorny.
2. *Agave vivipara*. Viviparous or Childing Agave.
Lin. spec. 461. Reich. 89. Herm. lugdb. 16.
t. 17, 57. Comm. præl. 65. t. 15. Rumph.
amb. 5. 273. t. 94.
Stemless; leaves toothed.
3. *Agave virginica*. Virginian Agave.
Lin. spec. 461. Reich. 89. amæn. 3. 22.
Stemless, herbaceous; leaves tooth-thorny.
4. *Agave lurida*.
Ait. hort. kew. 472.
- α. *A. Vera-Cruz*. Broad-leaved Vera-Cruz Agave.
Mill. dict. n. 7.
- β. *A. rigida*. Narrow-leaved Vera-Cruz Agave.
Mill. dict. n. 8.
Subcaulescent; leaves tooth-thorny.
5. *Agave tuberosa*. Tuberous-rooted Agave.
Ait. hort. kew. 472.
- α. Single-thorned Agave.
A. tuberosa. Mill. dict. n. 4.
- β. Double-thorned Agave.
Caulescent; leaves tooth-thorny.
6. *Agave foetida*. Fetid Agave.
Lin. spec. 461. Reich. 89. amæn. 3. 22. hort.
cliff. 132. Comm. hort. 2. 55. t. 18.
Caulescent; leaves quite entire.

DESCRIPTIONS, &c.

1. Common American Agave, or Great American Aloe, as it is commonly called, has been long preserved in the English gardens, where, for many years past, there have been several of the plants in flower. When they are vigorous, the stems generally rise upwards of twenty feet high, and branch out on every side, so as to form a kind of pyramid, composed of greenish yellow flowers, which stand erect, and come out in thick clusters at every joint. The seeds do not come to maturity in England. When these plants flower, they make a fine appearance, and continue a long time in beauty, if they are protected from the cold in autumn; for there will be a succession of new flowers produced, near three months in favourable seasons. It has been generally believed, that this plant does not flower till it is an hundred years old; but this is a great mistake, for the time of its flowering depends on its growth; so that in hot countries where it grows fast, and expands many leaves every season, it will flower in a few years; but in colder climates, where the growth is slow, it will be much longer before it shoots up a stem.

[Cortusus is said to have been the first European who possessed the Great American Aloe, and that was in the year 1561. Gerard in his Herbal of 1597, speaks of it merely from report. In the edition of 1633, by Johnson, it is mentioned, but not said to be in England. Parkinson (Theatr. p. 150, printed in 1640) relates, that it was first brought into Spain, and from thence spread into all quarters. He gives an account of its flowering at Avignon, and Rome; but is silent as to its being in the English gardens. It flowered at Paris in 1663 and 1664. Mr. Verspriet, of Lambeth, had one twelve or fifteen feet high, and in flower (about 1698 or perhaps sooner) which was then a great rarity here*.

Two other plants flowered about 1714 at Hampton Court, and one at the Duke of Buckingham's, now the Queen's palace, by St. James's-park.

* Sonnerat.

† Jussieu.

* Houghton's Collection, 2, 333.

There

There is a wooden plate extant, with this inscription—*Aloe americana quæ Sonderbusæ floruit, 1662**. Another flowered at Leipzig in 1700.

Mr. Cowell asserts, that the plant which flowered in his garden at Hoxton in 1729, was the first which had been seen in England; those which are mentioned above, not being the true great American Aloe. There is a plate of this Aloe in Mezzotinto by Kirkall, dated september 23, 1729. It was published without the consent of Cowell, who expresses himself very angrily about it, in the pamphlet which he printed.

Another flowered in 1737, at Eaton-hall in Cheshire, the seat of Sir Robert Grosvenor, Baronet. There is a plate of it † dedicated to Sir Robert by his gardener John Fossey, dated november the first, 1737. It is engraved by W. H. Toms, from a drawing of Badeslade's. By the inscription on the print it appears, that it opened the crown for flowering on june the fifth; the stem-bud appeared the fifteenth, and grew five inches a day for some weeks; the flower-branches were perfected in twelve weeks; and then it was at a stand for a month, whilst the flower buds were forming. The number of flowers was about 1050.

Two Agaves flowered at Hampton-Court in 1743; they were about fifty years old. Their heights were twenty-seven and twenty-four feet. The flower-stem appeared on the third of june, was in perfection the middle of august, and continued blooming to the middle of october.

A plant which flowered near Carlisbad in 1754, was twenty-six feet high, and produced twenty-eight branches, which bore above 3000 flowers. Another flowered at Leyden in 1760, and a third in the royal garden at Friedricksborg in Denmark; twenty-two feet high; it had nineteen branches, and more than 4000 flowers. The highest, of which I have seen any account, was one that flowered in the King of Prussia's garden: this was forty feet in height.

Two plants blossomed at Smith's nursery in Dalston near Hackney, in september 1790: but they are now scarcely considered as rarities.

Very few of the variety with yellow-edged leaves have yet blossomed. We have an account of one at Sir James Lake's in Edmonton, which was eighty years old, and the height of the flowering-stem was twenty-one feet. The top-bud of the stem appeared on the sixth of june, 1785; it was in full bloom on the twelfth of september, and out of bloom on the nineteenth. One blew in Holland six years earlier; and another at Hampton-Court the year before it. There is a print also of these ‡.

In the conservatory of the botanic garden at Cambridge, there is a very large variegated Agave, which came out of the Sherardian collection at Eltham, and belonged to Dr. Walker, the founder of the garden. It must therefore be more than sixty years old, and has not yet produced flowers.

There are now hedges of the common Agave in Spain, Portugal, Sicily, and Calabria: it flourishes also about Naples, between Villafranca and Monaco, and in other parts of Italy.

The leaves of Agave are very useful as a succedaneum for soap. For this purpose, after being cut, they are passed between the rollers of a mill with their point foremost; and the juice being conducted into wide, shallow receivers, through a coarse cloth or strainer, it is exposed to a hot sun, until the aqueous part being exhaled, it is reduced to a thick consistence. It may then be made up into balls, with the help of lye ashes. It will lather with salt water as well as fresh. This soap may also be prepared by pounding the leaves in a wooden mortar, and then expressing the juice, which may be brought to a consistence by the sun or by boiling. One gallon of juice thus prepared will yield about one pound of a soft extract. The juice, in both these ways, must be carefully strained; and the extract must

never be combined with tallow or other unctuous materials.

The leaves are also used for scouring pewter, and other kitchen utensils, and floors. The inward spongy substance of the decayed stalk is used for tinder. The fibres of the leaves, separated by bruising and steeping in water, and afterwards beating them, make a strong thread for common uses*.

The Agave of Mr. Miller's figures (t. 222.) is a variety of this, though he gives it as a very different species. It flowered in the Chelsea garden during the summer of the year 1757. The leaves are narrower than those of the common sort, of a paler green, and the indentures on the edges not so deep; the spines at the indentures are shorter, and not so strong. The leaves do not grow so erect; and are drawn in much narrower toward their points. The flower-stem was erect, ten inches in circumference below, gradually diminishing like a column, to the height of eight feet, where it divided into several branches; those in the middle grew three feet high; the others were shorter; but they all grew erect; whereas those of the common sort are horizontal, turning upwards at their ends, like the branches of a chandelier. The flowers were collected in close bunches or clusters, at the ends of the branches, standing erect; whereas those of the common sort grow from the sides of the branches, as well as from the extremities. The flowers of this are also larger. The flower-stem was about six weeks in growing to its full height; and the flowers began to open about a month after: there was a succession of them for near six weeks, and the germs afterwards grew to their full size. Many of the young suckers from the root flowered at the same time with the old plant †.

Varieties of the common American Agave with gold and silver striped leaves, are now pretty common in the English gardens.

β. The leaves of the *Karatto Agave* are from two feet and a half to three feet long, and about three inches broad, ending in a black spine, and standing more erect than in the others. This sort has not flowered in England. The plants were sent me from St. Christopher's, by the title of *Karatto*, which I suppose is given indifferently to other species of this genus; for I have frequently heard the inhabitants of America call the common Agave by the same name.

2. The *Childing Agave* or *Aloe* never grows to a large size; the leaves are seldom more than a foot and a half long, and about two inches and a half broad at their base; these end in a slender spine, being slightly indented on their edges; they are also reflex, and of a dark green colour. The flower-stem rises about twelve feet high, and branches out towards the top, in the same manner as the sixth sort; the flowers are nearly of the same size and colour with that, and after they fall off, are succeeded by young plants in the same manner. This never produces any suckers from the root, and therefore cannot be increased till it flowers. [Mr. Miller cultivated it in 1731 ‡.]

3. The *Virginian Agave* is so like the first sort, as not to be distinguished from it, but by good judges. The principal differences are, that the leaves of this are narrower toward their extremities, and of a paler colour: the stems do not rise so high, nor do they branch in the same manner, but the flowers are collected into a close head at the top; they are however of the same shape and colour. This sort seldom puts out so many offsets as the common Aloe. [Introduced in 1765, by Mr. John Cree §.]

4. The *Vera-Cruz Agave* greatly resembles the first, but the leaves are much thinner, the indentures on their edges abundantly closer, and not so deep; the spines too are blacker. How this differs in flower I know not, having never seen any of the flowers produced in England.

* Long's Jamaica. 3. 710.

† Hort. kew.

‡ Mill. fig. 148.

§ Ibid.

* In Sir Joseph Banks's collection.

† Ibid.

‡ Ibid.

β. The *rigid* or *narrow-leaved Agave* has long, narrow, stiff leaves, entire, and terminated by a stiff black spine. They are seldom more than two feet long, little more than an inch broad, and of a glaucous colour. The side leaves stand out almost horizontally. This sort never puts out suckers, nor have I seen any plants of it in flower, although there are many of them in the English gardens, some of which are of a considerable age. [Cultivated in 1731, by Mr. Miller*.]

5. The *tuberous-rooted Agave* has the leaves indented on their edges, and each indenture terminates in a spine; the root is thick, and swells close above the surface of the ground; in other respects it agrees with the species just described. This has not flowered in England. I have raised it from seeds which were sent me from America; but the plants never put out suckers from the roots. Linneus supposes it to be the same with the *Petid-leaved*, but whoever sees the plants, will not doubt of their being different. [Cultivated in 1739, by Mr. Miller†.]

The fourth and fifth are doubtful species, their fructification being unknown‡.]

6. *Petid-leaved Agave* has long narrow, stiff leaves, of a pale green colour, not indented on their edges, but frequently a little waved; the side leaves spread open, but those in the centre fold closely over each other, and strictly surround the bud. It is seldom more than three feet high, but the flower-stem rises near twenty, and branches out much like that of the first, but more horizontally; the flowers are of the same shape, but smaller and of a greener colour. A plant of this species flowered in the Chelsea garden in the year 1755. The stem began to shoot the beginning of october, and by the end of that month was upwards of ten feet high; by the end of november it was near twenty, and the lower lateral branches were upwards of four feet long, the others decreasing gradually so as to form a regular pyramid. In december the branches were closely set with flowers; and in the spring, when the flowers dropped off, they were succeeded by young plants, which as they fell off and dropped into the pots that stood near, put out roots, and became good plants. The old plant presently after died. [It was cultivated in 1690, in the royal garden at Hampton-Court§.]

PROPAGATION AND CULTURE.

The first and third sorts are hardy. Plants of the former have lived in the open air for some years, in mild seasons; but in severe winters they are always killed, if not sheltered. They are propagated by offsets, which the first sends out in plenty. The third sort generally puts out suckers enough for propagation, though not in so great plenty as the first. They should be planted in pots or tubs filled with light sandy earth, and housed in winter with oranges, myrtles, &c. and during that season, should have but little wet. In the summer they must be placed abroad in the open air, where they may remain till toward the end of october.

The Vera-Cruz Agave, being a little more tender than these, should be housed before them, and may remain in the green-house a little longer in the spring.

The second, fourth and sixth, never produce offsets or suckers from the root; they cannot therefore be increased this way, except when they flower; at which time there will be abundance of them. They may however be increased, by taking off some of the larger roots, when the plants are shifted.

The second, fifth, and sixth, with the Karatto and rigid Agaves, are much more tender than the others, and cannot be preserved through the winter in England, unless they are placed in a warm stove; nor will they thrive if set abroad in summer: therefore they should constantly remain in the stove; observing to let them enjoy a great share of free air in warm weather. They also require a light sandy earth, and should have little wet in winter; but in summer

they may be gently watered twice a week. If they have too much water, it rots their roots, and then their leaves will decay, and insects will infest them. They should be shifted every summer into fresh earth; but must not be put into large pots; for unless their roots are confined, the plants will not thrive.

AGERATUM. (*Αγνερτον*, Diosc. from *α* privative, and *γῆρας*, senectus, never old, evergreen.)

Lin. gen. 936. Reich. 1016. Schreb. 1273.

Gärtn. 2. t. 165. Juss. 178.

Class. 19. 1. Syngenesia Polygamia æqualis.

Nat. order of *Compositæ Discoidææ*. *Corymbifera* Juss.

GENERIC CHARACTER.

CAL. Common oblong; with many, lanceolate, subequal scales.

COR. Compound uniform: Corollets hermaphrodite, tubulous, numerous, equal, scarcely longer than the calyx. Proper monopetalous, funnel-shaped; border quadrifid, spreading.

STAM. Filaments capillary, very short. Anther cylindrical, tubular.

PIST. Germ oblong. Style filiform, the length of the stamens. Stigmas two, very slender, erect.

PER. none. Calyx unchanged.

SEED solitary, oblong, angular, crowned with a chaffy, five-leaved, upright, awned calycle.

REC. naked, convex, very small.

OBS. It differs from *Eupatorium* in the crown of the seeds; from *Bidens* in the nakedness of the receptacle.

ESSENTIAL CHARACTER.

Recept. naked. Down five-awned. Calyx oblong, subequal. Corollets quadrifid.

SPECIES.

1. *Ageratum conyzoides*. Hairy *Ageratum*.

Lin. spec. 1175. Reich. 3. 720. hort. cliff. 396.

hort. ups. 253. Gärtn. fruct. 2. 398. Herm.

par. t. 161. Pluk. phyt. 88. f. 1.

Conyzaurtica folio. Sloane jam. 1. 258. t. 152. f. 2. Leaves ovate, stem hairy.

[2. *Ageratum ciliare*.

Lin. spec. 1175. Reich. 3. 721. Lour. cochinch.

484. Pluk. alm. 93. t. 81. f. 4. (Centaurium.)

Leaves ovate, crenate, obtuse; stem smooth.

DESCRIPTIONS, &c.

1. Root annual. Stem woody, square, reddish, about a foot and half in height. Leaves opposite, hairy, much serrate about the edges, an inch and half long, and three quarters of an inch broad, petioled, and resembling those of nettles*.

Calyx ovate-cylindric, with two or three rows of scales, which spread very much when ripe. Receptacle ovate-globular, pitted. Seeds small, columnar, smooth, blackish, elongated at the base into a little white swelling navel: crown the length of the seed, and white; leaflets membranaceous, ciliate-toothed; ending in a long rough bristle-shaped awn†.

It flowers in july and august, and is a native of Africa, the islands of America, and the isle of Tanna in the South-Seas. Cultivated in 1714, by the Dutchess of Beaufort‡.

2. Stem herbaceous, two feet high, upright, thick, brownish, branched. Leaves sharpish, veined, smooth, opposite. Flowers terminating in a sort of umbel. Calyx almost ovate. Corollets five-cleft. Crown of the seeds with five cusps. Native of the East-Indies, and of China near Canton§.

A. Houstonianum. Mill. dict. n. 2. Said to be found wild at La Vera-Cruz, by Dr. William Houston; does not seem to differ in any thing from the first sort.]

PROPAGATION AND CULTURE.

1. The seeds must be sown on a hot-bed in the spring; when the plants are strong enough to remove, they should be transplanted into another moderate hot-bed, observing to water and shade them until they have taken root, after which time they must have a good share of air in warm wea-

* Hort. kew.

† Ibid.

‡ Ibid.

§ Ibid.

* Sloane.

† Gärtn.

‡ Hort. kew.

§ Loureiro. ther.

ther. In June they should be inured to the open air; and toward the middle of the month they may be transplanted into the full ground, where they will begin to flower in July, and continue flowering till the frosts in autumn destroy them. The seeds ripen in September and October, and when any of them scatter upon the ground, if the same earth happen to be put on a hot-bed the following spring, the plants will come up in great plenty; as they frequently do also in the open air, but these will be too late to produce good seeds, unless the summer prove warm.

AGERATUM. See *Achillea*, *Athanasia*, *Conyza*, *Erinus*, *Eupatorium*, *Senecio*.

AGNANTHUS. See *Cornutia*.

AGNUS CASTUS. See *Vitex*.

AGRIFOLIUM. See *Vitex*.

AGRIMONIA. (*Αγριμονία*, from its curing a disorder of the eyes; or perhaps quod agris abundat.)

Lin. gen. 607. Reich. 663. Schreb. 830. Gærtn. t. 73. Tournef. 155. Juss. 336.

Agrimonoïdes. Tournef.

Class. II. 2. Dodecandria Digynia.

Nat. order of *Scutellaria*. *Rosacea* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, five-cleft, acute, small, superior, permanent, fenced with an outer calyx.

COR. Petals five, flat, emarginate; claws narrow, inserted into the calyx.

STAM. Filaments capillary, shorter than the corolla, inserted into the calyx. Anthers small, twin, compressed.

PIST. Germ inferior. Styles simple, the length of the stamens. Stigmas obtuse.

PER. none. Calyx contracted at the neck, and hardened.

SEEDS two, roundish.

OBS. Number of stamens very uncertain, 12. 10. 7.

Agrimonia Tournef. has the outer calyx growing to the inner: two seeds: stamens 12 to 20: fruit fenced with bristles.

Agrimonoïdes T. has the outer calyx detached: one seed: stamens about seven.

ESSENTIAL CHARACTER.

Cal. five-cleft, fenced with another. Petals five. Seeds two, at the bottom of the calyx.

SPECIES.

1. *Agrimonia Eupatoria*. Common Agrimony.

Lin. spec. 643. Reich. 2. 430. mat. med. 120.

hort. cliff. 179. 1. succ. 423. hort. upf. 118.

Huds. angl. 206. Wither. 490. Curtis 5. 32.

Lightf. scot. 247. Jungh. offic. cent. 1. f. 6.

Plenck. ic. t. 364. Berg. phyt. 2. 205. Mill.

illustr. Fl. dan. t. 588. Blackw. t. 21. Scop.

carn. n. 567. Pollich. palat. n. 452. Haller

helv. n. 991. Raii hist. 400. Park. 594. 1.

Ger. 575. emac. 712.

α. *A. minor*. White Agrimony.

Mill. dict. n. 2.

β. *A. odorata*. Sweet-scented Agrimony.

Mill. dict. n. 3. fig. t. 15. Raii hist. 400. n. 2.

Stem leaves pinnate; the end-lobe petiolate; fruits hispid.

2. *Agrimonia repens*. Creeping Agrimony.

Lin. spec. 643. Reich. 2. 431. Gærtn. fruct. 1.

347. Tourn. cor. 21.

Stem-leaves pinnate; the end-lobe sessile; fruits hispid.

[3. *Agrimonia decumbens*.

Lin. syst. 448. supp. 251.

Leaves pinnate hirsute; stem procumbent; fruits every way hispid-hooked.]

4. *Agrimonia Agrimonoides*. Three-leaved Agrimony.

Lin. spec. 643. Reich. 2. 431. hort. cliff. 179. 2.

Scop. carn. n. 568. Col. ecphr. 1. p. 145. t. 144.

Barr. ic. 612. Raii hist. 400. n. 3. Park.

theat. 594. 3.

Stem-leaves ternate: fruits smooth.

[5. *Agrimonia parviflora*. Small-flowered Agrimony.

Ait. hort. kew. 2. 130.

Stem-leaves pinnate, leaflets many, lanceolate, petals half as long again as the calyx, fruits hispid.]

DESCRIPTIONS, &c.

1. Stem erect, cylindrical, roughish, hairy, a foot and a half in height. Leaves hairy, covered with rising dots, and segments ending in small reddish glands, interruptedly pinnate; composed of six or seven pairs of leaflets, besides the smaller ones; the least entire, the others deeply serrate. Flowers in a long thin spike. Peduncles surrounded at the top, with a sort of outer calyx, cloven into five spear-shaped irregular segments, hairy at the edges and on the outside; within this, white upright bristles; above which is, a circle of numerous green awns, hooked at the end, and within this the proper calyx. Corolla yellow. Stamens five to twelve. One of the seeds is frequently abortive*.

Native of woods, shady places, hedges and borders of corn-fields in Great-Britain, and most parts of Europe. It is perennial, and flowers in June and July. The root in spring is sweet-scented†. The flowers, fresh gathered, smell like apricots‡. Kalm informs us, that the Canadians use an infusion of the root in burning fevers, with great success. Dr. Hill affirms, that an infusion of six ounces of the crown of the root, in a quart of boiling water, sweetened with honey, and half a pint of it drank three times a day, is an effectual cure for the jaundice. He advises to begin with a vomit, afterwards to keep the bowels soluble, and to continue the medicine so long as any symptoms of the disease remain§. The leaves make a pleasant tea, said to be serviceable in hæmorrhages, and in obstructions of the liver and spleen. The country people also use them sometimes by way of cataplasm in contusions and fresh wounds||. When this plant is coming into flower, it will dye wool a good bright full Nankeen colour: gathered in September, it yields a darker yellow. It gives a good dye at all times, and being a common plant easily cultivated, deserves to have trials made with it by the dyers. In the Berlin acts it is recommended for dressing leather. Sheep and goats eat it, but kine, horses and swine refuse it¶.]

α. The *White Agrimony* is smaller than the common sort; the leaves have not so many pinnae; the pinnae are rounder, and the indentures on their edges blunter. The spike of flowers is slender, the flowers are smaller, and of a dirty white colour. This grows naturally in Italy.

β. *Sweet-scented Agrimony* grows near four feet high: the leaves have more pinnae than either of the former; they are also longer and narrower, ending in acute points; the serratures are sharper; and when handled they emit an agreeable odour. The flower-stems of this are branching, and the flowers stand on longer peduncles than in the common sort. The leaves also make an agreeable cooling tea, which is a very good beverage for persons in a fever. [It is a native of Italy, and was cultivated here in 1640**.]

2. Is of humble growth, seldom rising above two feet high; the pinnae of its leaves are longer, and narrower than those of the former, and the spikes of flowers very short and thick. The roots spreading widely, it multiplies faster than the common sort: the seeds also are much larger and rougher. This was sent by M. Tournefort to the royal garden at Paris; and from hence other botanic gardens have been supplied with it. [It much resembles the foregoing, but the stems are shorter, thicker, and hirsute; the stipules are the length of the interstices, are reflected, and almost cover the whole stem. The end-lobe is not pedicelled. The spike is short, dense, sessile, with bractes the length of the flower††. Cultivated in 1739, by Mr. Miller‡‡.]

3. Native of the Cape of Good Hope. The leaves spread upon the ground as in *Potentilla anserina*, or common Silver-weed: the lobes are about twenty, equal, serrate, ovate, and very villous. Stems a foot high, with scarcely any leaves, quite

* Withering, Haller.

† Withering.

** Hort. kew.

+ Haller.

|| Lightfoot.

†† Linneus.

‡ Withering.

¶ Linneus.

‡‡ Hort. kew.

simple,

simple, and ending in a raceme. Seeds ovate, tomentose, adhering on every side by hooks, generally single. This species is usually monogynous*.

4. Root-leaves pinnate, with two or three pairs of pinnae, and smaller ones intermixed; the end-lobe larger than the others: the pinnae ovate, villous, and toothed. Stem-leaves ternate. Bractes ovate, acuminate. Flowers in corymbs; small, yellow, rarely fix. Calyx ten or twelve-cleft: petals ovate, obtuse: stamens seldom more than eight†, tender, yellow‡. Native of Italy and Carniola, in moist woods, and among bushes. Cultivated in 1739, by Mr. Miller§.

5. Native of North-America. Cultivated in 1766, by Mr. James Gordon. Flowering in July||.]

PROPAGATION AND CULTURE.

These are hardy perennial plants, which will thrive in almost any soil or situation, and require no other care than to keep them clear from weeds. They may be propagated by parting their roots, which should be done in autumn, when their leaves begin to decay, that the plants may be well established before the spring. They should not be planted nearer than two feet, that their roots may have room to spread. They may also be propagated by seeds, which should be sown in autumn, for if they are kept out of the ground till spring, they seldom come up the same season.

AGRIMONIA. See *Bidens*, and *Triumfetta*.

AGRIMONOIDES. See *Agrimonia*.

AGRIMONY, Bastard-Hemp. See *Ageratum*.

————, Hemp. See *Eupatorium*.

————, Water-Hemp. See *Bidens*.

AGROSTEMMA. (*Αγρον στεμμα*, the garland of the field.)

Lin. gen. n. 583. Reich. 635. Schreb. 795.

Gärtn. 2. t. 130. Juss. 302.

Class. 10. 4. Decandria Pentagynia.

Nat. order of *Caryophyllei*.

GENERIC CHARACTER.

CAL. Perianth one-leafed, coriaceous, tubulous, five-toothed, permanent.

COR. Petals five; claws the length of the tube of the calyx; border spreading, obtuse.

STAM. Filaments awl-shaped, five alternately later than the other five, inserted into each claw of the petals. Anthers simple.

PIST. Germ ovate. Styles filiform, erect, the length of the stamens. Stigmas simple.

PER. Capsule oblong-ovate, covered, one-celled, five-valved.

SEEDS very many, kidney-shaped, dotted.

RECEPTACLES free, as many as seeds; the interior ones gradually longer.

OBS. In *Agr. Githago*, the corolla is not crowned, as in the other species.

ESSENTIAL CHARACTER.

Cal. one-leafed, coriaceous. Petals five, clawed; border obtuse, undivided.

Caps. one-celled.

SPECIES.

1. *Agrostemma Githago*. Corn Champion, or Cockle.

Lin. spec. 624. Reich. 2. 393. hort. cliff. 175.

fl. suec. n. 407. Hudf. ang. 198. With. 471.

Lightf. scot. 238. Curt. lond. 3. 27. Plenck.

icon. t. 356. Fl. dan. t. 576. Pollich palat.

n. 436. Scop. carn. n. 527. Hall. helv. n. 926.

Raii hist. 998. Mor. hist. f. 5. t. 21. f. 31.

Park. 632. 9. Ger. 926. emac. 1087.

Hirsute, calyx longer than the corolla, petals entire or slightly emarginate, and naked.

2. *Agrostemma coronaria*. Rose Champion.

Lin. spec. 625. syst. 435. Reich. 2. 394. hort.

cliff. 174. upf. 115. Curtis magaz. t. 24. Hall.

helv. n. 925. Park. parad. 252. fig. 255.

f. 1. 2.

Tomentose, leaves ovate-lanceolate, petals slightly emarginate, crowned, serrate.

3. *Agrostemma Flos Jovis*. Umbellate Rose Champion.

* Linneus. † Ibid. ‡ Scop. § Hort. kew. || Ibid.

Lin. spec. 625. syst. 435. Reich. 2. 394. Pollich

palat. n. 437. Hall. helv. n. 924. Burrell. ic.

1005. Bocc. mus. t. 42. Mor. hist. f. 5. t. 36.

f. 2. Zan. hist. 128. t. 51. Raii hist. 993.

Tomentose, petals emarginate, flowers in a corymb.

4. *Agrostemma Cœli Rosa*. Smooth Champion.

Lin. spec. 624. Reich. 2. 395. hort. upf. 115.

Herm. lugdb. 391. t. 393. Mor. hist. f. 5. t. 22.

f. 32. Bocc. sic. 27. Raii hist. 999.

Smooth, leaves linear-lanceolate, petals emarginate, crowned.

DESCRIPTIONS, &c.

1. [Root annual, stem upright, two feet high, hirsute, branched at top. Leaves oblong-lanceolate, keeled, connate, hairy on both sides. Peduncles very long, from the axils, flowers solitary. Calyx deeply grooved, angular, hairy; segments lanceolate, slightly hairy, with a prominent midrib. Petals large, showy, purple, obcordate, the base whitish, with a few interrupted dark green veins. Five filaments inserted into the bases of the petals, and five later ones placed betwixt the petals: anthers pale purple, shaped somewhat like the head of an arrow. Germ smooth: styles hairy. Capsule almost the size of an acorn, covered with its dried calyx, having ten ribs, the mouth splitting into five teeth. Seeds black, with a surface like shagreen*. In the microscope they appear like a hedge-hog rolled up†. The nectary is formed by a membrane under the germ. The filaments sometimes separate with the petals, but in general remain with the receptacle. The seeds are obovate, compressed, each on a pedicel springing from a common receptacle‡. Cockle is a common weed in corn-fields, enlivening them at the expense of the careless husbandman, along with Poppy and Blue-bottle; and flowering in June or July.]

2. In its natural state the corolla is white, with the middle red§. It has the habit of the next species, but is harder, more pulpy, and more tomentose. The calyxes are much harder, callous, covered with a white pile, with hard thick ribs, not green hairy lines as that has. Petals much broader, slightly emarginate: auricles bifid. Flowers not heaped into an umbel, but scattered on the branches of the stem on very long peduncles||. Native of Italy, the Valais, and Siberia. Biennial.] The single Rose Champion has been long an inhabitant of the English gardens, where by its seed having scattered, it is become a kind of weed. There are three varieties of this plant, one with deep red, another with flesh-coloured, and a third with white flowers, but these are of small esteem; for the double Rose Champion, being a fine flower, has turned the others out of most good gardens.

3. [The stem is erect, dichotomous at the top, covered with a white nap. Leaves conjugate, connate, ovate-lanceolate, quite entire, erect, and pressed to the stem; all over nappy. Flowers from the top and forks, solitary¶.] The flower-stem rises near a foot or a foot and a half high. The flowers grow in umbels on the top of the stalk, and are of a bright red colour. It flowers in July, and the seeds ripen in September. [It grows naturally on the Swiss and Piedmontese mountains, and in the Palatinate, and was cultivated in 1726, by Mr. Miller**.]

4. Annual. Stem sometimes simple, sometimes divided, round, slender, smooth, a foot or eighteen inches high. Leaves with scattered hairs. Flowers on long peduncles at the top of the stem and branches; corollas pale purple; seeds small, brown††. Native of Italy, Sicily, and the Levant, and being a plant of little beauty, is only preserved in botanic gardens, for the sake of variety. [It was cultivated in 1739, by Mr. Miller‡‡.]

PROPAGATION AND CULTURE.

2. The single Rose Champions propagate fast enough by their seeds, and come up better from

* Curtis.

† Ray.

‡ Withering.

§ Linneus.

|| Haller.

¶ Pollich.

** Hort. kew.

†† Ray.

‡‡ Hort. kew.

self-

self-sown seeds, than when they are sown by hand. The variety with double flowers, never producing any seeds, is propagated by parting the roots; the best time for this is in autumn, after the flowers are past; and in doing this, every head which can be slipped off with roots should be parted. These must be planted in a border of fresh undunged earth, at the distance of six inches one from the other, observing to water them gently until they have taken root; after which they will require no more, for much wet is very injurious to them; as is also dung. In this border they may remain until spring, when they should be removed into the borders of the flower-garden, where they will be very ornamental during the time of flowering, which is July and August.

3. Umbellate Rose Campion must have a shady situation, and will thrive best in a moist soil.

[AGROSTIS. (*Agrostis* Theophr. and Diosc. from *agros*, a field.)

Lin. gen. n. 80. Reich. 86. Schreb. III.

Class. 3. 2. Triandria Digynia.

Nat. order of Gramina or Grasses.

GENERIC CHARACTER.

CAL. a one-flowered, bivalve, acuminate glume.

COR. bivalve, acuminate, one valve larger than the other.

STAM. Filaments longer than the corolla; with forked anthers.

PIST. Germ roundish; Styles reflex, villous, with stigmas longitudinally hispid.

PER. Corolla growing to the seed, not gaping.

SEED roundish, pointed at both ends; the corolla adhering closely to it.

OBS. In the genera it is said that the corolla is scarcely the length of the calyx: in the systema that the calyx is a little shorter than the corolla.

ESSENTIAL CHARACTER.

Cal. bivalve, one-flowered, a little less than the corolla. Stigmas longitudinally hispid.

SPECIES.

* Awned.

1. *Agrostis Spica venti*. Silky Bent-grass.

Lin. spec. 91. fyst. 110. Reich. 1. 169. suet. 62. Hudf. angl. 30. With. 70. Flor. dan. t. 853. Leers t. 4. f. 1. Scop. carn. n. 84. Hall. belv. n. 1480. (Avena.)

The outer petal has a very long stiff awn; the panicle is spreading.

2. *Agrostis interrupta*. Interrupted-spike Bent-grass.

Lin. fyst. 110. Reich. 1. 170. Scop. carn. n. 85. Vaill. t. 71. f. 4.

The outer petal awned; the panicle attenuated, contracted, interrupted.

3. *Agrostis miliacea*. Millet Bent-grass.

Lin. spec. 91. Reich. 1. 170.

The outer petal terminating in a straight stiff awn of a moderate length.

4. *Agrostis bromoides*. Brome-like Bent-grass.

Lin. mant. 30. fyst. 110. Reich. 1. 170. Gouan illustr. 3. t. 1. f. 3.

Panicle simple, narrowed; corolla pubescent; awn straight, longer than the calyx.

5. *Agrostis australis*. Southern Bent-grass.

Lin. mant. 30. fyst. 110. Reich. 1. 170.

The panicle approaching to a spike; the seed ovate, pubescent; awn the length of the calyx.

6. *Agrostis arundinacea*. Reedy Bent-grass.

Lin. spec. 91. Reich. 1. 171. suet. 63. lapp. 44. Pollich palat. n. 69. Scop. carn. n. 126. Hall. belv. n. 1522. Wigg. primit. 10. (Arundo.)

Panicle oblong, outer petal villous at the base, and furnished with a writhed awn, longer than the calyx.

7. *Agrostis Calamagrostis*. Branching Bent-grass.

Lin. spec. 92. Reich. 1. 171. Hall. belv. n. 1521. (Arundo.)

Panicle thickened; whole of the outer petal woolly, awned at the tip; culm branching.

8. *Agrostis serotina*. Late Bent-grass.

Lin. mant. 30. fyst. 110. Reich. 1. 171.

Festuca serotina. Lin. spec. 111. Segu. ver. 83. t. 3. f. 2.

Floscules oblong mucronate: culm covered with very short leaves.

9. *Agrostis rubra*. Red Bent-grass.

Lin. spec. 92. Reich. 1. 172. suet. 64. lapp. 46. Hudf. angl. edit. 1. p. 26. Raii syn. 394. hist. 1288.

Flowering part of the panicle very spreading; outer petal smooth; awn terminal, spiral, recurved.

10. *Agrostis spiciformis*. Spiky Bent-grass.

Lin. suppl. 108. fyst. 110.

Panicle resembling a spike; flowers two-awned: one awn inserted into the receptacle, jointed and longer than the other, which is straight, and inserted below the tip of the corolla; which is rough.

11. *Agrostis hirsuta*. Hairy Bent-grass.

Lin. suppl. 108. fyst. 110.

Panicle approaching to a spike, culm and leaves hirsute, glumes of the corolla awned on the back, and bifid at the tip.

12. *Agrostis Matrella*.

Lin. mant. 185. fyst. 110. Reich. 1. 172.

The flowers in racemes, outer valve of the calyx bent in, the tip of the keel only gaping.

13. *Agrostis canina*. Brown Bent-grass.

Lin. spec. 92. Reich. 1. 173. suet. 65. Hudf. angl. 30. With. 70. Leers t. 4. f. 2.

Calyx elongate, a recurved awn on the back of the petals; culms prostrate, a little branching.

** Naked or awnless.

14. *Agrostis stolonifera*. Creeping Bent-grass.

Lin. spec. 93. Reich. 1. 173. suet. n. 66. Hudf. angl. 31. With. 72. Leers t. 4. f. 6. Pollich palat. n. 71. Oeder dan. t. 564. Hall. belv. n. 1473. (Poa.) Ger. 24. 1. emac. 26. 1. Park. 1174. 4. Baub. hist. 2. 480. 1.

Branches of the panicle spreading, naked; culm creeping; calyxes equal.

15. *Agrostis capillaris*. Fine Bent-grass.

Lin. spec. 93. Reich. 1. 174. fyst. 111. fl. lapp. n. 45.

Panicle capillary, spreading, flexuose; calyxes subulate, equal, smooth, coloured.

16. *Agrostis sylvatica*. Wood Bent-grass.

Lin. spec. 1665. Reich. 1. 174. Hudf. angl. 32. With. 74. Raii syn. 404. 13. Pollich palat. n. 73.

Panicle contracted; calyxes equal, those of the barren flowers shorter than the corolla, those of the fertile ones twice as long.

17. *Agrostis alba*. White Bent-grass.

Lin. spec. 93. fyst. 111. Reich. 1. 175. With. 74. Pollich palat. n. 74. Leers t. 4. f. 5. Mor. hist. f. 8. t. 6. f. 27. row. 1.

Agrostis polymorpha palustris. Hudf. angl. 32. Relb. cant. n. 53. Lightf. scot. p. 93.

Panicle loose; calyxes equal; culm creeping.

18. *Agrostis pumila*. Dwarf Bent-grass.

Lin. mant. 31. fyst. 111. Reich. 1. 175. Hudf. angl. 31. With. 75. Lightf. scot. 1081. fig. Pollich palat. n. 75. Hall. belv. n. 1474. (Poa.)

Panicle on one side, culms erect in bunches.

19. *Agrostis minima*. Least Bent-grass.

Lin. spec. 93. Reich. 1. 175. Hudf. angl. 32. With. 75. Mor. hist. 3. f. 8. t. 2. f. 10. Pollich palat. n. 76. Baub. theat. 26. Baub. hist. 2. 465. 4.

Panicle filiform.

20. *Agrostis tenacissima*. Tough Bent-grass.

Lin. suppl. 107. fyst. 111.

Panicle contracted, filiform: flowers linear, valves parallel.

21. *Agrostis virginica*. Virginian Bent-grass.

Lin. spec. 94. Reich. 1. 176. Brown. jam. 137. n. 5.

Panicle contracted, leaves rolled inwards, subulate, rigid, standing out.

22. *Agrostis mexicana*. Mexican Bent-grass.

Lin. mant. 31. fyst. 111. Reich. 1. 176.

Panicle oblong heaped, calyx and corolla acuminate and nearly equal.

23. *Agrostis purpurascens*. Purple Bent-grass.

Swartz prodr. 25.

- Gramen pratense panicula & foliis angustissimis, &c.*
Sloan. jam. 1. 115. 35. t. 73. f. 1.
Panicle contracted elongate, branches pressed close up-right, florets unequal acuminate.
24. *Agrostis indica. Indian Bent-grass.*
Lin. spec. 94. Reich. 1. 176. Swartz obs. 38.
Panicle contracted, racemes lateral, erect, alternate.
25. *Agrostis ciliata. Ciliate Bent-grass.*
Lin. syst. 111. Thunb. jap. 49.
Glume of the calyx angular, and ciliate.
26. *Agrostis panicea. Bearded Bent-grass.*
Ait. hort. kew. 1. 94.
Alopecurus aristatus. Hudf. angl. 28.
α. Alopecurus monspeliensis. Lin. spec. 89.
Branches of the panicle divulsed.
β. Alopecurus paniceus. Lin. spec. 90. Hudf. 28.
4. β.
Branches of the panicle appressed.
Panicle subspiked, branches and branchlets fascicled, valves of the calyx, and one of the corolla awned; that of the corolla very short.
27. *Agrostis lenta. Forked Bent-grass.*
Ait. hort. kew. 1. 96.
Spikes subtern, umbellate, floscules awnless, oblong, acute, calycine valves subequal, leaves and sheaths smooth.
28. *Agrostis complanata. Flat-stalked Bent-grass.*
Ait. hort. kew. 1. 96.
Spikes umbelled, smooth; outer calycine valves awned; flattened leaves, and sheaths smooth.
29. *Agrostis pungens. Prickly Bent-grass.*
Schreb. 2. 46. t. 27. f. 3. Allion. pedem. n. 2163.
Panicle contracted, leaves involute stiff pungent; the upper ones obliquely opposite; culm branching.
30. *Agrostis vinealis. Short-awned Bent-grass.*
Schreb. gram. 2. p. 37. spicil. p. 47. Hall. n. 1481. (Avena.) Scheuch. p. 143. n. 1. With. 72.
Culms ascending; calyx coloured, awn nearly straight, from below the middle of the back, about as long as the calyx.
31. *Agrostis ovata. Ovate-panicked Bent-grass.*
Forst. florul. n. 40.
Outer petal awned below the tip: panicle ovate, contracted, spike-form.
32. *Agrostis odorata. Sweet Bent-grass.*
Loureiro cochinch. 50.
Spikes with the florets pointing one way, heaped together, awnless.
33. *Agrostis plicata. Plaited-leaved Bent-grass.*
Loureiro cochinch. 51.
Leaves plaited; spike linear awnless.
34. *Agrostis Cinna.*
Retz. obs. 5. p. 18. n. 36.
Cinna arundinacea. Lin. spec. 7.
Panicle contracted awnless, flowers acuminate, with one two or three stamens, leaves flat, scabrous.
35. *Agrostis diandra.*
Retz. obs. 5. p. 19. n. 37.
Panicle elongate contracted, flowers subulate awnless two-stamened, leaves convolute.

DESCRIPTIONS, &c.

It is well observed by Dr. Stokes, that this is an artificial genus; that some of the species have the structure of *Bromus* and others of *Avena*; and that in general they are very ill ascertained. The absence or presence of the awn in the corolla, which is fixed upon as a primary mark of distinction, is inconsistent; and therefore he recommends particular attention to be paid to the open or closed state in which the valves of the calyx are found, immediately after the shedding of the pollen and the ripening of the seed; and also whether the flowers are scattered or clustered.

Some of the species are referred by Swartz to *Andropogon*; and of others he has formed a new genus under the name of *Chloris*.

1. Culm three and four feet high, leafy, smooth, with four joints. Leaves from a line and half to three lines in breadth*. Pubescent on the upper,

* Haller.

scabrous on the under surface. Strap long, truncate, cleft. Sheaths striated, subscabrous. Peduncles in whirls, numerous, spreading, compressed, scabrous*. Panicle very large, enormously many-flowered, often nodding, green when young, purple when ripe†. Valves of the calyx roughish towards the points. Annual, and frequent in sandy corn-fields, flowering from June to August.

2. According to Haller this is a variety of the former. Scopoli affirms, that the appearance and structure is totally different. His *diagnosis* is: Panicle contracted; petals entire; the larger one having a long, straight awn, coming out below the tip. Native of France, Italy, Switzerland, Carniola, Germany. Annual.

3. Resembling the first, but the awn only the length of the flowers: More culms from the root. Panicle smaller, perennial, and continuing to be different when cultivated. Native of Montpellier, Spain, Siberia‡. Introduced in 1778, by M. Thouin§.

4. Culms a foot and half high, stiff, smooth, erect. Leaves smooth, extremely narrow, subfiliform, channelled. Panicle or raceme erect, oblong, at each tooth of the rachis, either two pedicels with two flowers on each, one of them sessile; or else two flowers only, one of which is sessile. Calyx oblong, streaked, lanceolate; the two leaflets nearly equal. Corolla subpubescent, investing the seed: awn scabrous, twice or three times the length of the calyx, as in the *Bromes*||. It grows wild about Montpellier. Perennial.

5. Culms three feet high, jointed, leafy, smooth. It much resembles the following species; but the panicle approaches more to a spike; the seeds are not hirsute at the base, but pubescent on all sides; calyxes almost setaceous at the end; leaves broader, flatter; and the culms have more knots. Native of Portugal¶.

6. Height sometimes four, but most frequently two feet; very erect, with two or three knots. Leaves almost reedy, broad, hard; panicle contracted into the form of a spike. Calyx acuminate, one-flowered; valve of the outer petal villous at the base, near which or below the base it puts out a writhed awn, somewhat longer than the calyx. When the lower part of the panicle flowers, that part is dilated, and the upper contracted; but when the upper part flowers, the lower is contracted. The whole panicle expands about the time of flowering; but is contracted both before and after that time. The goat will almost die of hunger rather than eat it. The Calmuc Tartars weave mats of it, and thatch their huts with it**. Scopoli makes this a species of *Arundo*, and asks how it can be an *Agrostis*, when the down is so evident between the flowers; and the awn not straight, but gently broken from the middle. Haller also ranks it among the *Arundines*. Native of many parts of Europe. Perennial.

7. This resembles the former, but the whole corolla is very hirsute: awn straight, not from the base, but top of the petal. Culms branched. Panicle close††. Culms three feet high, bulbous at the base. Leaves from two to three lines broad. Panicle narrow, erect; half a foot long and more‡‡. Perennial. Native of Germany, Switzerland, and about Verona.

8. Culms a foot high, ascending. Leaves scarcely longer than the joints, expanding. Branches of the panicle alternate, a little branched. Most of the flowers sessile. Glume of the calyx, membranaceous, short: of the corolla lanceolate, reedy, one of them slightly awned. Pistils purple. Observed by Seguiet near Verona §§.

9. The whirls of the panicle, when in flower, horizontal, before they flower, contracted into a kind of spike, when they are past flowering, the whole turns red. Common in Sweden |||. Scotland.

* Leers.

† Haller.

‡ Linneus.

§ Hort. kew.

|| Linneus.

¶ Ibid.

** Ibid.

†† Ibid.

‡‡ Haller.

§§ Linneus.

||| Ibid.

10. Nine inches high, erect, very smooth, culms perfectly simple. Panicle contracted, slender. Calyxes large, ovate, compressed, quite smooth, edge membranaceous; outer glume larger. Corolla equal, shorter than the calyx, obtuse. Nectary short, embracing the genitals*.

11. Easily distinguished by its shagginess. The panicle resembles that of *Alopecurus paniceus*. Both these were found in the island of Teneriffe by Masfon†.

12. Root creeping, scaly. Culms at bottom decumbent, branching; then erect four inches; the sheaths covering the joints. Leaves involute, subulate, in two rows; distant, expanding. Raceme quite simple, almost spiked, erect, flexuose. Flowers often so, subsessile, erect, quite smooth. It differs somewhat in character from the other species. In the sandy lands of Malabar.

13. Panicle usually elongate, contracted in its branches, purple. Awn setaceous, white, twice the length of the flower, straight, with a brown joint in the middle‡. According to Mr. Hudson, the culm is from half a foot to three feet in height, a little branching. Leaves at the root and base of the culm filiform, in bunches. Panicle sometimes loose, sometimes contracted. Keels of the glumes rough. He makes n. 1477 and 1478 of Haller to be varieties of n. 1479, growing in dry soils, which when brought into a moist one, become the same with that which is common in meadows, pastures, and moist heaths. Perennial. Dr. Stokes, in Dr. Withering's arrangement, has made these two varieties a distinct species, under the name of *Agrostis alpina*. The character is—Leaves setaceous, culm erect, awn bent back, inserted at the base of the corolla, which is hairy.

α. rough. *Scop. carn. n. 86.* A. canina. β. Hudf. β. smooth. A. canina. γ. Hudf. A. rupestris.

Allion. pedem. n. 2161.

14. Known by its creeping stems, putting out roots and producing new plants; by its culm, first prostrate, then erect: by its leaves a line broad and more, smooth; by the young panicle being contracted, but afterwards more expanded. Glumes of the calyx equal, conical, long pointed, tuberculate on the back below the tip. Glumes of the corolla contracted into an acute conical bag, white or purple§. Native of most parts of Europe, in moist meadows, flowering from June to August. Perennial. Mr. Hudson joins this with the *capillaris*, n. 15. *pumila*, n. 18. *alba*, n. 17. and *sylvatica*, n. 16. under the name of *polymorpha*.

15. Culm ascending, a foot high, branched, round, very smooth and even, with three or four knots obscurely purple. Leaves sheathing at the base, somewhat ventricose, streaked, smooth, ending in a narrow, sharp lamina. Stipule short, very blunt, membranaceous. Panicle terminating, upright, many-flowered, very smooth: branchlets several from the same origin, but not in whirls, many times subdivided, filiform, knotted at the divarications, all divaricating and spreading: pedicels so slender as to be scarcely visible, flexuose, each ending in a pretty large, obconical, smooth receptacle, as in the Avenæ. Calyx on the apex of the receptacle, rutilant; valves nearly equal, ovate-lanceolate, bluntish, concave. Corolla twice as long as the calyx, very slender, two-valved; valves connected on one side, distant on the other, very blunt at the end, somewhat crenate. Seed single, oval, sharp at both ends, smooth.—It seems rather to be a species of *Milium*. Native of Lapland? Annual||.

The grass which other authors have taken to be *Agrostis capillaris* of Linneus, is made by Hudson a variety of his *Agr. polymorpha*. This is figured by *Stillingfleet misc. t. 3. Fl. dan. t. 163. Scheuch. t. 3. f. 5. B. Mus. rust. 4. t. 10. f. 10. and Leers t. 4. f. 3? See Wither. arr. 69. Lightf. scot. 93. Hall. herb. n. 1475. Scop. carn. n. 87.*

Scopoli doubts whether *A. alba* be different from this: and Lightfoot observes, that this with *A. alba*

* Linneus.
§ Haller.

† Ibid.
|| Smith ic. ined. 3. 54.

‡ Ibid.

and *stolonifera* have a slight roughness in the flowers, that they are extremely related to each other; but that *A. capillaris* is the finest and most delicate, and grows erect without any shoots at the joints.

The strap is short and truncate: the sheaths smooth, usually purple*. Corolla sometimes awned†: one of the petals sometimes so minute as scarcely to be visible‡. Panicle green in the young plant, afterwards purple, and in the old plant pale. Glumes of the calyx equal, more evidently toothed on the back; these are permanent, gaping wide after the floscule is dropped. Floral glumes narrow, white, and forming a cone§.

Common in pastures and by road sides. Perennial.

16. Panicle spreading, bay-coloured; spicules lanceolate; some are scarce a line long, others are more than three lines in length. In the smaller spicules, the calyx is longer than the corolla, in the larger ones, it is only half the length. In dry woods||. With us it grows in moistish woods, as Bishop's wood, and Hornsey wood near London¶. Perennial.

17. Anthers purple. Glumes of the calyx green**. According to Haller this is only a larger variety of the foregoing. Leers makes it a variety of the fifteenth. Grows in ditches, marshes, and moist meadows. Perennial.

18. Culms numerous, in bunches, smooth, two inches high, covered with leaves like the radical ones; sheath streaked, a little involute. Panicle extremely expanded, rather on one side. Flowers coloured, awnless, acuminate. Seeds largish. It differs from *Agrostis stolonifera*, with which it grows promiscuously, in being only half the size, in having the panicle less erect, and a little on one side, in being more tufted, and in having the pedicels not at all undulated, but bent this way and that. Native of Iceland, Sweden, Germany, Switzerland††. England in dry places‡‡. Wales, Scotland§§. Perennial.

19. A spring plant|||. Flowers early and ripens its seed in May¶¶. Mr. Hudson says, it flowers in July. Panicle small, spiked, on one side, consisting of nine or ten spikelets. Peduncles solitary, very short, one-flowered. Floscules brownish-purple, shining, smooth. Culm erect, setaceous, an inch or more in height, smooth, leafy at the base, then naked; a joint or two at bottom. Leaves short, setaceous, smooth. Sheaths smooth†††. Native of France and Germany: discovered by Mr. Stillingfleet in Wales. Annual.

20. Culms many, six inches high, very narrow, tough, and smooth, jointed. Panicle very narrow, with the flowers pressed close. Valvelets of the calyx linear, distant, the length of the flower. Corolla linear or subulate. Native of the East Indies. Perennial.

21. It is an elegant little plant; the stalk somewhat compressed, and seldom rising above four or five inches from the root‡‡‡.

The reference in Linneus's species to Clayton, n. 507. occurs again under *Uniola spicata*. See Gron. virg. 2. 14.

22. Culms numerous, a foot high, smooth, erect. Branches undivided. Leaves smoothish with a truncate strap. Panicle green, consisting of abundance of scabrous flowers, crowded together. Calyxes subulate at top, a little scabrous. Corolla the length of the calyx, acuminate at the end, hairy at the base. Stigmas dark-purple, branching; filaments white. It is very difficult to determine this species. It flowers the second year, and has the appearance of *Cinna*§§§. Native of South America. Introduced in 1780, by Mr. Gilbert Alexander||||.

23. Leaves many, forming a great tuft, five inches long, narrow or almost round, dry, pale-green.

* Leers. † Relhan. ‡ Scopoli. § Haller.
|| Pollich. ¶ Hudf. ** Reich. ex Moench.
†† Linneus. ‡‡ Hudf. §§ Lightfoot.
††† Pollich. ||| Linneus. ¶¶ Pollich.
‡‡‡ Browne, who names it Crab-grass.
§§§ Linneus. |||| Hort. kew.

Stalks

A G R

Stalks round, solid, hard, smooth, a foot and half high, of a clay colour, having small leaves to nine inches high; whence it has a very narrow panicle, divided into many branches three-quarters of an inch in length, sometimes black, sometimes gray. Seeds small, oblong, reddish, in a gray or black naked husk. Native of Jamaica*.

24. Culm erect. Leaves flat, narrow. Panicle oblong, composed of lateral, alternate racemes, approximating to the rachis: glumes very short, acute. Native of India†. Introduced in 1773, by John Earl of Bute‡.

25. Culm simple, round, erect, smooth, two feet high. Leaves scabrous, shorter than the culm. Sheaths dotted and ciliate at the opening and edge. Panicle heaped, a foot long; peduncles filiform, wand-like, angular, ciliate. Floscules on short pedicels, angular, ciliate, pressed close. Glume of the calyx lanceolate, acute. Native of Japan§.

26. Glume bivalve; valves linear, diverging and awned at the tip; awn terminating, very long; corolla very small, with a short awn on the back||. Linneus, who makes two species of this, allows that his *panicus* resembles his *monspeliensis* very much, but that the whole plant is soft, and only a palm in height; the glumes pubescent with a villous edge; the awn of the corolla even, shorter than those of the calyx. The first grows in marshes and wet pastures; the second in a dry soil; to which their difference is probably owing.

27. Native of the East Indies. Found there by John Gerard Koenig, M.D. Introduced in 1778, by Sir Joseph Banks. It flowers in July and August. Annual¶.

28. Native of Jamaica. Found by Mr. Gilbert Alexander. Introduced in 1779. It flowers in July and August. Perennial**.

29. Native of Arabia and Barbary. The Arabs use it in the hæmorrhoids††. In dry places off the coast of the county of Nice. Perennial‡‡.

30. Flowers twice as long as in *A. canina*. Awns in general not longer than the calyx; but sometimes a line longer, and sometimes none. Size of the flowers the only circumstance constant. Approaches to *A. capillaris* §§. Panicle close, from three to five inches long. Outer valve of the calyx just perceptibly longer than the inner: keel beset above with rough points|||. Native of Switzerland and the north of England.

31. Native of New Zealand¶¶.

32. Culm six inches high, slender, upright, leafy. Leaves subulate, short, smooth, stem-clasping. Spikes pressed close, in bundles; valves of the calyx awnless, acute, one-flowered—of the corolla nearly equal, longer than those of the calyx. Native of Cochinchina, near the coast.

This grass is esteemed by the Cochinchinese, for the excellence and permanency of its odour; they dry it to perfume their clothes with***.

33. Culm a foot and half high, ancipital, upright, leafy. Leaves large, lanceolate. Spike pressed close, distich; all the valves sharp, without any awns, the calycine valves rather shorter than those of the corolla. Calyx one-flowered. Native of the suburbs of Canton†††.

34. Leaves broad, many-nerved, scabrous. Panicle of a bluish glaucous colour, with imbricate racemes. Since it varies in the number of stamens from one to three, it may be admitted into this genus‡‡‡. See *Cinna*.

35. Culm filiform, a foot and half high, leafy. Leaves slender. Panicle slender, a span long, with short, upright racemes. Flowers pedicelled. Sent by Koenig, from the East Indies, under the name of *Cinna* §§§.

PROPAGATION AND CULTURE.

See GRASS.

* Sloane. † Linneus. ‡ Hort. kew. § Thunberg. || Hudson. ¶ Hort. kew. ** Ibid. †† Schreb. ‡‡ Allione. §§ Schreb. ||| Stokes in With. ¶¶ Forster. *** Loureiro. ††† Ibid. ‡‡‡ Retz. §§§ Ibid.

A I L

AGROSTIS. See *Schoenus*, *Aira*, *Milium*, *Melica*, *Cenchrus*.

AGUL. See *Hedysarum*.]

[AGYNEIA. (*a priv. and yvvn, a wife.*)

Lin. mant. p. 145. syst. 1320. p. 871. Reich. 1197. Schreb. 1467. Juss. 387.

Class. 21. 11. Monoecia Monadelphia.

Nat. order of *Tricocca*. *Euphorbia* Juss.

GENERIC CHARACTER.

Male flowers below the female.

CAL. six-leaved: leaflets oblong, obtuse, equal, permanent.

COR. none.

In the MALE instead of *filaments*, a column shorter than the calyx. Three or four *anthers*, oblong, growing to the column below the top.

In the FEMALE flowers. *Germ* of the size of the calyx, subovate, obtuse, perforated at top with a six-notched hole: neither *style* nor *stigma*.

PER. supposed to be a tricoccous *Capsule*.

OBS. *Very distinct in the want of a style and stigma.*

ESSENTIAL CHARACTER.

Cal. six-leaved. Cor. none.

Male: *Anthers* three, growing to the rudiment of a style.

Female: *Germ* perforated at top: without style or stigma.

SPECIES.

1. *Agyneia impubes*.

Lin. mant. 296. syst. 871. Reich. 4. 211.

Leaves smooth on both sides.

2. *Agyneia pubera*.

Lin. mant. 296. syst. 871. Reich. 4. 212.

Leaves downy underneath.

DESCRIPTIONS.

1. An erect shrub, with the last branches rather downy. Leaves alternate, in two rows, subpetiolate, elliptic, quite entire, an inch long, glaucous and veined underneath. Flowers axillary, many, close, peduncles one-flowered, very slender, the length of the flower. Male flowers small and smooth: female larger with downy peduncles*.

2. A shrub rather erect, with pubescent branches. Leaves alternate in two rows, subpetiolate, oval-oblong, obtuse, quite entire, an inch and half long. Flowers as in the former; but the appearance very different.

Both are natives of China†.

AHOUI. See *Cerbera*.]

[AILANTHUS. (From the Amboina name *Aylanto*, which signifies *the tree of heaven*; so called from its lofty growth.)

Desfontaines in aët. par. 1786. p. 265. t. 8. Juss. gen. 373. Lin. gen. Schreb. n. 1767.

Class. 23. 1. Polygamia Monoecia.

22. 9. Dioecia Decandria. Schreb.

GENERIC CHARACTER.

* Male.

CAL. *Perianth* one-leaved, five-parted, very small.

COR. *Petals* five, lanceolate, acute, convolute at the base, spreading.

STAM. *Filaments* ten, compressed, the length of the corolla. *Anthers* oblong, versatile.

* Female.

CAL. as in the Male, permanent.

COR. as in the Male.

PIST. *Germ*s 3—5, curved inwards. *Styles* lateral. *Stigmas* capitate.

PER. *Capsules* as many as there are germs, compressed, membranaceous, sabre-shaped, acute, on one of the edges emarginate.

SEEDS solitary, lens-shaped, bony, close to the emarginature.

* *Hermaphrodite*.

CAL. as in the Male and Female.

COR. as in the Male.

STAM. *Filaments* two or three, as in the Male.

PIST. PER. and SEED as in the Female.

ESSENTIAL CHARACTER.

MALE. Cal. five-parted. Cor. five-petalled. Stam. ten.

* Linneus.

† Linn. mant.

FEM.

FEM. Cal. and Cor. as in the Male. Germs 3—5.
 Styles lateral. Peric. membranaceous, one-seeded.
 HERM. Cal. and Cor. as in the Male. Stam. 2—3.

SPECIES.

1. *Ailanthus glandulosa*. Tall *Ailanthus*.

Ait. hort. kew. 1. 443. Desf. art. par. 1786. 265.
 t. 8. L'Herit. stirp. nov. 6. 117. t. 84. Ait.
 hort. kew. 3. 443.

Rhus Cacodendrum. Ebrhart Hanov. mag. 1783. 227.
 R. sinense, &c. Ellis in philof. transf. 49. 870.
 t. 25. f. 5. and 50. 446. t. 17.

DESCRIPTION, &c.

This tree rises with a straight trunk to the height of forty or fifty feet; the bark is gray, slightly furrowed, and has white marks on it; the young twigs are covered with a fine velvet down. Leaves large, smooth, alternate, unequally pinnate, disposed horizontally. The common petioles form an angle more or less acute, or sometimes a right one with the branch: they are slender, from one to two feet in length. Leaflets from twenty to thirty, alternate and opposite, from two to three inches in length, and from one to two in breadth, on a short petiole; laterally towards the base are some blunt teeth glandulose beneath; the rest of the leaflet is commonly entire. Flowers very numerous in a close terminating panicle, usually in groups on a common peduncle, and each flower on its proper pedicel: they are male and female, with a few hermaphrodites; the males are the most numerous. They exhale a disagreeable odour.

The *Ailanthus* grows very fast in our climate, and being a handsome tree rising to a considerable height, is proper for ornamental plantations. If the bark be wounded, a resinous juice flows out, which hardens in a few days. The wood is hard, heavy, glossy like fatten, and susceptible of a very fine polish*.

Before the fructification was known, this tree passed for a species of *Rhus*; and it is memorable among us for the dispute it occasioned between Mr. Ellis and Mr. Miller, which is recorded in the Philosophical Transactions, as quoted above. The latter contended that this tree was the *Fasi-no-ki* or spurious Varnish-tree of the Japanese: but it is clear that he was mistaken; for the leaves of that tree are entire, and have none of those singular glands which are found in this; nor does the *Ailanthus* yield any juice.

It is a native of China; and was first raised in England by Mr. Miller, and Philip Carteret Webb, Esq. about the year 1751, from seeds sent over by Father D'Incarville. With us it has hitherto produced only male flowers; at Paris and Leyden it has borne female flowers and fruit, but the fruit has not ripened. Some years it bears only male flowers; but about twice in ten years it has both male and female flowers, in France†.

[AIRA. (*Airæ Hippocr.* and *Theophr.* revived by Linneus.)

Lin. gen. n. 81. Reich. 87. Schreb. 122. Gært. t. 1. Cl. 3. 2. Triandria Digynia.
 Nat. order of Gramina or Grasses.

GENERIC CHARACTER.

CAL. a two-flowered, two-valved glume: valves ovate-lanceolate, acute, equal.

COR. bivalve; valves like those of the calyx. Nectary two-leaved; leaflets acute, gibbous at the base.

STAM. Filaments capillary, the length of the flower, with oblong anthers, forked at each end.

PIST. Germ ovate. Styles setaceous spreading, with pubescent stigmas.

PER. none.

SEED subovate, covered by the corolla.

OBS. It differs from *Melica* in having no rudiment of a third between each pair of floscules: the number of which varies.

ESSENTIAL CHARACTER.

Calyx two-valved, two-flowered, without any rudiment of a third.

SPECIES.

* Naked or awnless.

* Desfontaines.

† L'Heritier.

1. *Aira arundinacea*. Reedy *Aira-grass*.

Lin. spec. 95. Reich. 1. 177. Tourn. cor. 39.
 Loureiro cochinch. 54.

Panicle oblong, on one side, imbricate; leaves flat.

2. *Aira minuta*. Minute *Aira-grass*.

Lin. spec. 95. Reich. 1. 177. Schreb. gram.
 t. 21. f. 2. Buxb. cent. 5. p. 35. t. 67.

Panicle loose, almost level-topped, very branching.

3. *Aira aquatica*. Water *Aira-grass*.

Lin. spec. 95. syst. 112. Reich. 1. 177. Hudf.
 angl. 33. With. 76. Curtis fl. lond. 1. 5. Abr.
 t. 113. Lightf. scot. 94. Fl. dan. t. 381?
 Vaill. t. 17. f. 7. Pollich palat. n. 77. Scop.
 carn. n. 94. Hall. belv. n. 1471.

Panicle spreading, flowers smooth, longer than the calyx, leaves flat.

** Awned.

4. *Aira subspicata*. Spiked *Aira-grass*.

Lin. spec. 95. syst. 112. Reich. 1. 178. suec. 69.
 lapp. 47. Fl. dan. t. 228. Hall. belv. n. 1490.

Leaves flat, panicle spiked, flowers awned on the middle: awn reflex, loose.

5. *Aira cæspitosa*. Turfy *Aira-grass*.

Lin. spec. 96. Reich. 1. 178. suec. n. 70. lapp. 50.
 Hudf. angl. 34. With. 77. Lightf. scot. 94.
 Fl. dan. t. 240. Leers t. 4. f. 8. Pollich palat.
 n. 78. Scop. carn. n. 93. Hall. belv.
 n. 1487. Mor. f. 8. t. 5. f. 17. row 3. and row
 2. 1. Ger. 5. 1, 2. emac. 5. 1, 2. Park. 1158. 2, 3.

Leaves flat: panicle spreading: petals villous and awned at the base: awn straight, short.

6. *Aira flexuosa*. Heath *Aira-grass*.

Lin. spec. 96. Reich. 1. 179. suec. n. 71. lapp.
 28. Hudf. angl. 34. With. 78. Lightf. scot.
 95. Fl. dan. t. 157. Mor. hist. f. 8. t. 7. f. 9.
 Leers t. 5. f. 1. Scheuchz. t. 6. f. 1. Schreb.
 57. t. 30. Pollich pal. n. 79. Hall. belv. n.
 1486. β.

Leaves setaceous, culms almost naked, panicle divaricated, peduncles flexuose.

7. *Aira montana*. Mountain *Aira-grass*.

Lin. spec. 96. syst. 112. Reich. 1. 179. Stillingf.
 gram. t. 4. Hudf. angl. 35. With. 78. Scheuch.
 t. 4. f. 16. Leers t. 5. f. 2. Hall. belv. n.
 1486. α.

Leaves setaceous, panicle narrowed, flowers hairy at the base and awned, awn twisted and very long.

8. *Aira alpina*. Alpine *Aira-grass*.

Lin. spec. 96. Reich. 1. 179. suec. n. 73.

Leaves subulate, panicle dense, flowers hairy at the base and awned; awn short.

9. *Aira villosa*. Villose *Aira-grass*.

Lin. suppl. 109. syst. 112.

Leaves subulate, panicle long and narrow, flowers sesquialteral, shaggy, awned; awn straight, short.

10. *Aira canescens*. Gray *Aira-grass*.

Lin. spec. 97. Reich. 1. 180. suec. n. 74. Gært.
 fruct. 1. 4. Hudf. angl. 36. With. 79. Pollich
 pal. n. 80. Hall. belv. n. 1483. Mor. hist.
 f. 8. t. 3. f. 10.

Leaves setaceous, the upper one involving the panicle at bottom like a spathe.

11. *Aira præcox*. Early *Aira-grass*.

Lin. spec. 97. Reich. 1. 180. succ. n. 75. Hudf.
 angl. 36. With. 79. Pollich palat. n. 81. Raii
 synop. t. 22. f. 2. Curtis fl. lond. 3. 7. Fl. dan.
 t. 383. Pluk. alm. t. 33. f. 9.

Leaves setaceous, sheaths angled, flowers panicle-spiked, and awned at the base.

12. *Aira caryophyllæa*. Silver *Aira-grass*.

Lin. spec. 97. Reich. 1. 180. Hudf. angl. 36.
 With. 80. Curt. lond. n. 65. Stillingf. misc.
 t. 5. Fl. dan. t. 382. Mor. hist. f. 8. t. 5. f. 11.
 Pollich palat. n. 82. Hall. belv. n. 1482. Bar-
 rel. ic. t. 44. f. 1. Scheuch. t. 4. f. 15.

Leaves setaceous, panicle divaricated, flowers awned distant.

13. *Aira antarctica*. South-sea *Aira-grass*.

Forst. florul. n. 41.

Leaves flat, panicle compound, spreading, calyxes three-flowered, floscules awned in the middle; awn elongated straightish.

14. *Aira involucrata*. *Involucrated Aira-grass*.
Cavanilles hisp. 33. n. 48. t. 44. f. 1.
Panicle spreading, involucrated with bristles at the base ;
floscules awnless.

DESCRIPTIONS, &c.

1. Found by Tournefort in the Levant, and by Loureiro in Cochinchina.
2. An annual grass found by Loeffling in Spain. It differs from that which is figured by Buxbaum, only in being much smaller, and not an inch high*.
3. Root perennial. Stem creeping, culms a foot high. Leaves smooth, carinated; the sheaths striated, red at bottom. Panicle upright, spreading, loose with several racemes from one point, frequently flexuose. Spicules generally contain two flowers, one sessile; they are purple with white tips. Valves of the calyx unequal, purple, smooth, much shorter than the corolla. Valves of the corolla equal, subtruncate, folded or angular†. Culm with two joints. Racemes capillaceous. Calyxes scarcely shorter than the corollas. The inner petals, seen through a magnifying-glass, bifid‡. In the water this grass runs to a considerable distance, throwing off roots and young shoots as it passes along; the stalk is hollow, and remarkably tender. It is easily known by the purple or bluish colour of the panicles; the flowers also have a sweet taste. It flowers in June and July, and is not worth cultivating. *Poa aquatica* is a much stronger plant§. There is a variety of this (according to Schreber,) in dry soils, which has the calyxes five-flowered, and the flowers very remote from each other. Mr. Hudson, who also has placed it as a variety of this species, thus describes it: Culms many, oblique, and rather erect, round, smooth. Root-leaves few, ensiform, erect, obtuse, naked. Stem-leaves petioled, obtuse, involute, glaucous. Petiole sheathing, cylindrical, streaked, smooth. Stipule membranaceous, very short, obtuse. Panicle diffused, with about four branches. Spicules lineal. Floscules from three to six, or seven, remote, obtuse, as it were truncate, purple with a white edge. Glumes unequal, very obtuse. It occurs in sandy lands near Exmouth; about Northfleet in Kent: in Yorkshire and Lancashire||. In Dr. Withering's arrangement it is placed among the *Poas*, under the name of *Poa distans*. *Lin. mant.* 32. Dr. Stokes suspects Mr. Curtis's *Poa retrofracta* to be the same with this¶.
4. The top of the culm pubescent. Panicle very like the spike of Vernal-grass (*Anthoxanthum odoratum*) with peduncles shorter than the flower. Glume of the calyx nearly the length of the petals: awn stiff, longer than the floscules. Found on the mountains of Switzerland, Savoy, Denmark, and Lapland. Perennial**.
5. Culm a yard high. The leaves grow in a thick tuft, are flat, rigid, and rough to the touch. Panicle often a foot long, and when not in flower, leans all one way; it consists of a vast number of small flowers, which have a gray-purple silvery appearance††. Culms with two knots, smooth. Root-leaves narrow, the younger ones doubled; stem-leaves broadish, spreading. Strap oblong, obtuse, bifid. Sheaths streaked, smooth. In moist meadows, it sometimes produces three or four floscules in one calyx‡‡. In marshes it is frequently viviparous. Growing in tufts, it occasions irregularities, tussocks, or haffocks, as they are vulgarly called in meadows. Cows, goats, and swine, eat it, but horses are not fond of it§§. Found in meadows, fields, and woods. Perennial.
6. Each floret has a twisted awn as long as the flower, inserted outwardly into the base of the petal|||. Culm about a foot high, bearing a loose open panicle of silvery-purple flowers. On rocks and in woods it frequently varies with white flowers¶¶. Culms with two or three knots, smooth. Root-leaves with white, shining sheaths; they are variously curved and smooth; stem-leaves straight and roughish.

Strap ovate, obtuse, bifid. Sheaths roughish, reddish. Panicle with few flowers. Peduncles and pedicels twin, angular. Calyx unequal. Lower floscule sessile, upper on a very short pedicel; both white, four-nerved, hairy at the base, at the top quadrifid*. A variety only of *A. montana*, or rather the same in a more mature state, according to Wiggers. Horses, kine and sheep eat it†. Native of heaths, barren pastures, and rocky moors. Perennial.

7. According to Haller, Leers, &c. this is only a variety of the foregoing. Gerard in *fl. galloprov.* says, that it agrees with the *flexuosa* in habit, and differs only in the blossom being hairy at the base; but this is the case with that also. The root-leaves are longer and erect. The culms aggregate and purple. The panicle more elegantly and fully coloured and shining. The peduncles straight and not waving. The flowers more numerous. The calyxes at flowering-time more gaping. The floscules more hairy at the base, and the awns longer. However, they are scarcely different‡. Mr. Hudson has a variety of this which he calls *setacea*. Native of high heaths and barren pastures. Perennial. Sheep are very fond of it.

8. Grows on the mountains of Germany, Savoy, and Lapland§.

9. Root covered with ovate-oblong, villous scales. Culm smooth. Leaves flat, remote: sheaths often villous. Panicle terminating, a foot long, branched as in *Melica*: pedicels simple and branching, aggregate. Calyx scarious, smooth. Flowers large, ferruginous: one longer, thicker, hermaphrodite; the other narrower, in a manner barren. Corolla hirute. Found at the Cape of Good Hope by Thunberg||.

10. Awn in the middle surrounded by toothlets; below thicker, brown; above more slender, rather club-shaped, and whitish. After flowering the panicle rises higher out of the sheath. It may be known at first sight from most other grasses by its paleness¶. Culms many, half a foot high, oblique, smooth. Root-leaves in bundles, stiff, rough, glaucous; stem-leaves erect, petioled, involute, acute, rough. Petioles cylindrical, sheathing, rough, almost as long as the interval between the joints. Panicle oblong, erect, contracted, branching. One flower sessile, the other peduncled, half the length only of the glume. Valves of the calyx with a rough keel. Valves of the corolla unequal, rather acute, smooth; the outer one awned from the middle; the awn as long as the calyx**. Native of sandy shores, the walls of Basil, and the sandy fields of Germany and Piedmont. *Avena canescens* of Wiggers.

11. Common height two or three inches, sometimes six. Scheuchzer mentions fourteen. Culms round, smooth, upright. Panicle crowded so as to resemble a spike; half an inch or an inch in length††. Calyx sometimes contains three floscules. Leaves blunt‡‡. Wiggers names it *Avena pusilla*. It has a sweet taste; cows are very fond of it; horses and sheep eat it§§. In ditches, on banks of streams, and in wet meadows; flowering in June and July.

12. Culms from two to nine inches high, erect, leafy, smooth, with two knots. Root-leaves smooth, many collected at the base into bunches resembling bulbs; stem-leaves short, straight, rough; strap oblong, bifid. Sheaths rough, the upper one wide, investing the panicle before it flowers. Peduncles twin, long: pedicels short. Calyx rather unequal, white spotted with purple, shining. Floscules about the length of the calyx, a little hairy at the base, slightly bifid at the top; the upper pedicelled, distant. A straight awn, purple with a white tip, a little twisted, scarcely longer than the calyx, proceeds from the base of each floscule|||. It is an *Avena*, according to Wiggers. Native of sandy pastures and heaths of England, France, Switzerland, Piedmont, Germany and Denmark. Annual.

* Linneus.

† Curtis.

‡ Scopoli.

§ Curtis.

|| Hudson.

¶ With. gr.

** Linneus.

†† Lightf.

‡‡ Leers.

§§ Linneus.

||| Ibid.

¶¶ Lightf.

* Leers.

† Linneus.

‡ Leers.

§ Linneus.

|| Linneus.

¶ Ibid.

** Hudson.

†† Curtis.

‡‡ St. in With.

§§ With.

||| Leers.

13. Native

A J U

13. Native of New Zealand.

14. Culms almost a foot high, round, slender, upright, with four or five brownish-red joints. Root-leaves two inches long, broadish at the base, afterwards convolute so as to appear subulate; a single leaf at each joint, sheathing the culm from one joint to the next, streaked, reddish green; strap white, bifid. Branches of the panicle red, alternately ternate and doubly trifid. Below the panicle are two involucres, sometimes three, half an inch distant from each other, composed of about twenty little bristles, disposed in a whirl, capillary, red, from erect spreading. It is annual, and flowers in June and July. Native of Spain, near Madrid, on barren hills*.]

PROPAGATION AND CULTURE.

See GRASS.

[AIRA. See *Melica*, *Poa*, *Cynosurus*, *Holcus*.

AIRA CAPENSIS. See *Ehrharta*.

— INDICA. See *Panicum*.

— VARIA. See *Cynosurus*.]

[AITONIA. (So named from Mr. William Aiton, late gardener to his Majesty at Kew.)

Lin. suppl. p. 49. Syst. 612. Schreb. 1113. Thunb. nov. gen. 52. Cavan. diff. 5. 301. t. 159. f. 1.

Class. 16. 2. Monadelphia Octandria.

Nat. order of *Columniferae*.

GENERIC CHARACTER.

CAL. Perianth one-leaved, erect, four-parted, short, divided into four ovate, sharp segments.

COR. has four, erect, equal, broadly-ovate, concave, very obtuse petals.

STAM. Filaments joined as far as the middle, divided above into eight; awl-shaped, furrowed, standing out of the corolla; and having ovate, furrowed anthers.

PIST. Germ superior, ovate, smooth, subangular; style one, filiform, of the same length with the stamens; stigma obtuse, undivided.

PER. an ovate, dry, membranaceous, four-cornered, one-celled; brittle, berry; the corners are produced and sharp.

SEEDS many, fixed to a column, globular and smooth.

OBS. It varies with five-cleft, ten-stamened flowers.

ESSENTIAL CHARACTER.

Style one. Cal. four-parted. Cor. four-petalled.

Berry dry, quadrangular, one-celled, many-seeded.

SPECIES.

1. Aitonia capensis.

Lin. suppl. p. 303. Syst. 612. Curtis magaz. t. 173.

Cotyledon. Burm. afr. t. 21. f. 2.

DESCRIPTION, &c.

1. Stalk shrubby, six feet high: branches alternate, roundish, wrinkled, erect, smooth; leaves in bunches, lanceolate, obtuse, quite entire, smooth; peduncles lateral, solitary, one-flowered, smooth, shorter than the leaves, often recurved: petals scarlet; anthers yellow, striped with brown; fruit resembling that of the winter Cherry†. Found at the Cape by Thunberg. Introduced in 1774, by Mr. Francis Maffon‡.

This shrub is of slow growth with us, and seldom exceeds three feet in height. When it is of sufficient age, it produces flowers and fruit through most of the year. The segments of the calyx, and the petals are red at the ends; the fruit is also of a fine red colour, and large.

PROPAGATION AND CULTURE.

It is raised only from seeds, which are sparingly produced in this country§; and it must be kept in the Greenhouse or Cape Stove.]

[AJUGA. (Either from Abigo; or from α and Juga, one of Juno's names; both from a supposed power of procuring abortion; which however this plant does not possess.)

Lin. gen. n. 705. Reich. 763. Schreb. 959.

Bugula. Tournef. 98. Juss. 112. Mill. dict.

Class. 14. 1. Didynamia Gymnospermia.

Nat. order of *Verticillatae* or *Labiatae*.

* Cavanilles. † Linneus. ‡ Hort. kew. § Curtis mag.

A J U

GENERIC CHARACTER.

CAL. Perianth one-leaved, short, cut half-way into five clefts, with the segments nearly equal.

COR. monopetalous, ringent; tube cylindric, bent in; upper lip very small, erect, bifid, obtuse; lower large, spreading, trifid, obtuse; middle division very large and obcordate; side-ones small.

STAM. Filaments subulate, erect, longer than the upper lip: anthers twin.

PIST. Germ four-parted; style filiform, situation and length as in the stamens; stigmas two, slender, the lowest shorter.

PER. none; the calyx, which is converging, fosters the seeds.

SEEDS somewhat oblong.

ESSENTIAL CHARACTER.

Cor. upper lip very small. Stam. longer than the upper lip.]

SPECIES.

1. Ajuga orientalis. Eastern Bugle.

Lin. spec. 785. Reich. 3. 8. Loureiro cochinch. 363. Thunb. jap. 243.

Bugula. Dill. elth. t. 53. f. 61.

B. orientalis. Mill. dict. n. 5.

Flowers inverted.

2. Ajuga pyramidalis. Pyramidal Bugle.

Lin. spec. 785. Reich. 3. 8. Juss. 512. Hudf. angl. 248. Wither. 588. Lightf. scot. 302.

Berg. phyt. 1126. Fl. dan. t. 185.

Bugula pyramidalis. Mill. dict. n. 3.

Spike a quadrangular villous pyramid, leaves approximating, root-leaves very large, bractes nearly entire.

3. Ajuga alpina. Alpine Bugle.

Lin. mant. 80. Syst. 525. Reich. 3. 8.

Bugula decumbens. Mill. dict. n. 2. Boerb. ind. alt. 1. 184.

B. alpina. Allion. n. 157.

Stem simple, stem-leaves equalling the radical ones.

4. Ajuga genevensis. Geneva Bugle.

Lin. spec. 785. Reich. 1. 9. Scop. carn. n. 717.

Pollich palat. n. 542. Hall. belv. n. 283.

Crantz. austr. 252.

Bugula genevensis. Mill. dict. n. 4.

B. montana. Riv. mon. t. 140. f. 2. Raii hist. 575. 2.

Leaves downy, streaked with lines, lowermost narrower; calyxes shaggy; bractes generally three-lobed.

5. Ajuga reptans. Common Bugle.

Lin. spec. 785. Reich. 3. 9. Berg. phyt. 2. 131.

Scop. carn. n. 716. Pollich palat. n. 543. Hudf.

angl. 248. Wither. 589. Curtis lond. 2. 43.

Lightf. scot. 302.

Bugula. Riv. mon. t. 75. f. 1. Mor. f. 11. t. 5. f. 1.

Ger. 506. 1. emac. 631. 1. Park. theat. 525.

Blackw. t. 64. f. 1. Hall. belv. n. 282. Raii

hist. 575. 1.

B. reptans. Mill. dict. n. 1.

Smooth, and creeping by runners.

[6. Ajuga decumbens. Japanese Bugle.

Lin. Syst. 525. Thunb. jap. 243.

Decumbent and villous; leaves obovate, toothed.

DESCRIPTIONS, &c.

1. Eastern Bugle. Stem a foot and half high, upright, perennial, brownish-purple. Leaves ovate, sharpish, crenate, tomentose underneath. Flowers purplish, terminating and axillary, in spikes: calyx sharp, hirsute, converging: corolla with scarcely any upper lip, but two very small divaricating segments, adhering on each side to the lower lip, which is trifid*.

First brought into Europe from the Levant, by Tournefort. It has since been observed by Thunberg in Japan, and by Loureiro in Cochinchina. There are two or three varieties differing only in the colours of their flowers. Cultivated in 1732, by James Sherard, M. D.†

2. Pyramidal Bugle has a single stem four or five inches high and very hairy, clothed with leaves pointing four ways. Root-leaves oblong-wedge-shaped, sessile, entire; stem-leaves oval or oblong-

* Loureiro.

† Hort. kew.

obovate,

obovate, slightly toothed or scolloped, not three-lobed, diminishing upwards so as to give the whole plant somewhat of a pyramidal form; the upper ones tinged with purple. Bractes longer than the flowers, which are axillary, not more than three together: calyx very hairy; corolla narrow, twice as long as the calyx, hairy at the tip*. It has no runners; and differs from the fifth in being more hairy; the spike of flowers longer, and not so close; corolla deeper coloured, and often not variegated with white lines; segments of the calyx longer and narrower; fewer flowers in the whirls; the leaves often brown. Biennial. It flowers in april; with us usually later. A native of Italy, France, Germany, Switzerland, Sweden, Denmark, Wales and Scotland.]

3. *Alpine Bugle* has the leaves much longer than those of the common sort; the stalks are weaker, and decline on every side; and the whirls of flowers are much smaller, and more distant. [It differs from the second in the leaves being wrinkled, more ovate and crowded, hirsute, the petioles shorter and broader, the spike proceeding immediately from the root. At the top of the root are circles of leaves, whence arise leafy stems, four or six inches high. Leaves ovate, hirsute, hispid, with three strong nerves. From each axil three flowers; of which the two side ones are on shorter peduncles. Calyx inflated, divided beyond the middle, two-lipped, the two upper segments approximating. Two obtuse toothlets form the upper lip of the corolla; the lower lip has the large middle segment rose-coloured with purple lines. The whole stem is hirsute, flower-bearing, and leafy; the flowers being concealed among the leaves†. It also differs from the second, according to Linneus, in the root-leaves being scarcely larger than the others: flowers on both sides ten, not three; deep blue, not white; bractes green, not coloured.] Grows naturally on the Alps, and is admitted into some gardens for the sake of variety, and propagates in plenty by its trailing stalks. It requires a moist, shady situation. [Introduced in 1775, by Drs. Pitcairn and Fothergill‡.

4. *Geneva Bugle* approaches near to the common sort, but the leaves are downy, and the calyxes very rough. There are two varieties of this, one with a white, the other with a red flower. [Haller makes this a variety of the common sort, and Gerard thinks it a variety of the second; to Linneus it seems more like the third. Allione affirms it to be a mere variety of the second, n 156. Schreber joins the second, third, and fourth, with the character of simple erect stems, and oblong toothed leaves; the second has the lower leaves very large: the fourth has them very narrow, and the floral leaves usually three-lobed; in the third they are entire, but the lower also very narrow§. It grows wild not only about Geneva, but also in many of the southern countries of Europe; and was cultivated in 1759, by Mr. Miller||.

5. *Common Bugle* has the stalk upright, six inches high, hairy, purple. Leaves ovate, narrowing to the base, connate, toothed, veined, in winter purple; floral leaves smaller and shorter. Flowers in whirls one above another, forming in the whole a spike. Calyx hairy, nerved, bluish. Corolla blue with white veins. It flowers from may to june¶. It grows naturally in woods and moist meadows in most parts of England, and the countries of Europe south of us. It increases greatly by the side-shoots, which put out roots at their joints. There are two varieties of this, one with a white, and the other with a pale purple flower, which grow in several parts of Westmoreland; but these do not differ in any other respect, than in the colour of their flowers, from the blue sort. The common Bugle is recommended as a vulnerary herb, both internally and externally. [It is numbered amongst cooling and gently astringent vegetables. The roots strike a

black colour with vitriol of iron. Some foreign physicians of eminence recommended a decoction of this herb in the Quinsy, but it is out of use among us.] It is constantly found mixed with the vulnerary herbs imported from Switzerland. Official writers call it *Consolida media* or *Middle Consolida*. This is so common wild, that it is seldom admitted into gardens.

[6. Sends up many stems. Simple, or but little branched, decumbent with the ends standing up, four or five inches in length. Root-leaves many, larger than those on the stem, all petiolate. The whole plant is villous. Flowers in whirls small and blue*. Loureiro makes it a variety of *A. reptans*.]

PROPAGATION AND CULTURE.

1. Requires a little protection in winter, the plants should be put into pots filled with a loamy soil; they may stand in a shady situation during summer; but in winter they must be removed under a common frame, where they may enjoy as much free air as possible in mild weather; in hard frost however they must be covered. It may be propagated by seeds, which should be sown soon after they are ripe, in a pot filled with loam, placed in a shady situation till autumn, and then removed under a frame. In the spring, they should be transplanted into separate pots, as soon as they are strong enough to remove, and treated as directed for the old plants. It may be also increased by offsets; but this is a very slow method, because this species puts out few of them.

The sixth sort may be increased and treated in the same manner. As to all the rest, they are hardy, and easily multiplied by the side-shoots: they delight in a moist shady situation, and are apt to spread too much.

AJUGA. See *Teucrium*.

AIZOON. (*Aei ζωον, sempervivum* or *ever-living*.)

Lin. gen. 629. Reich. 685. Schreb. 861. Gertn. t. 76. Juss. 316.

Ficoidea. Niff. act. gall. 1711. Dill. gen. 12. elth. 177.

Class 12. 4. Icosandria Pentagynia.

Nat. order of *Succulentæ*. Ficoideæ Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved: divided into five lanceolate, permanent sepals.

COR. none.

STAM. Filaments very many, capillary, inserted by bunches into the sinuses of the calyx. Anthers simple.

PIST. Germ five-cornered, superior. Styles five, simple. Stigmas simple.

PER. Capsule five-celled, five-valved, swelling and refuse.

SEEDS several, roundish, or kidney-shaped.

ESSENTIAL CHARACTER.

Cal. five-parted. Petals none. Caps. superior, five-celled, five-valved.

SPECIES.

1. *Aizoon canariense*. Purslane-leaved Aizoon.

Lin. spec. 700. syst. 471. Reich. 2. 518. hort. cliff. 215. upf. 127.

Ficoidea. Nissol. act. par. 1711. t. 13, f. 1.

Kali. Pluk. alm. t. 303. f. 4.

Leaves wedge-ovate, flowers sessile.

2. *Aizoon hispanicum*. Spanish Aizoon.

Lin. spec. 700. Reich. 2. 519. Gertn. fruct. 1. 370.

Ficoidea. Dill. elth. 143. t. 117. f. 143. Boerb. ind. 292. n. 12.

Leaves lanceolate, flowers sessile.

3. *Aizoon lanceolatum*. Panicked Aizoon.

Lin. syst. 471.

Aizoon paniculatum. Lin. spec. 700. Reich. 2. 519. Mill. dict. n. 3.

Leaves lanceolate, flowers panicked.

[4. *Aizoon farmentosum*.

Lin. suppl. p. 260. syst. 471.

* Woodward in Withering.
§ Schreb. vert-unil. p. 23.

† Allione.
|| Hort. kew.

‡ Hort. kew.
¶ Curtis.

* Thunb.

A L B

Leaves linear-filiform, panicle dichotomous, flowers solitary, peduncled.

5. *Aizoon paniculatum*. Panicked Aizoon.

Lin. suppl. p. 261. fyst. 471.

Shaggy; leaves lanceolate; flowers sessile; branches erect.

6. *Aizoon perfoliatum*. Perfoliate Aizoon.

Lin. suppl. p. 261. fyst. 471.

Downy; leaves inversely-ovate, conjoined, crystalline-dotted; flowers peduncled.

7. *Aizoon Glinoides*. Hairy Aizoon.

Lin. suppl. 261. fyst. 471.

Shaggy, herbaceous, procumbent; leaves ovate, flowers sessile, distinct.

8. *Aizoon secundum*.

Lin. suppl. p. 261. fyst. 471.

Shag-boary, herbaceous, procumbent; leaves ovate; flowers sessile, imbricate, one-ranked.

9. *Aizoon fruticosum*. Shrubby Aizoon.

Lin. suppl. p. 261. fyst. 471.

Shrubby, erect, smooth; leaves lanceolate; flowers sessile.

10. *Aizoon rigidum*. Stiff Aizoon.

Lin. suppl. p. 261. fyst. 471.

Shrubby, procumbent, downy; leaves ovate; flowers sessile, remote.

DESCRIPTIONS, &c.

1. A native of the Canary islands. Annual. [Cultivated in 1731, by Mr. Miller*.]

2. Grows naturally in Spain, and Africa. This is also an annual plant, whose branches trail on the ground. The flowers have no beauty; these plants therefore are preserved only by those who are curious in collecting rare plants. [A variety of this comes from the Cape, with the stem and leaves shaggy, but the upper surface of the leaves less so†. Cultivated in 1728, by James Sherard, M. D.‡.]

3. Grows naturally at the Cape of Good Hope. This is of humble growth, and perishes soon after the seeds are ripe. [Cultivated in 1759, by Mr. Miller§. Biennial.]

All the other species were found at the Cape; the fourth by Sparrman, the rest by Thunberg.

4. Stems prostrate, running, a foot in length. Leaves opposite, remote, smooth, approximating at the base, broadish, permanent. Flowers towards the top of the stem, alternate, axillary, pubescent, on a peduncle the length of the leaves||.]

PROPAGATION AND CULTURE.

1. The first sort must be raised on a moderate hot-bed in the spring; and when the plants are fit to remove, they should be carefully taken up, and planted each in a small pot filled with fresh light earth, and plunged into another moderate hot-bed, observing to shade them from the sun, until they have taken fresh root; after which they must be hardened by degrees to bear the open air, into which they should be removed in June, placing them in a sheltered situation, where they will flower, and ripen their seeds in September, soon after which the plants will perish.

2.—3. The second and third sorts may be propagated in the same manner; and when the plants have acquired strength, they may be removed into the full ground; but they require a poor sandy soil, for in rich ground they grow very luxuriant in branches, but will not flower till late in the season, and therefore rarely perfect their seeds; but when they are planted in dry sand, or lime-rubbish, they will be more productive of flowers, and less vigorous in their branches.

The other species must be managed in the same manner as other Cape plants.

AIZOON. See *Sedum*.

ALATERNOIDES. See *Phyllica*, *Clusia*, *Ceanothus*, *Myrica*.

ALATERNUS. See *Rhamnus*, *Phyllica*.

ALBARA. See *Canna*.

* Hort. kew.

† Linneus.

‡ Hort. kew.

§ Hort. kew.

|| Linneus.

A L B

ALBUCA. (This name is taken from Pliny, and is derived from Albus, white.)

Lin. gen. n. 416. Reich. 449. Schreb. 1564.

Dryander act. holm. 1784. Juss. 53.

Class. 6. 1. Hexandria Monogynia.

Nat. order of Lilia or Liliaceæ. Coronariæ Lin.

Asphodeli Juss.

GENERIC CHARACTER.

CAL. none.

COR. Petals six, oblong-oval, permanent; the three outer spreading, the three inner converging.

STAM. Filaments shorter than the corolla, three opposite to the inner petals, linear-subulate, complicate a little above the base, then flat: three opposite to the outer petals, thicker. Anthers on the former, oblong, fixed to the inflex tip of the filament below the middle, upright; on the latter, similar but effete, or none.

PIST. Germ oblong, triangular; style three-sided; stigma a triangular pyramid.

PER. an oblong, obtuse, triangular, three-celled, three-valved capsule.

SEEDS numerous, flat, lying over each other, and widening outwards.

ESSENTIAL CHARACTER.

Cor. six-petalled; the inner ones difform. Stam. three of the six castrated. Stigma surrounded by three cusps.

SPECIES.

* Three stamens only fertile.

[1. *Albuca altissima*. Tall Albuca.

Dryander in act. holm. 1784. p. 292. Ait. hort. kew. 1. 435. Jacqu. ic. 1. t. 63. collect. 2. 264.

Interior petals glandulose and bent in at the tip, leaves subulate, channelled-convolute.]

2. *Albuca major*. Great Albuca.

Lin. spec. 438. Reich. 2. 51. Berg. cap. 87.

Dryander in act. holm. 1784. p. 293. Ait. hort.

kew. 1. 436. Corn. canad. 160. fig. p. 161.

Rudb. elys. 2. 140. f. 7. Mor. hist. f. 4. t. 24.

f. 7. Raii hist. 1154. (Ornithogalum.)

Interior petals glandulose and bent in at the tip, leaves linear-lanceolate, flattish.

3. *Albuca minor*. Small Albuca.

Lin. spec. 438. Reich. 2. 51. Dryander in act.

holm. 1784. p. 294. Ait. hort. kew. 1. 436.

Herm. par. t. 209.

Interior petals glandulose and bent in at the tip, leaves linear-subulate, channelled.

[4. *Albuca coarctata*. Channel-leaved Albuca.

Dryander in act. holm. 1784. p. 295. Ait. hort. kew. 1. 436.

Interior petals vaulted at the tip; leaves smooth, linear-subulate, channelled; peduncles the length of the bractes.

5. *Albuca spiralis*. Spiral-leaved Albuca.

Lin. suppl. 196. fyst. 326. Thunb. act. holm. 1786.

p. 59. t. 2. f. 1.

Interior petals vaulted at the tip, leaves spiral.

** All the stamens fertile.

6. *Albuca fastigiata*. Upright-flowered Albuca.

Dryander act. holm. 1784. p. 296. Ait. hort. kew.

1. 436.

Interior petals vaulted at the tip, leaves smooth, peduncles very long.

7. *Albuca viscosa*. Viscose Albuca.

Lin. suppl. 196. fyst. 326. Dryander in act. holm.

p. 297. Ait. hort. kew. 1. 437. Thunb. in act.

holm. 1786. p. 58.

Interior petals vaulted at the tip, leaves hairy-glandulose.

8. *Albuca abyssinica*. Abyssinian Albuca.

Lin. fyst. 326. Jacqu. icon. rar. 1. t. 64. collect.

1. 55.

A. alba. Lamarck dist. 1. 76.

Leaves linear, channelled, smooth.

DESCRIPTIONS, &c.

1. Leaves so deeply channelled as to be almost rolled into a cylinder; they are two feet long, and almost three inches broad at the base. Scape a little shorter than the leaves, the thickness of a finger.

Raceme

Raceme two feet long and more. Peduncles bent down in flowering time, afterwards spreading and becoming finally erect; they are three inches in length. Bractes green, except at the edge, where they are clear white, an inch long. Flowers white: petals more than an inch in length, the outer sharp and thickened at the tip, inner blunt, bent in, and having a twin gland, composed of two globes, at the end: the fertile filaments are waved on the edge, with the anthers curved inwards beneath the glands of the petals; the barren filaments are triangular, furrowed on the outside, a little longer than the others, and have no anthers. Germ subpedicelled: style obversely pyramidal, the length of the germ, covered with glandulous scales; the angles terminate in subulate horns covered also with scales; the centre is elongated into a pyramidal stigma*.

It flowers in april and may; and was introduced about 1780, by Messrs. Kennedy and Lee†.

2. Scape a foot high, upright, roundish, very minutely streaked, smooth, ash-coloured, with a glaucous bloom on it. Leaves sharp, smooth, streaked, a foot long. Bractes sheath-form, lanceolate, concave, with a long linear-subulate tip, red, nerved, smooth, straight, solitary, at the base of the peduncles. Raceme terminating, long, crimson, smooth; the flowers alternate, peduncled, slightly nodding; fewer at bottom. Peduncles round, smooth, one-flowered, longer than the bractes, spreading. Petals linear, longitudinally nerved, marcescent; the three outer broader, a little concave, red, blunt at the end, bent in with a small marginal scale; the three inner narrower, upright, pale red, with a broad, thin, membranaceous, whitish rim on each side, and an ovate, membranaceous inflex scale at the tip. Filaments erect, the length of the corolla, linear, membranaceous, whitish, joined at the base, inserted into the receptacle; they are alternately free, and fastened below by a broader base to the inner petals. Anthers from incumbent upright; on the loose filaments barren; on the three others whitish with yellow pollen, linear, blunt at each end, emarginate, a little curved inwards, convex at the back, plano-concave in front, twin-furrowed. Germ fleshy, pyramidal-cylindric, blunt, crimson, smooth, with three calluses at the tip, on a short peduncle, ending in several small, blunt teeth pressed close to it. Style very thick, somewhat flattened, with two of the angles nearer to each other, a little attenuated at the base, pubescent, red, shorter than the germ. Stigma blunt, yellowish red, pubescent at the edge. Capsule oval, smooth, transversely nerved, compressed, with two rims along the back. Seeds orbiculate‡.

Mr. Miller has, by mistake, made this a native of Canada, whereas all the species come from the Cape of Good Hope. It flowers in may; and was introduced about 1767, by Mr. William Malcolm.

3. Leaves a foot long and more, half an inch broad at the base. Scape half a foot high, scarcely a line in diameter. Raceme six inches in length, and even longer. Peduncles an inch and half long. Bractes green, with clear white edges; they are half an inch long and quickly wither. Flowers yellow. Petals less than an inch in length; the outer ones thickened at the tip; the inner having a white, inflex, kidney-shaped gland. Barren filaments linear, with a filiform inflex tip, and no anthers. Style obversely pyramidal, the length of the germ, covered with glandulous scales. Stigma pyramidal, prominent between the inner converging petals§.

It flowers in may and june; and was cultivated by Mr. Miller, in 1768||.

4. Leaves linear-subulate, deeply channelled, two feet long and upwards, scarcely half an inch wide at the base. Scape a little shorter than the leaves, not so thick as a goose quill. Raceme close, half a

foot in length. Peduncles spreading; a little more than an inch long. Bractes almost the length of the peduncle. Flowers yellow. Outer petals oblong, thickened at the tip, above an inch in length; inner oval, a little shorter than the outer ones. Barren filaments somewhat shorter than the fertile ones, convex without, channelled within: anthers sagittate, effete. Style prism-shaped, the length of the germ; terminated by a stigma from the angles of the style rounded at the tip*.

It flowers in may; and was introduced in 1774.

5. Root-leaves few (4—6) linear-filiform, upright at bottom, then spiral, when the plant is more mature, flexuose, villose-scabrous, shorter than the scape. This is simple, filiform, flexuose, nodding at the top, streaked, villose-scabrous, of a finger's length, seldom a span long after flowering, one-flowered, seldom two-flowered. Bracte lanceolate, acuminate, shorter than the peduncle. Three filaments without anthers†.

6. Leaves linear, first channelled, then flattish, a foot and half in length, and an inch in breadth. Scape only half the length of the leaves, the thickness of a goose-quill. Raceme fastigate, the length of the scape. Peduncles in flowering-time spreading, afterwards upright, three or four inches in length. Bractes membranaceous, watery white, rufescent on the back, half an inch long. Flowers white. Outer petals linear-oblong, thickened at the tip, not an inch in length; inner oval-oblong a little shorter than the outer ones. All the filaments fertile; three alternately somewhat shorter, convex without, channelled within. Style prism-shaped, furrowed, a little longer than the germ, rather higher than the stamens, covered with very short scales, especially towards the tip, green with yellow furrows, terminating in a stigma from the angles of the style, rounded at the tip‡.

It flowers in may; and was introduced in 1774§.

7. Root-leaves very many, linear, narrowing gradually to the tip, where they are acuminate, very finely glandulose, viscid, upright; scarcely half a line wide, not half so long as the scape. This is simple, streaked, villose-scabrous, flexuose-erect, a foot high. Flowers in racemes, several, somewhat drooping. Bracte at the base of the peduncle, lanceolate, acuminate, concave, membranaceous on the edge. Peduncles very glandulose, drooping, longer than the bracte. Anthers fertile||.

It flowers in may and june; and was introduced about 1779, by John Fothergill, M.D.¶.

8. Leaves two or three feet high, an inch wide at most, narrowing gradually towards the tip, sharp, channelled, quite entire, marked with dusky lines on both sides, somewhat erect. Scape erect, round, the thickness of a reed, somewhat glaucous, from three to five feet in height, including the raceme. Peduncles one-flowered, short, scattered, supported by channelled, narrow, sharp, ascending, greenish bractes, longer than the flower. Flowers drooping, without scent. Petals longitudinally greenish in the middle, whitish on the edges, yellow at the tip, flat on the back, concave at the end and on the sides; the three outer narrower. Filaments linear, compressed, a little shorter than the petals, upright, whitish, at the base next the germ dilated and concave; above it, swelling out within into a green bump; they are all equal, and have large, oblong, pale, yellow anthers. Germ pyramidal, three-sided, sessile, smooth. Style filiform, three-sided at the base, round above, upright, yellowish, the length of the stamens. Stigma blunt, quite simple. Capsule ovate, three-sided, smooth, six-valved at the tip, upright. Seeds black, oblong, unequally triangular, flat**.]

PROPAGATION AND CULTURE.

If the roots are kept in pots, filled with light earth, and sheltered under a hot-bed frame in winter, they will thrive and produce flowers; but the best method is to have a border in the front of a green-house,

* Dryander in act. Stockholm.

† Hort. kew.

‡ Bergius.

§ Dryander in act. Stockholm,

|| Hort. kew.

* Dryander in act. Stockholm.

† Thunberg ibid.

‡ Dryander ibid.

§ Hort. kew.

|| Thunberg in act. Stockh.

¶ Hort. kew.

** Jacq. collect.

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or stove, where the roots of most of the bulbous flowers may be planted in the full ground, and screened in winter from frost; in such situations they thrive much better, and flower stronger, than when kept in pots.

Mr. Miller says, that he raised the third sort from seed, and that it generally flowers twice a year, first in march or april, and again in july or august; but that it did not produce any seeds.

He affirms, that the second sort is so hardy, that the roots may be planted about four inches deep in a border of light earth, where they will thrive, and produce their flowers late in the summer.

ALCEA. (From *Αλκη*. robur: on account of its supposed strength as a remedy in the dysentery, &c.)

Lin. gen. n. 840. *Reich.* 905.

Malva. *Tournef.* 24.

Class. 16. 7. Monadelphia Polyandria.

Nat. order of *Columniferae*. *Malvaceae* Juss.

GENERIC CHARACTER.

CAL. double, each one-leafed: the *outer* cut half way into six parts, permanent, and very spreading: the *inner* cut half way into five parts, larger, and permanent.

COR. of five, obcordate, emarginate, spreading *petals*, coalescing at their bases.

STAM. *Filaments* uniting into a sort of five-angled cylinder at bottom, loose at top, and inserted into the corolla: *Antthers* almost kidney-shaped.

PIST. *Germ* orbiculate: *Style* cylindric, short: *stigmas* about twenty, setaceous, the length of the style.

PER. many jointed *arils* in a ring round a columnar flattened receptacle, parting and opening on the inside.

SEED one, flat, kidney-shaped in each aril.

OBS. *Schreber* and *Jussieu* join this genus to *Althæa*.

ESSENTIAL CHARACTER.

Cal. double: outer six-cleft. *Arils* many, one-seeded.

SPECIES.

1. *Alcea rosea*. Common Hollyhock.

Lin. spec. 966. *Reich.* 3. 342. *hort. cliff.* 348. *hort. upf.* 204. *mat. med.* 166. *Mill. illustr.* *Raii hist.* 600.

Leaves sinuate-angular.

2. *Alcea ficifolia*. Fig-leaved Hollyhock.

Lin. spec. 967. *Reich.* 3. 342. *hort. cliff.* 348. *upf.* 204. *Blackw. t.* 54.

Leaves palmate.

[3. *Alcea africana*. African Hollyhock.

Loureiro cochinch. 421.

Leaves three-lobed crenate, flowers solitary axillary, both calyxes six-parted.]

DESCRIPTIONS, &c.

1, 2. The first and second are distinct species, whose difference in the form of their leaves always continues. The leaves of the first sort are roundish, and cut at their extremity into angles; whereas those of the second are deeply cut into six or seven segments, so as to resemble a hand. [Linneus however doubts whether they are distinct species, and seems to think the second is a variety of the first. Allione says, that the Hollyhock grows wild in the county of Nice. Both sorts were cultivated by Gerard, in 1597*.]

The colours of their flowers being accidental, and the double flowers being only varieties which have risen from culture, I have not enumerated them here, but shall only mention the various colours which are commonly observed: these are, white, pale, red, deep-red, blackish red, purple, yellow and flesh-colour. Besides these, I many years ago saw some plants with variegated flowers, in the garden of the late Lord Burlington in London, raised from seeds which came from China. Although these varieties of double Hollyhocks are not constant, yet where the seeds are carefully saved from the most double flowers, the greatest number of the plants will arise nearly the same, as the plants from which they were

* Hort. kew.

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taken, both as to their colour and the fulness of their flowers, provided no plants with single or bad coloured flowers are permitted to grow near them. Therefore so soon as any such appear, they should be removed from the good ones, that their farina may not spread into the other flowers, which would cause them to degenerate.

The first species grows naturally in China, from whence I have often received the seeds. The second sort I have received from Istria, where it was gathered in the fields, but these seeds produced single red flowers only: whereas from some seeds of this sort, which were given me by the late Charles Du Bois, Esq. of Mitcham, in 1726, which he procured from Madras, I raised many double flowers of several colours. [Linneus refers it to Siberia. A dwarf sort with beautiful, double, variegated flowers, has been in great esteem for some years past, under the name of Chinese Hollyhock.]

These plants, although natives of warm countries; yet are hardy enough to thrive in the open air in England, and have for many years been some of the greatest ornaments in the garden, toward the latter part of summer; but since they have become very common, have not been regarded so much as they deserve, partly from their growing too large for small gardens, and their requiring tall stakes to secure them from being broken by strong winds. But in large gardens, where they are properly disposed, they make a fine appearance; for as their spikes of flowers grow very tall, there will be a succession of them on the same stems, more than two months; the flowers on the lower part of the spike appearing in july, and as their stalks advance, new flowers are produced till near the end of september. When they are planted in good ground, their stalks often rise to the height of eight or nine feet, so that near six feet of each will be garnished with flowers; which when double and of good colours, will make a fine appearance, especially if the various colours are properly intermixed.

[3. Stem suffruticose, four feet high, upright, branched, hispid. Leaves rough, alternate, petioled. Flowers scarlet, lateral, on a solitary, long, one-flowered peduncle. Pistil five-styled. Arils five, smooth. Native of the eastern shore of Africa.

Alcea indica, *Burm. ind. p.* 149, agrees with this, in having three-lobed, crenate leaves; but differs from it in having the flowers terminating and yellow; with the inner calyx five-cleft*.]

PROPAGATION AND CULTURE.

They are propagated by seeds, which, as has been already observed, should be carefully saved from those plants whose flowers are the most double, and of the best colours. If these are preserved in their covers until spring, the seeds will be better, provided they are gathered very dry, and care be taken that no damp comes to them in winter, which will cause their covers to be mouldy, and thereby spoil the seeds.

The seeds should be sown on a bed of light earth, about the middle of april, and must be covered about half an inch deep: some persons sow them in shallow drills, and others scatter the seeds thinly over the whole bed. When they are sown in the former method, the plants generally come up thick, and will require to be transplanted sooner than those which are sown in the latter. By the first, the seeds may be more equally covered, and kept clean with less trouble, because the ground between the drills may be hoed. When the plants have put out six or eight leaves, they should be transplanted into nursery-beds, at a foot distance from each other, observing to water them until they have taken good root; after which they will require no farther care, but to keep them clean from weeds till october, when they should be transplanted where they are to remain.

Some persons let their plants remain a year longer in the nursery-beds to see their flowers, before they remove them to the flower-garden; but when this is

* Loureiro.

intended,

intended, the plants should be planted at a greater distance in the nursery-beds, otherwise they will not have room to grow. However, I have always chosen to remove my plants the first autumn, for young plants more surely grow, than those which are older; and if the seeds are carefully sowed, there will not be one in ten of the plants come single or of bad colours.

ALCEA. See *Hibiscus* and *Malva*.

FLORIDANA. See *Gordonia*.

ALCHEMILLA. (From having been celebrated by the Alchemists.)

Lin. gen. n. 165. Reich. 177. Schreb. 222. Tournef. 289. Juss. 337. Gertn. 73.

Class. 4. 1. Tetrandria Monogynia.

Nat. order of *Senticosæ*. *Rosaceæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* one-leaved, tubulous, permanent; edge flat, divided into eight segments.

COR. none.

STAM. *Filaments* erect, awl-shaped, very small, on the edge of the calyx; *anthers* roundish.

PIST. *Germ* ovate; *style* filiform, length of the stamens, inserted at the base of the germ; stigma globular.

PER. none, the neck of the calyx closes and never opens.

SEED solitary, elliptic; compressed.

ESSENTIAL CHARACTER.

Cal. eight-cleft. Cor. none. Seed one.

SPECIES.

1. *Alchemilla vulgaris*. Common Ladies mantle or Bearsfoot.

Lin. spec. 178. Reich. 1. 349. Juss. 141. lapp. 66. mat. med. 53. hort. cliff. 38. Hudf. angl. 71. With. 162. Jungb. offic. cent. 1. f. 3. Berg. phyt. 2. 127. Mill. fig. t. 18. f. 2. Fl. dan. t. 693. Blackw. t. 72. Plenck. ic. t. 69. Mor. hist. f. 2. t. 20. f. 1. Park. 538. Ger. 802. emac. 949. Pollich pal. n. 168. Scop. carn. n. 174. Hall. helv. n. 1566. Raii hist. 208. Baub. hist. 2. 398.

- β. *A. hybrida*. Lin. pubescens. With. minor. Hudf. Lin. syst. Reich. 1. 349. Mill. dict. n. 2. fig. t. 18. f. 1. Hudf. n. 1. β. Tournef. inst. 508. Pluk. phyt. 240. f. 1. Hall. helv. δ.

Leaves lobed.

2. *Alchemilla alpina*. Cinquefoil or Alpine Ladies mantle.

Lin. spec. 179. Reich. 1. 349. lapp. 61. Juss. 142. hort. cliff. 39. Hudf. angl. 71. With. 162. Lightf. scot. 120. Berg. phyt. 2. 125. Fl. dan. t. 49. Mor. hist. f. 2. t. 20. f. 3. Pet. herb. t. 9. f. 11. Munting. phyt. t. 90. Park. 394. 3. Ger. 837. 5. emac. 988. 5. Hall. helv. n. 1567. Raii hist. 209. 4.

Leaves digitate, serrate.

- [3. *Alchemilla aphanoides*.

Lin. suppl. 129. syst. 166.

Leaves many-parted; stem erect.]

4. *Alchemilla pentaphyllea*. Five-leaved Ladies mantle.

Lin. spec. 179. Reich. 1. 350. Hall. helv. n. 1568. Bocc. mus. 1. p. 18. t. 1.

Leaves quinate, multifid, smooth.

DESCRIPTIONS, &c.

1. [Stems prostrate, filiform, branched, a little hairy. Root-leaves roundish, plaited; stem-leaves three-or-five-lobed. Stipules opposite, ovate, toothed. Divisions of the calyx alternately larger and smaller*. Under surface of the leaves hairy: the radical ones on long hairy peduncles; the stem-leaves sessile†. The flowers form a kind of umbel, the universal involucre being a leaf which entirely surrounds the stem, but the partial involucre goes only half way round. The mouth of the calyx is closed by a yellow, fleshy ring, which perhaps answers the purpose of a nectary. The anthers and stigma turn black after flowering. Seeds generally one, but sometimes two in each seed-vessel. The

whole plant is astringent. In the province of Smolandia in Gothland, they make a tincture of the leaves, and give it in spasmodic or convulsive diseases. Horses, sheep, and goats eat it. Cows are not fond of it*.] It grows naturally in high pastures in several parts of England, but is not very common near London: the roots are composed of many thick fibres, which spread greatly when they are in a proper soil; the leaves rise immediately from the root sustained by long petioles; they are roundish, and divided into seven or eight lobes, scalloped round the edges, somewhat like the Ladies scalloped Mantles, from whence it had its name. The flower-stems arise between the leaves about a foot high, which divide into many branches, and have at each joint one small leaf, shaped like those below; the flowers are composed of an herbaceous calyx, without any corolla, so that the only beauty of this plant is in the leaves, which are used in medicine, and are esteemed to be vulnerary, drying and binding, and are of great force to stop inward bleeding.

The variety β is much smaller, the leaves are much whiter, and appear silky; the flower stems do not branch out so much, nor are the flowers produced in so large clusters; their calyx is broader; and the segments more obtuse. [Besides this, the species varies much in size, being abundantly larger in a moist soil, and in gardens, than on its native dry hills and mountains. Dr. Withering mentions another variety with a white calyx.]

2. Grows naturally on the mountains in Yorkshire, Westmoreland and Cumberland, generally upon moist boggy places. It is also a native of Sweden, Denmark, the Alps, and other cold parts of Europe; and is admitted into gardens for the sake of its elegance. The leaves of this sort are very white, and consist of from five to nine folioles: the flower-stems seldom rise more than six inches high, nor do the flowers make a better appearance than the other. [It has a great affinity with the foregoing; for it agrees with that in the leafed stipules, leaflets, bractes, and every thing, except that the leaves consist of seven folioles, shining underneath, and serrated only at the ends†. The stem-leaves have only three folioles‡.

3. This is a small plant, about the size of Parsley Piert, or *Aphanes arvensis*, and much resembling it in the leaves; it is also annual like that; but has the eight-cleft calyx of this genus. The stems are a little branched, round and pubescent. The root-leaves petiolate, the others stem-clasping. Racemes terminating, subverticillate. Found in New Granada, by Mutis§.]

4. Grows naturally on the high Alps, as Gothard, Furca, Speluga, Pilat, &c. and is only to be found in some few curious botanic gardens in this country. [Cultivated by Mr. Miller, in 1748||.]

These are all, except the third, abiding plants, which have perennial roots, and annual stalks, perishing in autumn.

PROPAGATION AND CULTURE.

They may be propagated by parting their roots; the best time for doing this is in autumn, that their roots may be established before the drying winds of the spring come on. They should have a moist soil, and a shady situation, otherwise they will not thrive in the southern parts of England. When they are propagated by seeds, they should be sown in the autumn, on a shady moist border, and when the plants come up, they will require no other care but to be kept clean from weeds.

[ALCHORNEA. (So named after Mr. Stainsby Alchorne, apothecary, of London.)

Lin. gen. Schreb. 1556. Solander. Swartz prodr. 98.

Class. 22. 13. Dioecia Monadelphia.

Monadelphia Octandria. Swartz.

* With. † Linneus.

§ Linneus.

‡ Woodw. in With.

|| Hort. kew.

* Lyons.

† Relh.

A L E

GENERIC CHARACTER.

* Male.

CAL. Perianth three or five-leaved: leaflets ovate, concave, equal, coloured, deciduous.

COR. none.

STAM. Filaments eight, equal, scarce longer than the calyx, slightly connate at the base. Anthers ovate, upright.

PIST. a rudiment.

* Female.

CAL. Perianth one-leaved, four or five-toothed, teeth equal, small.

COR. none.

PIST. Germ twin, superior. Styles two, very long, filiform. Stigmas simple, acute.

PER. Capsule berried, two-seeded, two-celled, two-valved.

SEEDS solitary, large, oblong.

ESSENTIAL CHARACTER.

MALE. Cal. three-five-leaved. Cor. none.

FEMALE. Cal. five-toothed. Cor. none. Style two-parted. Capsule berried, dicoccous.

SPECIES.

1. Alchornea latifolia.

Swartz prodr. 98.]

ALDER-TREE. See Betula.

ALDER, BLACK. See Rhamnus.

[ALDROVANDA. (Named by Monti after Ulysses Aldrovandus, a great traveller and collector; præfect of the botanic garden at Bologna.)

Lin. gen. n. 390. Reich. 420. Schreb. 529.

Mont. Aët. Bonon. Juss. 429.

Class. 5. 5. Pentandria Pentagynia.

GENERIC CHARACTER.

CAL. Perianth five-parted, erect, equal, permanent.

COR. Petals five, oblong, acuminate, length of the calyx, permanent.

STAM. Filaments length of the flowers; anthers simple.

PIST. Germ globose; styles very short; stigmas obtuse.

PER. a globose capsule with five blunt angles, five-valved, one-celled.

SEEDS ten, longish, fixed to the inner wall of the pericarp.

ESSENTIAL CHARACTER.

Cal. five-parted. Pet. five. Caps. five-valved, one-celled, ten-seeded.

SPECIES.

1. Aldrovanda vesiculosa.

Lin. spec. 402. syst. 303. Reich. 1. 766. Mont.

Aët. Bonon. 2. p. 3. t. 12. Allion. pedem. n. 1599.

Lenticula. Pluk. alm. t. 41. f. 6.

DESCRIPTION, &c.

1. This plant is found in marshes both in Italy and India. It has bladders like Utricularia, but in bunches*.

Root perennial. Flowers solitary; the stem seeming to terminate in a peduncle, whilst it continues the stem, or produces a branch, from the side. Peduncle round, longer than the leaves. Calyx green, deeply five-cleft, with ovate, concave leaflets. Petals ovate, dirty white, scarcely larger than the calyx, growing between the leaflets of it, and converging. Stamens between the petals. Anthers yellow, twin†.

ALE-COST. See Tanacetum.

ALECTOROLOPHUS. See Bartsia, Pedicularis, Rbinanthus.

ALECTRA. (The derivation, at least to me, is unknown.)

Lin. gen. Schreb. 1066. Thunb. nov. gen. pl. 81.

Class. 14. 2. Didynamia Angiospermia.

GENERIC CHARACTER.

CAL. Perianth one-leaved, two-lipped, upper lip two-cleft, lower three-cleft; clefts ovate, obtuse, shorter than the tube.

COR. one-petalled, tubular. Tube by degrees widened a little. Border expanding, five-parted; parts broad-lanceolate, obtuse.

* Linneus.

† Allioner

A L E

STAM. Filaments four, inserted into the tube, filiform, bearded, length of the tube; two of them are a little shorter. Anthers twin.

PIST. Germ ovate. Style filiform, length of the filaments. Stigma incurved, a little thicker than the style, and of the same length, striated on both sides.

PER. Capsule ovate, obtuse, twin, smooth, two-celled, two-valved.

SEEDS solitary, ovate.

ESSENTIAL CHARACTER.

Cor. bell-shaped. Filam. bearded. Capsule two-celled.

SPECIES.

1. Alecra capensis.

Thunb. nova gen. 82.

DESCRIPTION, &c.

Root annual. Stem simple, round, striated, erect, villose, a span or a foot in height. Leaves scattered, sessile, ovate, obtuse, erect, villose; the lower ones smaller; the upper ones gradually larger. Flowers terminating, in spikes, yellow streaked with purple. Spike leafy, flowering by degrees. It has the habit of Orobanche; and grows black in drying.

Native of the Cape of Good Hope, in grassy places near rivers; flowering in november and december*.

ALE-HOOF. See Glecoma.]

ALETRIS. (Αλετρις, from αλετρεω or αλεω, molo, to grind.)

Lin. gen. 428. Reich. 462. Schreb. 579. Gærtn.

t. 15. Juss. 51.

Class. 6. 1. Hexandria Monogynia:

Nat. order of Lilia or Liliaceæ. Coronariæ Lin.

Asphodeli Juss.

GENERIC CHARACTER.

CAL. none.

COR. one-petalled, ovate-oblong, hexangular, funnel-shaped, semisexfid, very much wrinkled; the divisions lanceolate, acuminate, spreading, erect, permanent.

STAM. Filaments awl-shaped, length of the corolla, inserted into the base of the divisions: anthers oblong, erect.

PIST. Germ ovate; style subulate, length of the stamens; stigma trifid.

PER. an ovate, three-cornered, acuminate. three-celled capsule.

SEEDS very many.

OBS. The stamens not being alternate with, but opposite to the segments of the corolla; and this being very much wrinkled and in a manner farinaceous, these circumstances render this a genus perfectly distinct.

In A. hyacinthoides the seeds are solitary.

ESSENTIAL CHARACTER.

Cor. funnel-shaped. Stam. inserted into the base of the segments. Capsule three-celled.

SPECIES.

1. Aletris farinosa. American Aletris.

Lin. spec. 456. Reich. 2. 81. amæn. 3. 11. Gron;

virg. 38. 52. Pluk. amalth. t. 437. f. 2:

Stemless, leaves lanceolate membranaceous, flowers alternate.

2. Aletris capensis. Waved-leaved Aletris.

Lin. spec. 456. syst. 336. Reich. 2. 81. Gle-

ditisch aët. berol. 1769. p. 66. Burm. prodr. 10.

Buxb. cent. 2. 12. t. 20. (Orchis.) Murr. fl.

gott. 205. in aët. bolm. 1770. p. 226. t. 5.

Veltheimia. Gled. in aët. berol. 1771.

Stemless, leaves lanceolate waved, spike ovate, flowers nodding.

[3. Aletris glauca. Glaucous Aletris.

Ait. hort. kew. 1. 463.

Stemless, leaves lanceolate glaucous, flowers nodding with a spreading border.]

4. Aletris Uvaria. Great orange-flowered Aletris.

Lin. syst. 337. Reich. 2. 83. Ait. hort. kew. 1.

464.

Aloe Uvaria. Lin. spec. 460. Mill. dict. n. 23.

Comm. hort. 2. 29. t. 15. Seba thes. 1. 29. t. 19. f. 3.

* Thunberg nova genera.

R

Stemless

- Stemless, scape longer than the sword-shaped keeled leaves.*
- [5. *Aletris pumila*. Small orange-flowered *Aletris*.
Ait. hort. kew. 1. 464.
Stemless, scape shorter than the linear sharply-keeled leaves.]
6. *Aletris hyacinthoides*.
Lin. spec. 456. *Reich.* 2. 82. *mant.* 367. *hort. cliff.* 132. *upf.* 85. *fl. zeyl.* n. 130. *Gærtn. fruct.* 54.
Stemless, leaves lanceolate fleshy, flowers geminate.
α. A. zeylanica. Ceylon *Aletris* or *Aloe*.
Mill. dict. n. 4. *Comm. hort.* 2. 41. t. 21.
Some of the leaves subulate and compressed.
β. A. guineensis. Guinea *Aletris* or *Aloe*.
Jacqu. hort. 1. 36. t. 84. *Comm. hort.* 2. 39. t. 20.
A. hyacinthoides. *Mill. dict. n.* 3.
All the leaves lanceolate.
7. *Aletris fragrans*. Sweet-scented *Aletris*.
Lin. spec. 456. *Reich.* 2. 83. *Comm. hort.* 2. 7. t. 4. & 1. 93. t. 49.
Caulescent, leaves lanceolate loose.
- [8. *Aletris cochinchinensis*.
Loureiro cochinch. 204.
Caulescent, leaves lanceolate-linear reflex, flowers paniced.]

DESCRIPTIONS, &c.

1. *American Aletris* has a tuberous root, from which arise several lanceolate leaves, and a naked stalk supporting a spike of flowers placed alternately, of a greenish white colour; these appear in June, but are rarely succeeded by seeds in England. It grows naturally in North America: and was cultivated in 1768, by Mr. Miller. The natives use it frequently in coughs, and in the pleurisy.

2. [Bulb tunicated, violet. Root-leaves six, spotted with violet. Spike or raceme terminating, imbricated with great abundance of flowers, on very short peduncles; the bracte to each setaceous. Corolla subcylindrical, with flesh-coloured dots, and a very short obtuse border: the filaments adhere to it as far as the very edge. The germ is shut up in the bottom of the corolla; the style is incurvated: the stigma is obtuse. The capsule is a little inflated, acutely keeled, compressed at the corners, and large*.

Jussieu doubts whether this be of the same genus with the other species. He remarks, that the calyx is even, with the border smaller; that the cells of the capsule are compressed and membranaceous, as it were winged; with one seed in each; that the apex of the scape is covered with leaflets or void spathes; and that the sessile lobe of the germinating seed is fastened above to the primary sheath of the leaves†. Native of the Cape of Good Hope. It flowers with us from November to April; and was introduced in 1768, by Mr. William Malcolm‡.

3. *Glaucous Aletris* differs from the foregoing in having glaucous leaves scarcely waved; whereas in that they are very much waved, and of a bright green on their upper surface. The border of the corolla is spreading, with longer segments than in the Cape *Aletris*; blunt indeed, but not round, as in that. The flowers are smaller and narrower. This also is a native of the Cape of Good Hope; flowers in January; and was introduced in 1781, by George Wynch, Esq.§.

4. *Aletris* or *Aloe Uvaria*, commonly called *Iris Uvaria*, has very long, narrow, triangular leaves; shaped like those of the Bullrush; the flowers are produced in close thick spikes, upon stalks near three feet high. They are of an orange colour, so that when the plants are strong, and produce large spikes, they make a fine appearance. It flowers in August and September. There is a variety of this with narrower leaves, and longer spikes of flowers.

[It is a native of the Cape of Good Hope; and was cultivated in the botanic garden at Chelsea, in 1707||.

* Linneus. † Genera, 51. ‡ Hort. kew.
§ Hort. kew. || Ibid.

5. This also is a native of the Cape, where it was discovered by Mr. Francis Masson. It was introduced in 1774; and flowers from September to November*.

6. *α. Ceylon Aletris*, has the first leaves lanceolate, flat, erect and short; the rest subulate, semicylindrical, channelled, and very long†. It has fleshy, creeping roots, which multiply greatly; and seldom rises more than six inches in height. It is pretty common in gardens, where there are conveniences for preserving exotic plants.

β. [Guinea *Aletris* has all the leaves lanceolate, flat, and erect. The leaves of both are pale green, with bands of a darker green; and do not seem to be specifically different‡. This was cultivated in 1690 in the royal garden at Hampton-court§, and is known by the title of *Guinea Aloe*; it has thick fleshy roots, like those of the flag, creeping far where they have room. The leaves arise singly from the root, and are near a foot and half long, stiff, waved, and proceeding immediately from the root, as do also the flower-stems; which when the roots are strong, are often a foot and half high, adorned almost the whole length with flowers of a clear white, seldom continuing in beauty more than two or three days, and never producing seeds in England.

7. *Sweet-scented Aletris* rises with an herbaceous stalk to the height of eight or ten feet, having many joints, and is adorned toward the top with a head of leaves, which are of a deep green colour, and reflex at their ends, embracing the stalks with their base. The flower-stems arise from the centre of the heads, which are generally two feet high, branching out on each side, and fully garnished with white flowers, in shape somewhat like those of the second sort; but these open only in the evening, when they emit a most fragrant odour, but close again in the morning, and are not of long duration; but these are sometimes succeeded by seeds, which although fair to appearance, yet I could never raise any plants from them. [It was cultivated in 1768, by Mr. Miller||.

8. Stem shrubby, six feet high, quite simple, upright. Leaves quite entire, shining, alternate, stem-clasping. Flower terminating, greenish-yellow, in a loose raceme. Segments of the corolla linear, reflex. Capsule obtusely three-cornered, with one seed in each cell. Native of Cochinchina; cultivated in their gardens. The natives use the juice of the leaves to dye green; they also eat the flowers¶.]

PROPAGATION AND CULTURE.

1. This plant is tolerably hardy, and may be preserved through the winter, if sheltered under a hot-bed frame; but as the seeds do not ripen here, and the roots increase but slowly, the plants are at present rare in England.

2. The roots of the second sort must be planted in pots, filled with light earth, that they may be sheltered in a dry airy glass-case in winter, being too tender to thrive in the open air in England; therefore the pots should be removed into shelter in October, and during the winter season sparingly watered. In May they should be placed abroad in a sheltered situation, and in warm weather must be frequently refreshed with water; with this management the plants will flower; but as they do not perfect their seeds here; nor increase fast by roots, the plants are scarce in England.

4. The fourth sort is hardy enough to live abroad in mild winters, provided it be planted in a warm border, and a dry soil; but as it is often destroyed in severe winters, some-plants should be kept in pots to preserve the sort. This is propagated by seeds, which the plants generally produce in plenty; the seeds must be sown in pots soon after they are ripe, and in winter should be sheltered under a common hot-bed frame; in the spring, the plants will come up, when they should be inured to bear the open air by degrees; and when they are large enough to be removed, some of them should be planted in pots, and

* Hort. kew. † Linneus. ‡ Ibid.
§ Hort. kew. || Ibid. ¶ Loureiro.

the others in a warm border, where they will require to be sheltered the following winter, as they will not have acquired sufficient strength to resist the cold.

6. 7. The Ceylon, Guinea, and sweet-scented Aletris are too tender to live through the winter in England, unless they are placed in a warm stove; nor will they produce their flowers, if the plants are not plunged into a tan-bed; for although they may be preserved in a dry stove, yet they make but little progress there; in a tan-bed they will advance faster, the leaves will be much larger, and the whole plant much stronger. The Guinea Aletris will sometimes flower in a dry stove, but the flower-stems will be weak, and do not produce half so many flowers as when in tan; but the fragrant Aletris has not yet flowered here when kept in the dry stove.

The Ceylon and Guinea sorts propagate very fast by their creeping roots, which send up many heads; these may be cut off in June, and laid in the stove for a fortnight, that the part wounded may be healed over; they should then be planted in small pots, filled with light sandy earth, and plunged into a moderate hot-bed of tanners' bark, giving them but little water till they have put out good roots; then they must be treated like other tender succulent plants, never setting them abroad in summer.

7. The seventh sort is easily propagated from the side-heads, which it puts out after flowering. These heads when taken from the stems, should be laid in the stove for a week, for their wounds to heal, before they are planted in pots, when they may be treated in the same manner as the others.

[ALEURITES. (Αλευριτης, farinaceous, various parts of the tree having a meal scattered over them: from αλευρον meal, from αλεω, molo.)

Lin. gen. Schreb. 1472. Forst. gen. 56. Juss. 389.

Class. 21. 8. Monoecia Monadelphia.

Nat. order of *Tricoccæ*. *Euphorbiæ* Juss.

GENERIC CHARACTER.

* Male Flowers.

CAL. Perianth three-cleft, very short: clefts ovate, obtuse.

COR. Petals five, oblong, spreading, obtuse, much longer than the calyx.

Nectary, five scales, somewhat cornered, very short, at the bases of the petals.

STAM. Filaments numerous, connate into a conic columnar receptacle. Anthers roundish.

* Female Flowers few, in the same corymb.

CAL. Cor. Nect. as in the male, but larger.

PIST. Germ conic superior. Style none. Stigmas two, very short.

PER. Berry large, globose, two-seeded.

SEEDS two, globose, coated with a double bark.

OBS. Ambinux of Commerson, in French Noix de Bancoul, the same with Croton moluccanum of Linneus; Anda of Piso, bras. 148. and Camirium Rumph. amb. 2. t. 58, are of the same genus, or nearly allied to it. Jussieu.

SPECIES.

1. Aleurites triloba.

Forst. gen. 56. fl. austr. n. 360.

ALEXANDERS. See *Smyrnum*.

ALEXANDRIAN LAUREL. See *Ruscus*.

ALGÆ. See *Cryptogamia*.

ALHAGI. See *Hedysarum*.

ALHENNA. See *Lavsonia*.

ALISANUS. See *Rhexia*.]

[ALISMA. (Αλίσμα Diosc. *Alisma*. Plin. said to be from Αλύσμα, anxiety: rather, as I should suppose by the orthography, from Αλς, the sea.)

Lin. gen. 460. Reich. 495. Schreb. 625. Juss. 46. Gertn. t. 84.

Damaionium. Tournef. 132. Vaill. aët. gall. 1716.

Class. 6. 5. Hexandria Polygynia.

Nat. order of *Tripetaloidæ*. *Junci* Juss.

GENERIC CHARACTER.

CAL. Perianth three-leaved; leaflets ovate, concave, permanent.

COR. three-petalled. Petals roundish, large, flat, very spreading.

STAM. Filaments awl-shaped, shorter than the corolla; anthers roundish.

PIST. Germs more than five: styles simple; stigmas obtuse.

PER. compressed capsules:

SEEDS solitary, small.

OBS. *Damaionium* Tournef. has six, large, acuminate capsules. *Alisma*, properly so called, has many, obtuse, small ones. *A. parnassifolia* has the seeds awned.

ESSENTIAL CHARACTER.

Cal., three-leaved: Petals three. Seeds several.

SPECIES.

1. *Alisma Plantago*. Great Water Plantain.

Lin. spec. 486. syst. 350. Reich. 2. 132. fl. lapp. 138. succ. 323. hort. cliff. 241. Gertn. fruct. 2. 22. Hudf. angl. 158. With. 381. Lightf. scot. 193. Curt. lond. 1. 32. Flor. dan. 561. Mill. illustr. Park. 1245. 1. Ger. 337. 1. emac. 417. 1. Scop. carn. n. 449. Pollich pal. n. 367. Hall. belv. n. 1184. Plenck. ic. t. 292. Raii hist. 618. 1. Dod. pempt. 606. Camer. epit. 264.

Leaves ovate, acute; capsules obtusely triangular.]

2. *Alisma flava*.

Lin. spec. 486. Reich. 2. 132. Thunb. jap. 153. Plum. spec. 7. ic. 115.

Damaionium flavum. Mill. dict.

Leaves ovate, acute, peduncles umbellate, capsules globose.

3. *Alisma Damaionium*. Star-headed Water Plantain.

Lin. spec. 486. Reich. 2. 132. hort. cliff. 141. Hudf. ang. 159. With. 381. Curtis lond. 5. 70. Ger. emac. 417. 2. Park. 1245. 3. Raii hist. 701. 11.

Damaionium Alisma. Mill. dict.

Leaves cordate-oblong, flowers six-pointalled, capsules awl-shaped.

[4. *Alisma cordifolia*.

Lin. spec. 487. Reich. 2. 133. Thunb. jap. 153. Swartz obs. 139. Brown. jam. 204.

Sagittaria. Mor. hist. 3. f. 15. t. 4. f. 6.

Ranunculus. Plum. spec. 7. ic. 234. f. 2.

Leaves heart-shaped, obtuse, flowers twelve-stamened, capsules hook-pointed.

5. *Alisma natans*. Creeping Water Plantain.

Lin. spec. 487. syst. 350. Reich. 2. 133. succ. n. 324. Hudf. angl. 158. With. 381. Gertn. fruct. 2. 22.

Damaionium. Vaill. aët. par. 1719. t. 4. f. 8.

Leaves ovate, obtuse; peduncles solitary.

6. *Alisma ranunculoides*. Small Water Plantain;

Lin. spec. 487. Reich. 2. 133. fl. succ. 325. hort. cliff. 141. Hudf. angl. 158. With. 382. Lightf. scot. 193. Fl. dan. t. 122. Raii hist. 618. 2.

Ranunculus. Pet. brit. t. 43. f. 8. Ger. emac. 417. 3. Park. 1245. 2.

Leaves linear-lanceolate, capsules globose and squarrose.

7. *Alisma subulata*.

Lin. spec. 487. Reich. 2. 134. Gron. virg. 153. 57.

Leaves awl-shaped.

8. *Alisma parnassifolia*:

Lin. mant. 371. syst. 350. Reich. 2. 134. Aët. bonon. 6. p. 13. t. 1.

Ranunculus. Tilli pisan. t. 46. f. 1.

Leaves heart-shaped, acute; petioles jointed.

9. *Alisma repens*.

Cavanilles hisp. 41. t. 55. Lamarck dict. 2. 515. Stems creeping, leaves lanceolate petioled acute.

DESCRIPTIONS, &c.

1. Great Water Plantain is easily known by its smooth entire leaves on very long petioles; and by its purplish flowers, growing in a kind of umbel, at the end of a long scape. Root roundish and white. Height from two to three feet. Stems and branches with three blunt corners. Petioles longer than the leaves, broader at the base. Leaves with seven or eight ribs, two of them near each edge; they are keeled, smooth, and quite entire. Panicle terminating. Peduncles in whirles. Bractes short, pointed, at the origin of the peduncles. Leaflets

of the calyx scored, bent back. Petals ragged at the end, shrivelling, pale reddish purple, yellow at the base. Filaments fixed to the receptacles, which are glandular. Fruit blunt, three-cornered. Capsules about eighteen. The flowers are fully expanded about four in the afternoon. It grows in watery places, on the banks of pools, lakes, and rivers, and flowers in July and August.

There is a variety of this with narrower leaves*.]

2. Grows in Jamaica, Barbadoes, and several other places in the warm parts of America, in stagnant waters and swampy places; it would be difficult to preserve this plant in England, since it will not live in the open air, and requires a bog to make it thrive: but as it has no great beauty, or use, it is not worth the trouble of cultivating in this country.

3. [Root-leaves on long flat footstalks, oblong-heart-shaped, reticulated with veins; stems naked, flowers white, in umbels, from which arise others, as it were proliferous, in the same manner as in *A. ranunculoides*. Capsules large, awl-shaped, divaricated, giving them a stellated appearance†. They are of a hard texture, and so closely united at the base, as to appear like a single fruit‡.]

It is a native of France, England and Siberia; and is found in standing waters, which are not very deep; but is by no means so common as the first sort. If it is wanted as a medicine, it must be gathered in its natural place of growth, since it is never cultivated in gardens.

[4. Is the connecting link between this genus and that of *Sagittaria*. It is found both in South and North America.

5. Flowers large, several from the same sheath, on very long peduncles. Capsules generally eight§. The leaves which swim on the surface are ovate, but those which are under water are linear: this is the case with many aquatic plants, the motion of the water lengthening the leaves. It is found in ditches in France, Sweden, Germany and Siberia; also in a lake or two in Wales: and flowers in July and August.

6. In a situation where the water is nearly dried up, this plant is from two to six inches high, the stems and proliferous umbels hardly longer than the leaves, and some of the flowering branches procumbent; but on the edge of old turf-pits, where there is plenty of water, it grows with an upright naked stem, from one to two feet high, bearing umbels of numerous rays, and these again others. The root-leaves, in this state, are on very long foot-stalks, linear-lanceolate, not greatly exceeding the footstalk in breadth, and are extremely like the paddles of the canoes of some of the South-sea islands||. The corolla is bluish white, and opens about noon¶. It is a native of Sweden, Holland, France, Germany, Italy and England, in marshes and moors: as on Giggleswick Tarn, Yorkshire; between Burton and Derby; Bungay, Suffolk; Ellingham fen, Norfolk.

7. Is a Virginian plant: named by Clayton, *Sagittaria pusilla, corolla alba tenerima, foliis subulatis*. Dwarf Sagitta, with a very tender white corolla, and subulate leaves.

8. Has the stature of the first, the leaves are smooth, on long petioles, and scarcely acute. The petioles are scarcely jointed. The flowering scape is the same as in *A. Plantago*. The seeds are awned**. Native of Italy: in the marshes under the Apennines.

9. Stems creeping, jointed, leafy at the joints, upright towards the top. Leaves three-nerved, shorter than the petiole, which is thickened towards the base: root-leaves numerous; stem-leaves shorter, two or four at each knot, where there are little brown scales embracing the stem, whence proceed two or three peduncles, sometimes one only, half an inch long, one-flowered. Leaflets of the calyx pale yellow. Petals crenate, pale purple; the claws nar-

rowed, streaked, white. Filaments green, distributed in pairs at the claw of each petal: anthers incumbent, oblong, yellow. Germs coadunate in a ball. Native of Spain, on the sandy banks of the river Manzanares: flowering in August.

It seems to be the same (though much smaller) with the *Alisma* which Abbé Poirét found on the northern coast of Africa, and which is described by Lamarck*.

PROPAGATION AND CULTURE.

If any one be desirous of cultivating the European species, he must have a piece of water on purpose, or keep them in pots or tubs perpetually immersed in water, unless he has frames of wood with partitions filled with earth, which he can water largely at his pleasure.

ALISMA. See *Arnica, Primula, Senecio*.

ALKÆNDA. See *Myrtus*.

ALKANET. See *Anchusa*.]

ALKEKENG. See *Atropa* and *Physalis*.

[ALLAMANDA. (From Mr. Frederick Allamand, a Dutch Surgeon, who went to Guiana about 1769, and to Russia about 1776. He sent descriptions, figures, and specimens of plants to Linnæus.)

Lin. mant. p. 146. syst. 1295. p. 252. Reich.

321. Schreb. 418. Gært. t. 61. Juss. 148.

Galarips. Allamand.

Orelia. Aublet. 106.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Contortæ*.—*Apocineæ* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, five-parted: parts ovate, acute.

COR. one-petalled, funnel-shaped; tube cylindric: border semiquinquefid, swelling; divisions spreading, obtuse.

STAM. Filaments scarcely any: anthers five, sagittate, converging, in the throat of the tube.

PIST. Germ oval, surrounded with a ring: style filiform, the length of the tube: stigma headed, contracted in the middle.

PER. an orbicular, lens-shaped, echinate, one-celled, two-valved capsule.

SEEDS very many, imbricate, orbiculate, flat, edged with a membranous wing.

ESSENTIAL CHARACTER.

Cor. contorted. Caps. lens-shaped, erect, echinate, one-celled, two-valved, many-seeded.

SPECIES.

1. *Allamanda cathartica*.

Lin. mant. 214. suppl. 165. syst. 252. Reich. 1. 592. Gært. fruct. 1. 293.

Echinus. Barrer. æquin. 48.

Orelia grandiflora. Aublet. guian. 271. t. 106.

DESCRIPTION.

A milky shrub. Stem twining, and climbing on trees: branches round, pubescent. Leaves in fours, on very short petioles, elliptic-lanceolate, shining, quite entire, with a villous rachis. Flowers terminal, in erect racemes: twin, pedunculate. Corolla yellow. The leaves are cathartic, and an infusion of them is used at Surinam in the cholic. It is found wild there, at Cayenne, in Guiana, &c. by the sea-side†. Introduced in 1785, by Baron Hake‡.

ALL-GOOD. See *Chenopodium*.

ALL-HEAL. See *Stachys*.

ALLIARIA. See *Erysimum*.

ALLIGATOR-PEAR. See *Laurus*.]

[ALLIONIA. (Named in honour of Charles Allioni, Professor of Botany at Turin, &c. &c. Author of *Flora Pedemontana*, and other works.)

Lin. gen. 117. Reich. 123. Schreb. 151. Loeft. it. 181. Juss. 195.

Class. 4. 1. Tetrandria Monogynia.

Nat. order of *Aggregateæ*.—*Dipsacæ* Juss.

GENERIC CHARACTER.

CAL. Perianth common to three flowers, simple, oblong, five-parted; parts ovate, acute, permanent. *Proper* obsolete, superior.

* Withering.

† Woodward MS.

‡ Stokes in Withering.

§ Withering.

|| Woodward MS.

¶ Withering.

** Linn

* Cavanilles.

† Linneus.

‡ Hort. kew.

A L L

COR. *proper* one-petalled, funnel-shaped, edge quinquefid, erect.
STAM. *Filaments* setaceous, longer than the corolla, bending to one side; *anthers* roundish.
PIST. *Germ* inferior, oblong; *style* setaceous, longer than the stamens: *stigma* multifid, linear.
PER. none.
SEEDS solitary, oblong, five-cornered, naked:
REC. naked.

ESSENTIAL CHARACTER.

Cal. common, oblong, simple, three-flowered; *proper* obsolete, superior. *Corollules* irregular. *Recept.* naked.

SPECIES.

1. *Allionia violacea*.
Lin. spec. 147. *Reich.* 1. 289. *Loefl. it.* 181.
Leaves heart-shaped, calyxes quinquefid.
2. *Allionia incarnata*.
Lin. spec. 147. *Reich.* 1. 289. *L'Herit. stirp.* nov. 4. 63. t. 31.
Leaves obliquely ovate, calyxes triphyllous.

DESCRIPTIONS, &c.

1. Stem herbaceous, upright, weak, branched. Leaves opposite, acute, quite entire, smooth, the lower ones on long petioles. Flowers in a branched panicle, terminating, with short little bractes. Corolla rather large, blue purple. Native of South-America*.

2. This is an annual, glaucous plant, with the habit of *Boerhaavia*. Root branching, somewhat fibrose. *Cotyledons* petioled, roundish, spreading, flat. Stem usually three-parted at the base, somewhat branched, prostrate, round, villose, subviscid: branches alternate, more viscid, axillary from each second smaller leaf. *Leaves* as in *Boerhaavia hirsuta* opposite, one smaller than the other; the primordial ones in threes, petioled, oval, unequal at the base, bluntish or scarcely acuminate, repand, very loosely nerved, thickish, villose, scarcely scabrous, pale, glaucous beneath, purple at the edge, concave, spreading, 18—20 lines long, 10—12 broad: petioles round, villose, the length of the leaf. *Peduncles* solitary, axillary, one-flowered, filiform, villose, at first short, lengthening as they flower, nodding at the tip. *Flowers* flesh-coloured, three lines in length and breadth. Common Perianth three-leaved; leaflets ovate, acute, concave, viscid, villose, erect, from one to three lines in length. Universal corolla longer than the calyx, resembling a regular three-petalled flower, and two or three lines in breadth: each floret five-nerved, villose; tube the length of the calyx; border oblique, two-parted, unequal, the inner segment simple, acute, the length of the calyx, the outer longer, truncate, trifid, spreading, each segment two-toothed or emarginate. *Filaments* four, sometimes placed on the germ, sometimes inserted into the base of the corolla, capillary, erect, the length of the tube: anthers two-lobed, two-celled. *Germ* inferior or between the calyx and corollule, ovate, somewhat compressed, with one angle on the inner side, quadrangular and glandulose on the outer. *Style* subfiliform, the length of the stamens. *Stigma* capitate, inclined. *Calyx*, when fostering the seeds, somewhat dilated, and loose. *Seeds* three, one to each floret, keeled, resembling the open jaw of a cat, or the leaf of *Dionæa Muscipula* when irritated; the length of the calyx.

Native of Peru, on rocks, and in sandy soils. Introduced into the Paris garden, from seeds sent by Dombey. It flourishes there, and perfects its seeds in the middle of summer†.]

ALLIUM. (Derivation uncertain. Some deduce it from ἀλλεσθαι, *exilire*, on account of its quick growth; others from *halo*, because it exhales a strong smell; others again from ἀγλιδες, *a head of Garlick*.)
Lin. gen. n. 409. *Reich.* 442. *Schreb.* 557.
Tournef. 206. *Gertn.* 16. *Juss.* 53.
Cepa Tournef. 205. *Porrum Tournef.* 204.
Scorodoprasum Mich. 24. *Moly Boerb.* 2. 146.

* Loefling.

† L'Heritier.

A L L

Class. 6. 1. Hexandria Monogynia.
Nat. order of *Spathaceæ*—*Asphodeli* Juss.

GENERIC CHARACTER.

CAL. *Spathe* common, roundish, withering, many-flowered.
COR. *Petals* six, oblong.
STAM. *Filaments* six, subulate, often the length of the corolla. *Anthers* oblong, upright.
PIST. *Germ* superior, short, bluntly three-cornered, the corners marked with a line. *Style* simple. *Stigma* sharp.
PER. *Capsule* very short, broad, three-lobed, three-celled, three-valved.
SEEDS few, roundish.

OBS. In some species three alternate filaments are broad and forked, with an intermediate anther.

ESSENTIAL CHARACTER.

Cor. six-parted, spreading. *Spathe* many-flowered. *Umbel* heaped. *Capsule* superior.

SPECIES.

- * *Stem-leaves* flat. *Umbel* capsule-bearing.
1. *Allium Ampeloprasum*. Great round-headed Garlick.
Lin. spec. 423. *syft.* 321. *Reich.* 2. 28. *Huds.* ang. 138. *With.* 342. *Hall. belv.* n. 1218.
Mich. gen. 25. t. 24. f. 5? *Mill. dict.* n. 4.
Raii hist. 1125. 2. *syn.* 370. 4.
Umbel globose, *stamens* three-cusped, *petals* with a rough keel.
 2. *Allium Porrum*. Common Leek.
Lin. spec. 423. *Reich.* 2. 29. *hort. ups.* 77. *cliff.* 136. *mat. med.* 92. *Hall. belv.* n. 1217. *All.* 7.
Blackw. t. 421. *Plenck. ic. t.* 253.
Porrum sativum. *Mill. dict.* *Raii hist.* 1126. n. 1.
Umbel globose, *stamens* three-cusped, *petals* with a rough keel, root coated.
 3. *Allium lineare*. Linear-leaved Garlick.
Lin. spec. 423. *Reich.* 2. 29. *Hall. all.* 9.
Porrum. *Gmel. fib.* 1. t. 13. and 14. f. 1. *Mill. dict.* n. 2.
Umbel globose, *stamens* three-cusped, twice as long as the corolla.
 - [4. *Allium rotundum*. Great round-headed Garlick.
Lin. spec. 423. *Reich.* 2. 30. *Gertn. fruct.* 1. 56. *Pollich pal.* n. 325. *Hall. belv.* n. 1219.
All. n. 8. *Raii hist.* 1120. n. 5.
Umbel subglobose, *stamens* three-cusped, *side-flower's* nodding.]
 5. *Allium Victorialis*. Long-rooted Garlick.
Lin. spec. 424. *syft.* 321. *Reich.* 2. 30. *Gertn. fruct.* 1. 56. *Jacq. aust.* 3. t. 216. *Blackw. t.* 544. *Plenck. ic. t.* 261. *Hall. belv.* n. 1229.
All. 20. *Raii hist.* 1122. n. 13.
Umbel rounded, *stamens* lanceolate, larger than the corolla, *leaves* elliptic.
 6. *Allium sub-hirsutum*. Hairy Garlick, or *Dioscorides's Moly*.
Lin. spec. 424. *syft.* 321. *Reich.* 2. 30. *Raii hist.* 1123. n. 7. *Osbeck it.* 49. *Hall. all.* 18.
Stamens awl-shaped, *lower leaves* hirsute.
 7. *Allium magicum*. Homer's Garlick or *Moly*.
Lin. spec. 424. *Reich.* 2. 31. *hort. cliff.* 137. *Hall. all.* 19. *Raii hist.* 1122. n. 2. and 1123. n. 3.
Stamens simple, *branches* bulb-bearing.
 8. *Allium obliquum*. Oblique-leaved Garlick.
Lin. spec. 424. *Reich.* 2. 31. *Gmel. fib.* 1. t. 9.
Stamens filiform, *thrice* as long as the flower, *leaves* oblique.
 9. *Allium ramosum*. Branched Garlick.
Lin. spec. 425. *Reich.* 2. 31. *Gmel. fib.* 1. t. 9. f. 1.
Umbel globose, *stamens* awl-shaped longer, *leaves* linear, subconvex.
 10. *Allium roseum*. Rose Garlick.
Lin. spec. 432. *syft.* 321. *Reich.* 2. 32. *Ger. prov.* 150. *Gouan. hort.* 166. *Magn. monsp. t.* 10.
Rudb. elyf. 2. f. 17. *Raii hist.* 1124. n. 12.
Umbel flat-topped, *petals* emarginate, *stamens* very short, simple.
 - [11. *Allium tataricum*. Tartarian Garlick.
Lin. syft. 322. *suppl.* 196.
Umbel flat, *stamens* simple; *leaves* semicylindrical.]

- ** Stem-leaves flat. Umbel bulb-bearing.*
12. *Allium sativum.* Common Garlic.
Lin. spec. 425. Reich. 2. 32. hort. upf. 76. cliff. 137. mat. med. 92. Hall. all. 1. Plenck. ic. t. 254. Woodv. 460. t. 168. Raii hist. 1125. 1. Loureiro cochinch. 201.
Bulb compound; stamens three-cusped.
13. *Allium Scorodoprasum.* Rocambole.
Lin. spec. 425. Reich. 2. 32. hort. upf. 77. succ. 278. Scop. carn. n. 396. Pollich pal. n. 326. Hall. all. 2. Plenck. ic. t. 256. Raii hist. 1120. n. 4.
Stamens three-cusped, leaves crenulate, sheaths two-edged.
14. *Allium arenarium.* Sand Garlic.
Lin. spec. 426. Reich. 2. 33. succ. 279. Hudf. angl. 138. With. 343. Fl. dan. t. 290. Hall. belv. n. 1222. all. n. 3. Thunb. jap. 132. Raii hist. 1119. n. 1.
Stamens three-cusped, sheaths columnar, spathe awnless.
15. *Allium carinatum.* Mountain Garlic.
Lin. spec. 426. syst. 322. Reich. 2. 33. succ. 239. Hudf. angl. 139. Hall. belv. n. 1224. all. t. 1. f. 2. Scop. carn. n. 397. Pollich pal. n. 337. Ger. emac. 187. 5. Mor. hist. 28. f. 4. t. 14. f. 5. Raii hist. 1119. n. 2.
Stamens awl-shaped; spathe very long.
**** Stem-leaves columnar. Umbel capsule-bearing.*
16. *Allium sphaerocephalon.* Small round-headed Garlic.
Lin. spec. 426. syst. 322. Reich. 2. 34. Allion. pedem. n. 1872. Mich. gen. t. 24. f. 2. Hall. belv. n. 1220. Raii hist. 1121. n. 9.
Stamens three-cusped, longer than the corolla, leaves semicolumnar.
- [17. *Allium parviflorum.* Small-flowered Garlic.
Lin. spec. 427. Reich. 2. 34.
Umbel globose, stamens simple, longer than the corolla, spathe awl-shaped.]
18. *Allium descendens.* Purple-headed Garlic.
Lin. spec. 427. Reich. 2. 34. hort. upf. 78. Rudb. elyf. 2. f. 20. & f. 13. Hall. all. n. 11. t. 2. f. 1.
Stamens three-cusped, outer peduncles shorter.
- [19. *Allium moschatum.* Musk-smelling Garlic.
Lin. spec. 427. Reich. 2. 35. Hall. all. 17.
Moly. Baub. prodr. 28. 2. fig. Rudb. elyf. 2. f. 14.
Umbel flat-topped, mostly six-flowered, petals acute, stamens simple, leaves setaceous.]
20. *Allium flavum.* Sulphur-coloured Garlic.
Lin. mant. 363. spec. 428. syst. 322. Reich. 2. 35. Jacq. austr. 2. t. 141. Hall. all. 24. Rudb. elyf. 2. f. 5?
Flowers pendulous, petals ovate, stamens longer than the corolla.
- [21. *Allium pallens.* Pale-flowered Garlic.
Lin. spec. 427. syst. 322. Reich. 2. 35. Hall. all. 21. Col. ecphr. 2. t. 7. f. 2. Raii hist. 1118. 6.
Flowers pendulous, truncated; stamens simple, equaling the corolla.
22. *Allium paniculatum.* Panicked Garlic.
Lin. spec. 428. syst. 322. Reich. 2. 36. Scop. carn. n. 398. Hall. belv. n. 1225. opusc. 386. n. 25. fig. Gartn. fruct. 1. 56.
Peduncles capillary, spread out; stamens awl-shaped, spathe very long.
23. *Allium vineale.* Crow Garlic.
Lin. spec. 428. Reich. 2. 36. Hudf. angl. 139. With. 343. Pollich. pal. n. 329. Hall. belv. n. 1221. all. 4. Mor. hist. f. 4. t. 15. f. 4. Pet. t. 66. f. 1. Ger. 179. Raii hist. 1117. n. 4.
Stamens three-cusped.
24. *Allium oleraceum.* Purple-striped Garlic.
Lin. spec. 429. syst. 323. Reich. 2. 37. succ. 280. Hudf. angl. 140. With. 344. Hall. all. t. 1. f. 4. belv. n. 1223. Ger. 188. 6. Mor. f. 4. t. 14. f. 2. Raii hist. 1117. n. 3. and 1119. n. 3. syn. 370. 3.
Stamens simple; leaves rough, semicolumnar; furrowed underneath.
25. *Allium Pallasii.* Pallas's Garlic.
Lin. syst. 323. Murray in comm. gott. 1775. p. 32. t. 3.
Umbel difform, stamens simple, equalling the corolla; style very short.
***** Leaves radical, stem naked.*
26. *Allium nutans.* Flat-stalked Garlic.
Lin. spec. 429. syst. 323. Reich. 2. 37. Hall. all. 6. Porrum. Gmel. fib. 1. 55. t. 12.
Scape two-edged, leaves linear flat, stamens three-cusped.
27. *Allium ascalonicum.* Shallot or Eschallote.
Lin. spec. 429. Reich. 2. 37. hort. cliff. 36. upf. 79. Loureiro cochinch. 202. Plenck. ic. t. 258. Mor. hist. 2. f. 4. t. 14. f. 3. Ger. emac. 170. f. 4. Raii hist. 1117. 1.
Scape columnar, leaves awl-shaped, umbel globose, stamens three-cusped.]
28. *Allium fenzlense.* Narcissus-leaved Onion or Garlic.
Lin. spec. 430. Reich. 2. 38. hort. upf. 79. Thunb. jap. 132. Allion. ped. n. 1879. Gmel. fib. 1. t. 11. f. 2. Scop. carn. n. 400. Hall. all. 19. n. 2. Raii hist. 1120. n. 8.
Scape two-edged, leaves linear, convex beneath, smooth, umbel roundish, stamens awl-shaped.
- [29. *Allium odorum.* Sweet-smelling Garlic.
Lin. mant. 62. syst. 323. Reich. 2. 38. Thunb. jap. 132. Loureiro cochinch. 203.
Scape nearly columnar, leaves linear, channelled, angular beneath, umbel flat-topped.
30. *Allium inodorum.* Carolina Garlic.
Ait. hort. kew. 1. 427.
Scape naked subtriangular, leaves linear flat keeled beneath, umbel fastigate floriferous, stamens simple.]
31. *Allium angulosum.* Angular-scaped Garlic.
Lin. spec. 430. syst. 323. Reich. 2. 39. hort. upf. 79. Loureiro cochinch. 203. Gartn. fruct. 1. 56. Allion. pedem. n. 1880. Jacq. austr. 5. t. 423. Hall. belv. n. 1227. a. all. 19. Raii hist. 1120. n. 7.
Cepa. Gmel. fib. 1. 58. t. 14. f. 2.
Scape two-edged, leaves linear-channelled, somewhat angular beneath, umbel flat-topped.
- [32. *Allium nigrum.* Black Garlic.
Lin. spec. 430. syst. 323. Reich. 2. 39. Rudb. elyf. 2. f. 21. Allion. pedem. n. 1881. t. 25. f. 1. Retz. obs. 1. 15. n. 32. & 2. n. 45. & 5. p. 3.
A. multibulbosum. Jacq. austr. 1. 9. t. 10.
Scape columnar; leaves linear, umbel hemispherical, petals erect, spathe pointed, bifid.]
33. *Allium canadense.* Canada Tree Onion.
Lin. spec. 431. syst. 323. Reich. 2. 39. Kalm itin. 3. p. 79.
Scape columnar, leaves linear, head bulb-bearing.
34. *Allium urinum.* Ramsons.
Lin. spec. 431. Reich. 2. 40. succ. 277. Hudf. angl. 140. With. 344. Fl. dan. t. 757. Mor. hist. f. 4. t. 15. f. 15. Petiv. t. 66. f. 8. Ger. 141. 2. emac. 179. Scop. carn. n. 401. Hall. belv. n. 1228. all. 21. Plenck. icon. t. 260. Raii hist. 1122. n. 12.
Scape three-sided, leaves lanceolate, petiolate, umbel flat-topped.
- [35. *Allium triquetrum.* Three-cornered Moly.
Lin. spec. 431. and 1680. Reich. 2. 40. Rudb. elyf. 2. f. 16. Loureiro cochinch. 202.
Moly. Park. par. t. 143. f. 4. Raii hist. 1124. n. 10.
Scape and leaves three-sided, stamens simple.]
36. *Allium Cepa.* Common Onion.
Lin. spec. 431. Reich. 2. 41. hort. upf. 77. cliff. 137. mat. med. 93. Hall. all. 10. Plenck. icon. t. 255. Raii hist. 1116. Loureiro cochinch. 201. Thunb. jap. 132.
Scape swelling out below, and longer than the columnar leaves.
37. *Allium Moly.* Yellow Moly.
Lin. spec. 432. Reich. 2. 41. hort. upf. 76. cliff. 27. Hall. all. 23. Raii hist. 1123. n. 4.
Moly. Swert. flor. 1. t. 60. f. 2.

- Scape subcylindric, leaves lanceolate, sessile; umbel level-topped.*
- [38. *Allium tricoccum*. *Three-seeded Garlick*.
Ait. hort. kew. 1. 428.
- Scape naked, semicolumnar, leaves lanceolate-oblong, flat, smooth, umbel globular, seeds solitary.*]
39. *Allium fistulosum*. *Welsh Onion or Ciboule*.
Lin. spec. 432. *Reich.* 2. 41. *hort. upf.* 78. *cliff.* 136. *Thunb. jap.* 133. *Plenck. icon.* t. 259. *Hall. all.* 13. *Park. par.* 511. f. 4.
Scape equalling the columnar swelling leaves.
40. *Allium Schoenoprasum*. *Cives, or Chives*.
Lin. spec. 432. *syft.* 324. *Reich.* 2. 41. *hort. upf.* 78. *cliff.* 136. *succ.* 282. *Hall. belv. n.* 1726. *all.* 14. *Gmel. fib.* 1. 59. t. 15. f. 1. *Plenck. ic.* t. 257. *Raii hist.* 1117. n. 2.
Scape equalling the columnar awl-filiform leaves.
- [41. *Allium fibricum*. *Siberian Garlick*.
Lin. mant. 562. *syft.* 324. *Reich.* 2. 42.
A. Schoenoprasum β. *Lin. spec.* 433. *Murr. gott.* 6. t. 4.
Scape columnar, leaves semicylindric, stamens awl-shaped.
42. *Allium tenuissimum*. *Slender-leaved Garlick*.
Lin. spec. 433. *Reich.* 2. 42. *Gmel. fib.* 1. 61. t. 15. f. 2, 3. (Cepa.)
Scape columnar, empty; leaves awl-filiform; beads loose, few-flowered.
43. *Allium Chamæ-Moly*. *Bastard Garlick*.
Lin. spec. 433. *syft.* 324. *Reich.* 2. 42.
Moly. Rudb. elys. 2. f. 15. *Raii hist.* 1124. n. 14.
Chamæ-Moly. Col. ecphr. t. 326.
Scape scarcely any, naked; capsules drooping, leaves flat ciliate.
44. *Allium gracile*. *Jamaica Garlick*.
Ait. hort. kew. 1. 429.
Scape naked, columnar, very long, leaves linear, channelled, stamens subulate, connate at the base.
45. *Allium neapolitanum*. *Naples Garlick*.
Cyrill. rar. neap. 1. 13. t. 4.
Scape naked ancipital, leaves lanceolate channelled, umbel scattered.

DESCRIPTIONS.

1. Stem a foot high or more, leafy at bottom. Leaves glaucous, succulent. Spathe conical, one-leaved, deciduous. Flowers in a close ball, on peduncles an inch in length*. The stamens are a little longer than the corolla, which is pale purple. It is found growing naturally in the East, in Switzerland, in a small island of the Bristol channel, &c. With us it flowers in July and August.

2. Stem or scape three feet high or more, leafy at bottom. Leaves an inch wide, with the edge smooth. Spathe shortly conical, deciduous. Flowers in a close, very large ball, on purple peduncles. The corolla also is purplish†. It is very like the former, and perhaps only a variety‡. It flowers in April and May. Cultivated in 1597, by Gerard§. Probably much earlier.]

3. This grows naturally in Siberia. It has narrower leaves than the common Leek, the stalks are smaller, and do not rise so high; the heads of flowers are also smaller, and of a purple colour. It is called by Miller *Porrum Ampeloprasum*. He cultivated it in 1768.

[4. The root is made up of many purple and black bulbs, crowded between white common sheaths, scape three feet high; leaves grassy, three lines broad: spathe short. The outer petals gibbous downwards, more acute, purple with a distinct line of a darker colour; the inner paler, erect, without any eminent line: the stamens project beyond the corolla. Fruit and seeds of the Leek. (n. 2.) ||. Native of the southern parts of Europe.

5. Grows on the mountains of Switzerland, Austria, Silesia and Savoy. The wild plant has the root-leaves half an inch broad; transplanted into a garden, the leaves grow to four inches in breadth, without becoming much longer. The stem is from

a foot to eighteen inches in height. The petals are of a dirty white, with a tincture of green*. Cultivated in 1739, by Mr. Miller†.

6. Bulb the size of a hazel nut. Stem a foot or eighteen inches high, round, smooth, solid. Lower leaves grassy, embracing the stalk, reclining a little on the ground; those on the stem broad, smooth, and keeled. Flowers in an umbel, white, like those of *A. ursinum*, or *Ramsons*, but smaller‡. Native of Italy, Spain, Africa, and the Levant. Cultivated in 1596, by Gerard. It flowers in May§.

7. This has a weak, cylindric scape, a foot high, the root-leaves broad, channelled, and obtuse||. Cultivated in 1596, by Gerard¶, and preserved by many persons in the gardens for the sake of variety, but it has a very strong scent.

[8. Grows two feet in height, with a cylindrical stalk. The leaves are channelled, and have round sheaths. The flowers grow in a globose umbel. The spathe also is globose, purple and acuminate. The petals are ovate, erect, concave, yellow with a green keel; the filaments whitish, with yellow anthers; the germ subglobose. Native of Siberia**. Cultivated before 1768, by Mr. Miller††.

9. The petals are purplish, with the keel of a darker shade: the filaments purple, a little longer than the corolla, with violet-coloured anthers: germ roundish, with three green spots. From the middle of the stem grows a naked branch, as long as the stem, from the axil opposite to the leaf‡‡.] This and the former grow naturally in Siberia, whence their seeds were sent to Petersburg, and from them the botanic gardens have been supplied with them: they are only preserved for the sake of variety.

10. [Leaves linear, scarcely so long as the scape, which is cylindric. Spathe obtuse. Flowers larger than in any of the rest, and dark purple. Stamens white and very short§§. It grows naturally about Montpellier and in Piedmont, in the fields, olive-grounds and vineyards. Cultivated in 1752, by Mr. Miller|||.

11. Stem cylindric, smooth, half a foot high, leafy towards the base. Leaves channelled, smooth, scarcely shorter than the stem. Spathe bivalve, roundish, and withering. Corolla flat, white. Filaments shorter than the petals, with brown anthers. Native of Siberia¶¶. Introduced in 1787, by Mr. Haneman***.

12. *Garlick* is said to be found wild in the island of Sicily. It has many bulbs, commonly called cloves, invested with a white skin; the leaves are linear, long and narrow like those of grass. Cultivated in 1551†††. Probably much earlier. For its qualities, see *Onion*, n. 36.

13. *Rocambole* is found wild in Sweden, Denmark and Hungary. This has compound bulbs, but the cloves are smaller than those of *Garlick*. The stem rises from two to three feet high, and bears many small bulbs at top, which may be used as well as those of the root. Cultivated in 1596, by Gerard‡‡‡.

14. Leaves three or four, sheathing the lower part of the stem, the lower ones quickly withering; broad, edges hairy, or rather finely toothed, but the teeth not to be discerned without a glass. Leaf-sheaths smooth, scored; scores of a deeper green. Sheath of one leaf, broad, short, blunt. Bulbs numerous, deep purple. Flowers a few, on short pedicels, small, purple, marked with a deeper line§§§; before these come out, the stem nods. Linneus (fl. succ.) says, that it is much narrower and less than the foregoing; that the leaves wither away before the time of flowering, whereas they are permanent in *Rocambole*. The bulbs and flowers are blue; the stamens a little longer than the corolla;

* Haller.

† Ibid.

‡ Linneus.

§ Hort. kew.

|| Haller.

* Haller.

§ Hort. kew.

** Linneus.

||| Hort. kew.

††† Hort. kew. from Turner.

† Hort. kew.

|| Lin. from Sauvages.

†† Hort. kew.

¶¶ Lin. suppl.

§§§ Woodw. in Wither.

‡ Bauh. hist. and Raii hist.

¶ Hort. kew.

†† Linneus.

*** Hort. kew.

††† Hort. kew.

the spathe obtuse; the leaves quite entire; at the edge, narrower, and grass-like. The round sheaths, and the circumstance of its growing always in a sandy soil, distinguish this species from the last. Scopoli and Pollich refer Haller's name to the foregoing species; if rightly, most of the synonyms are to be referred thither. The 290th plate of the Flora danica bears the name of *Allium Scorodoprasum*, and yet it is quoted by Linneus under his *A. arenarium*. Perhaps they are both one and the same plant*. It grows wild in Thuringia, Scania, Denmark, Switzerland, Italy, and Westmoreland.

15. Bulb simple, with very little of the garlick smell or taste. Stem four feet high, with few leaves, which are succulent, keeled, and three lines wide, sheath very long and narrow, consisting of two leaves one longer than the other. A great heap of bulbs in the head, with peduncles, from an inch, to two inches long, some bearing bulbs, others bell-shaped flowers. The outer petals are of a darker colour than the inner ones, which are yellow, with a line of green, but sometimes purple. The capsule is columnar, marked with six lines of a darker colour, and is abortive. It is found wild in Scania, Germany, Italy and Switzerland; also in Westmoreland; about Ramsgate in the isle of Thanet; and between Sandwich and Deal.

16. Stems glaucous, not streaked, smooth, round. Leaves flat above, convex below, becoming semicylindrical and channelled, as long or longer than the stem. Spathes not tailed, one larger than the other, and bifid. Head of a short conical form; the peduncles lengthening towards the middle, and forming a close imbricate umbel. Petals red with a darker keel, permanent, and becoming more convergent, ovate, the outer ones shorter and narrower; not awned. Filaments purple towards the top. Style purple within, very long; stigma yellowish. It bears capsules†. Native of Italy, Germany, Switzerland? and Siberia. It was cultivated in 1759, by Mr. Miller‡. Haller thinks that the eighteenth is not specifically distinct from this.

17. Like the former, except in having simple filaments. Bulb oblong; stem cylindric, streaked, leafy; leaves almost the length of the stem, awl-shaped; flowers very small, outer petals ovate, dark-coloured, inner twice the length, lanceolate, purple, spathe two-leaved§. Native of the south of Europe. Introduced in 1781, by Monf. Thouin||.

18. Two bulbs at the origin of the stalk; leaves fistulous, channelled above; stalk two feet high; sheath quadrifid¶. Native of Italy and Switzerland. Cultivated in 1766, in the Oxford garden.

19. Bulb small, oblong, rufous, covered with a netted bark. Stem slender, seldom attaining a foot in height. Leaves rushy, from an inch to three or four inches in length. Flowers five, six or seven, pedicelled, in an umbel; corolla dusky white with brown lines, smelling like musk or civet**. It grows wild in Provence, Narbonne, and Spain. Casp. Bauhin relates, that Saltzmann brought him the plant from the hills about Montpellier in 1598, and that he cultivated it in his garden.

20. Stalk leafy, round, glaucous. Leaves round, not angular, flattish above the base; sheath twice as long as the umbel, one valve leafy. Umbel with pendulous yellow pedicels, petals deep yellow, obtuse, concave, erect: stamens simple, twice as long as the corolla: style short††. Gouan and Gerard think this to be a variety of the last. Native of the south of France, Italy, and Austria. Cultivated in 1768, by Mr. Miller‡‡.

21. Stem smooth, two feet high: leaves alternate, seven-cornered, erect: spathe awl-shaped, nervose: corolla bell-shaped, white; petals obovate, very obtuse, erect, concave, with a green keel; scarcely any style, till after the time of flowering, when it is still very short. The last is very like this,

but differs in the petals being ovate, and of a deep yellow, and the stamens with the pistil being twice as long as the corolla, instead of being shorter as in this*. Native of Italy, Spain, Montpellier, and Hungary. Introduced in 1779, by Abbé Poiret†.

22. The leaves are awl-shaped and channelled: the flowers hang on very long, loose, slender peduncles; the petals are purple, obovate, the length of the stamens; the spathe has a very long awl-shaped point‡. Native of Italy, Austria, Switzerland, Carniola, Siberia, and the Levant. Introduced in 1780, by Sign. Giov. Fabroni§. Gerard joins this with the foregoing.

23. Head close, with acuminate recurved bulbs; corollas small, violet; stamens with two long bristles, standing out of the flower||. Root of many bulbs, different in size, united into one; stem two feet high; spathe long, narrow. Head of one or two globes, frequently germinating or crinite; between the bulbs, peduncles coming out late and bearing flowers; petals in two ranks, gibbous at the base, greenish or white, with a purple line, and red at the end; the capsule does not ripen¶. Stem covered below with the sheaths of the leaves, which are smooth, hollow, slender, and very long; spathe one-leaved, broad at the base, ending in an awl-shaped point, about an inch long, scored with green lines. Bulbs numerous, white**. A native of Germany, Switzerland, Italy, &c. With us it is frequent in pastures, and communicates its rank taste to the milk and butter. In other countries it grows also among the corn, and in vineyards.

24. Bulb solid. Stem two or three feet high, upright, or only a little bent towards the top, smooth, not streaked, solid. Between the bulbs in the head, come out many filiform peduncles, each sustaining one nodding flower. Very minute white dots scarcely visible to the naked eye, are scattered over the whole plant††. Root, according to Haller, a small, simple, slender bulb, sharp at the upper end: stem a foot and half, or more, in height; leaves fistulous; spathe two-leaved, with long horns, one longer: umbel few-flowered, and sometimes no flowers, but only bulbs sessile in a close globose head, at other times peduncles an inch long, bearing imperfect flowers or bulbs, or true bell-shaped flowers: outer petals more acute, with a green nerve, and a blush of purple; inner broader, more obtuse, whiter, the nerve not so prominent; the filaments grow longer as they ripen; capsule prismatic, with six prominences and as many furrows. Smell and taste of the bulbs not strong‡‡. Native of Sweden, Germany, Switzerland, Italy; and with us in Westmoreland, and Yorkshire; near Bristol; and in Essex, near Notley, among corn.

25. Bulb globose, solitary, tunicated, size of a small hazel nut. Stem round, a foot and half high, slender, leafy. Leaves semicylindrical-subulate, shorter than the stem, alternate; sheath pale, streaked with prominent purple lines. Spathe two-leaved, half the length of the umbel, valves flat, acuminate. Umbel many-flowered, rounded, capsule-bearing, interspersed with some abortive flowers. Peduncles growing thicker towards the top, very long, purple, petals ovate-lanceolate, equal, the keel deeper coloured. Stamens equal to the corolla, filaments subulate, purple, anthers brown. Style very short. Capsule three-cornered§§.

26. It varies so much in different ages and soils as scarcely to be known. The cusps of the stamens are obliterated in old plants|||. Native of Siberia: and introduced in 1785, by William Pitcairn, M. D.¶¶.

27. Size nearly of n. 40. Stem almost naked, about seven inches high or more; spathe membranaceous; flowers less than those of n. 40. petals erect, ovate-lanceolate, blue with a dark keel;

* Reichard.

§ Linneus.

** Bauh. prodr.

† Allion.

|| Hort. kew.

†† Linneus.

‡ Hort. kew.

¶ Allion.

‡‡ Hort. kew.

* Linneus.

§ Hort. kew.

** Woodw. in With.

§§ Murray in Comment. Gott 32.

¶¶ Hort. kew.

† Hort. kew.

|| Linneus.

†† Linneus.

‡ Linneus.

¶ Haller.

‡‡ Haller.

||| Linneus.

stamens the length of the petals, alternately broader, with trifid tops; anthers yellow; style with an obtuse stigma*. Hasselquist found the Eschallotte native in Palestine, and it was cultivated here in 1633†.

28. Petals erect, standing wide from each other, channelled, inflex. Leaves oblique; stamens a little longer than the corolla‡. Haller and Scopoli join it with n. 31, but Linneus affirms that they are certainly distinct. Native of Siberia, the Alps, Silesia, and the island of Sicily. Cultivated in 1596, by Gerard§.

29. Sheath short, with rudiments of membranes between all the peduncles, which are many, erect, longer than the flowers. Corollas white, sweet-smelling; petals ovate-oblong, rather acute, from erectish spreading, with a reddish keel. Stamens simple, half the length of the corolla. Germ ash-coloured, dotted with holes: style white||. Leaves connate at the base into a bunch, scarcely fleshy, by no means rough. Scape a foot high, round or with one obscure angle, erect. Native of the south of Europe, China, Japan, &c.

30. Native of Carolina. Introduced in 1776, by the Dutchess Dowager of Portland. It flowers in march and april¶.

31. Leaves sometimes scarcely angular beneath; but the scape a little angular, and streaked above; inner petals spreading at top, all converging on the sides**. Allioni can scarcely find any certain difference between the twenty-eighth and this, which is found in meadows, whereas that grows on rocks; the flowers also are larger, the plant is higher, and the leaves are not flexuose. Native of Siberia, Italy, Austria, Switzerland, and Germany, in moist places.

32. Resembles n. 28, but is twice the size; has the leaves of Narcissus; flowers four times larger than in the *senescens*; petals white, ovate-oblong; stamens lanceolate, shorter than the corolla; spathe ovate, acuminate, divided almost to the base into two equal parts††. Native of Provence, Italy, Austria, and the neighbourhood of Algiers. Cultivated in 1759, by Mr. Miller‡‡.

33. Root perennial; leaves flat, smooth, straight, seven inches long; stem almost naked, cylindric, smooth, scarcely longer than the leaves; spathe ovate, pointed, sharpish. Flowers few, pedicelled, whitish; petals oval; filaments simple, the length of the corolla, with brownish red anthers§§. Native of North America.

34. Bulbs in bunches united by smooth coats; root-leaves usually two, an inch in breadth; stem a foot high, and leafy; spathe short, bifid, deciduous: flowers from twelve to twenty in the umbel; corolla white; stamens from the base of the petals; one seed in a cell. Smell and taste very acrid|||. Native of Sweden, Denmark, Germany, Switzerland, Italy, in woods and moist shady places; and with us in England not uncommon.

35. Leaves resembling those of the bur-reed, very much keeled; scape erect, shorter than the leaves; scape lanceolate, bivalve, umbel length of the spathe; petals lanceolate, acuminate, white, with a green keel; stamens and pistil half the length of the petals, anthers yellow; stigma acute¶¶. Native of Italy and Spain. Cultivated in 1768, by Mr. Miller***.]

36. The common Onion is too well known, by its fistular leaves and swelling stalks, to need a particular description. [The latin name *Cepa* is derived from *Caput* a head, on account of the form of its bulb; for the same reason, the Greeks called it *κρομμύον*. Others derive it from *γὰλον* *Æolice* *γὰλον*, or from *γὰλον* and *γὰλον* *Æolice* for *γὰλον*. Our English and the French names are from the latin *Unio*; because the bulb never throws out any offsets.] The varieties of the common Onion are,

The Straiburgh, or common Oval.

* Linneus. † Hort. kew. from Ger. emac. ‡ Linneus.
§ Hort. kew. || Linneus. ¶ Hort. kew.
** Linneus. †† Ibid. ‡‡ Hort. kew. §§ Linneus.
||| Haller and Scopoli. ¶¶ Linneus. *** Hort. kew.

The Spanish, silver skinned, and red-skinned.
The Portugal great Oval Onion: and
The Tripoli.

All these vary from seeds, and there are several intermediate differences which are not worth enumerating.

[The virtues of this genus are considerable. *A. Cepa* or Common Onion has been considered as of an alexipharmic quality, and has been prescribed in malignant and epidemical distempers. They are very diuretic and powerful in cleansing, and breaking away any obstructions in the urinary passages. They are likewise very efficacious in all infarctions of the lungs, greatly promoting expectoration, and relieving Asthma and difficulty of breathing. Externally they are employed in cataplasms for suppurating hard tumours.

A. sativum or Garlick is still more powerful than onions. As it is very heating and penetrating, it should not be used too freely, being apt to cause head-ach and other inconveniencies. A clove or two of Garlick pounded with honey, and taken two or three nights together, is good in rheumatic cases. A quart of water, poured boiling hot upon a pound of the fresh root, cut into slices, and suffered to stand upon it in a close vessel, for twelve hours, becomes strongly impregnated with the smell and taste of the garlick. This infusion, with a proper quantity of sugar, makes the syrup of garlick of the shops. Vinegar and honey excellently coincide with and improve this medicine, as a detergent and deobstruent, in disorders of the breast: a composition of this kind is prepared by infusing an ounce and half of the fresh root in half a pint of vinegar, and dissolving in the strained liquor, by the heat of a water-bath, ten ounces of clarified honey: to cover in some degree the ill smell of the garlick, a little carraway and sweet-fennel seed, bruised, two drachms of each, are boiled for a short time in the vinegar, before the garlick is put in. The garlick itself is never to be boiled; its essential oil (in which its virtue consists) exhaling during that process.

37. The three outer petals spreading, the inner ones erect*.] This was formerly preserved in gardens for the sake of its yellow flowers, but having a very strong garlick scent, most people have rooted it out. [Native of Hungary, on Monte Baldo, about Montpellier, and on the Pyrenees. Cultivated in 1604, by Edward Lord Zouch†.

38. Native of North America. Introduced in 1770, by Mr. William Young‡.

39. Ciboule or Welsh Onion is perennial, and does not form bulbs like the common Onion; it was cultivated in 1629§.

40. Bulbs long, flat, oval, connected by rectilinear planes; scapes fistulous, eight inches or a foot high; leaves fistulous; spathe short, two-leaved, white, ovate with purple lines; a few large flowers in the umbel, these are erect, cylindrical, with petals acutely lanceolate, shining, faint purple with a darker line, in two ranks, joined at the base; stamens from the origin of the petals, with broad bottoms connected with the petals and each other; capsule conical, obtuse. Smell very strong||. There is a variety of this found in Siberia, &c. figured by Gmelin, (sibir. i. t. 15. f. 1.) and Buxbaum, (cent. 4. t. 45.) described by Murray in the new Gottingen Comment. 6. p. 33, and figured in t. 4. In the common Cives the leaves are straight; in this they are reflected at the ends; in that the form of the umbel can scarcely be called pyramidal, as it is in this. The scape however of both is clothed with the sheath of the leaves, so that it cannot be said that it is truly naked¶. Native of Italy, Switzerland, Sweden and Siberia. Cultivated in 1597**.

41. Leaves a little channelled, by no means angular; scape longer than the leaves: umbel level-

* Linneus. † Hort. kew. from Lobel. ‡ Hort. kew.
§ Hort. kew. from Parkinson. || Haller.
¶ Reich. from Murray. ** Hort. kew. from Gerard.

topped; sheath small, ovate, scariose; petals sharp, white with a greenish keel; stamens shorter than the corolla; germ ash-coloured, stigma simple. This and the next are natives of Siberia. Introduced in 1777 by Chevalier Murray**.

42. Leaves hollow, swelling, somewhat glaucous, radical, embracing. Scape from a palm to a long span in height, very slender. Spathe one-leaved, much pointed. Flowers 6—8, on slender peduncles, about half an inch in length, pale red and short, almost closed; petals thick, with a darker line along the outside. Filaments light purple. It is much eaten by the field mice, and they lay up the roots for their winter food††.

43. Bulb the size of a hazel nut. Leaves four or five, grassy, not exceeding a foot in length. Flowers from seven to ten, white with the outside purplish or greenish: when these are passed, the stem with the seeds bends towards the ground. Native of Italy; flowering in January‡‡.

44. Leaves like those of the Narcissus, a foot in length. Scape three feet high, slender. Petals erect, white, the claws uniting below with the stamens and forming a green tube. Perhaps of a distinct genus. A native of Jamaica. Introduced in 1787, by Hinton East, Esq. and flowering in bruary*.

45. Bulb roundish, small, slightly streaked. Leaves one or two, scarcely sheathing the base of the scape, smooth and even, plaited, commonly higher than the scape, bright green. Scape from a foot to two feet high, with a plane surface between the angles, frequently streaked: the end of it constantly nods before the flower, expand. Umbel thin, equal, consisting of from twelve to twenty flowers, frequently nodding. Spathe single, subovate, dry, permanent. Corollas white, spreading. Stamens shorter than the corolla. It is cultivated in the gardens near Naples, and begins to grow spontaneously about the city. It flowers in March†.]

PROPAGATION, CULTURE, &c.

Garlick and Rocambole, &c. n. 12, 13, &c.

Garlick is easily propagated by planting the cloves or small bulbs of the root in the spring, with a dibber or in drills, in beds four feet wide, in rows six inches from each other, and four or five inches distant in the rows; keeping them clean from weeds. About the beginning of June, the leaves should be tied in knots, to prevent their spindling or running to seed, which will greatly enlarge the bulb. Towards the end of July the leaves will begin to wither and decay, when the roots should be taken up, cleaned and dried in the sun, tied in bunches and hung up in a dry room, to prevent their rotting, and thus preserved for winter use.

Rocambole may be propagated either by the roots, or the bulbs produced on the stalks: they should be planted in autumn, especially on dry ground, otherwise their bulbs will not be large. They are to be planted and prepared for use in the same manner as garlick.

All the flowering sorts are very hardy, and will thrive in almost any soil and situation; they are easily propagated either by their roots, or seeds; if from the roots, the best time is in autumn, that they may take good root in the ground before the spring, which is necessary, in order to have them flower strong the following summer. If by seeds, they may be sown on a border of common earth, either in autumn, soon after the seeds are ripe, or in the spring following; and will require no farther care, but to keep them clear from weeds: in the following autumn, they may be transplanted into the borders where they are to remain. They flower in May, June, and July.

[Species the fifth, sixth, seventh, tenth, sixteenth, eighteenth, twentieth, twenty-eighth, thirty-first, and thirty-seventh are the best known in the gar-

dens, but lately have been little cultivated; most of them are from twelve to eighteen inches in height, and continue a month in flower: the fifth and seventh are from two feet to a yard high, and produce large specious umbels.] The Yellow Moly (n. 37.) has some beauty in the flowers, and deserves a place in borders where few better things will thrive: it increases plentifully both by roots and seeds.

Leek, n. 2.

Of the Leek there has been generally supposed two sorts, but I have made trial of them both, by sowing their seeds several times, and find they are the same; the difference which has risen between them, has been occasioned by some persons having saved the seeds from old roots, and not from the seedling Leeks, whereby they have degenerated them, and rendered them smaller and narrower leaved; but by care this may be recovered again, as I have experienced.

Leeks are cultivated by sowing their seeds in the spring, in the same manner as is directed below for Onions, with which these are commonly sown, the two sorts of seeds being mixed according to the proportion which is desired of either sort; though the most common method is, to mix an equal quantity of both, for the Onions will greatly out-grow the Leeks in the spring; but these being drawn off early in August, the Leeks will have time to grow large afterwards, so that there may be a moderate crop of both sorts.

The management of Leeks being exactly the same with Onions, I shall not repeat it; but shall only add, that many persons sow their Leeks very thick in beds in the spring; and in June, after some of their early crops are taken off, they dig up the ground, and plant their Leeks out thereon, in rows a foot apart, and six inches asunder in the rows, observing to water them until they have taken root; after which they will require no farther culture, but to clear the ground from weeds. The Leeks thus planted will grow to a large size, provided the ground be good.

If you would save the seeds of this plant, you should make choice of some of the largest and best Leeks you have, which must remain in the place where they grew until February, when they should be transplanted in a row against a warm hedge, paling or wall, at about eight inches asunder; and when their stems advance, which will be in May or June, they should be supported by a string, to prevent their being broken down, to which they are very liable, especially when in head; and the closer they are drawn to the fence in autumn, the better the seeds will ripen; for it sometimes happens in cold summers or autumns, that those which grow in the open garden, do not perfect their seeds in this country, especially if there should be sharp frosts early in autumn, which will entirely spoil the seed.

When it is ripe (which may be known by the heads changing brown) you should cut off their heads with about a foot or more of the stalk to each, and tie them in bundles, three or four heads in each, and hang them up in a dry place, where they may remain until Christmas or after, when you may thresh out the seeds for use. The husk is very tough, which renders it very difficult to get out the seeds; therefore some persons who have but a small quantity, rub it hard against a rough tile, which will break the husks, and get the seeds out better than most other methods I have known used.

Onion, n. 36.

Is propagated by seeds, which should be sown at the latter end of February or the beginning of March, on good, rich, light ground, which should be well dug and levelled, and cleared from the roots of all bad weeds; then the seeds should be sown in a dry time, when the surface of the ground is not moist; and where they are intended for a winter crop, they must not be sown too thick. [In cold wet land it is better to defer sowing till the middle of March; and in very moist rich soils it may be done any

time

§ Linn. ** Hort. Kew. †† Gmelin. ‡‡ Columna.
* Hort. Kew. † Cyrillo.

time before the middle of april. But the early sown crops bulb or apple best, and grow to the largest size.] The common allowance of seed is six pounds to an acre of land; or an ounce to a rod or pole. But the generality of gardeners sow more, because many of them allow for a crop to draw out, which they call cullings; these are thinned out when young, and tied in bunches for the market; but those who have regard to their principal crop, never practise this; but sow no more seed than is sufficient, for when the plants come up too close, they draw each other weak; and when this happens, their roots never grow so large as those which are thin sowed; besides, there is a great trouble in hoeing them; and when they are thinned for the market, the ground is trodden over, and the Onions which are to stand have their leaves bruised, whereby they are greatly injured; so that where young Onions are wanted, it is a much better way to sow some separate beds for this purpose, than to injure the future crop.

[It is a common practice to mix other crops with the Onion; but this is an obstruction to the main crop, without any great advantage; it is better therefore not to sow any thing with it, unless perhaps a little Cos Lettuce.]

In about six or seven weeks after sowing, the Onions will be up forward enough to hoe; at which time (choosing dry weather) you should, with a small hoe about two inches and a half broad, cut up lightly all the weeds; and also cut out the Onions where they grow too close in bunches, leaving them at this first hoeing at least two inches apart. This, if well performed, and in a dry season, will preserve the ground clear of weeds at least a month or five weeks; when you must hoe them over a second time, cutting up all the weeds as before, and also cut out the Onions to a larger distance, leaving them this time three or four inches asunder. This also, if well performed, will preserve the ground clean a month or six weeks longer, when you must hoe them over the third and last time.

Now you must carefully cut up all weeds, and single out the Onions to near six inches square; by which means they will grow much larger, than if left too close. This time of hoeing, if the weather proves dry and it is well performed, will keep the ground clean until the Onions are fit to pull up; but if the weather should prove moist, and any of the weeds should take root again, you should, about a fortnight or three weeks after, go over the ground and draw out all the large weeds with your hands; for the Onions having now begun to bulb, they should not be disturbed with a hoe.

Toward the middle of august your Onions will have arrived at their full growth, which may be known by their blades falling to the ground and shrinking; you should therefore, before their necks or blades are withered off, draw them out of the ground, cropping off the extreme part of the blade, and lay them abroad upon a dry spot of ground, observing to turn them over every other day at least, to prevent their striking fresh root; which they will suddenly do, especially in moist weather.

In about a fortnight's time your Onions will be dry enough to house, which must be performed in perfectly dry weather; in doing of this, you must carefully rub off all the earth from the roots, and be sure to mix no faulty ones amongst them, which will in a short time decay, and spoil all those that lie near them; nor should you lay them too thick in the house, which would occasion their sweating, and thereby rot them; nor should they be put in a lower room, or ground floor, but in a loft or garret; and the closer they are kept from the air, the better they will keep. You should, at least, once a month, look over them to see if any of them are decayed; these must be immediately taken away, otherwise they will infect all that lie near them.

But notwithstanding all the care you can possibly take in the drying and housing your Onions,

many of them will grow in the loft, especially in mild winters, which are generally moist; therefore those who would preserve them late in the season, should select a parcel of the firmest and most likely to keep, from the others, and with a hot iron slightly singe their beards, or roots, which will effectually prevent their sprouting; but in doing this there must be a great caution used not to scorch the pulp of the Onions, for that will cause them to perish soon after.

The best Onions for keeping are the Strasburgh kind, which is an oval-shaped bulb; but this seldom grows so large as the Spanish, which is flatter; the white sort is esteemed the sweetest; but these varieties are not lasting; for if you save seeds of white Onions only, you will have a mixture of the red ones amongst them: nor will the Strasburgh Onion keep long to its kind, but will by degrees grow flatter, as do the large Portugal and Tripoli Onions, when planted in our climate, which in a year or two will be so far degenerated, as not to be known they were from that race.

[It is of great importance to have fresh seed, for if it is above a year old, not one plant in fifty will grow. This is an objection against foreign seed, which cannot be depended upon: it is necessary however to import it sometimes, for it degenerates in our climate. The goodness of the seed may easily be tried, by forcing it in the hot-house or in warm water.]

In order to save seeds at home, you must in the spring make choice of some of the firmest, largest, and best-shaped Onions (in quantity proportionable to the seed you intend to save;) and having prepared a piece of good ground (which should be well dug, and laid out in beds about three feet wide,) in the beginning or middle of march you must plant your Onions in the following manner. Having strained a line about four inches within the side of the bed, you must, with a spade, throw out an opening about six inches deep, the length of the bed, into which you should put the Onions, at about nine inches distance from each other; with a rake draw the earth into the opening again to cover the bulbs; then proceed to remove the line again about a foot farther back, where you must make an opening as before, and so again till the whole is finished; so that you will have four rows in each bed, between which you must allow a space of two feet for an alley, to go among them to clear them from weeds, &c. In a month's time their leaves will appear above ground, and many of the roots will produce three or four stalks each; you must therefore keep them diligently cleared from weeds, and about the beginning of june, when the heads of the flowers begin to appear, you must provide a parcel of stakes about four feet long, which should be driven into the ground, in the rows of Onions, at about six or eight feet apart; to which you should fasten some packthread, rope yarn, or small cord, which should be run on each side the stems of the Onions, a little below their heads, to support them from breaking down with the wind and rain; for when the seeds are formed, the heads will be heavy, and are very often broken down by their own weight, where they are not well secured; and if the stalks are broken before the seeds have arrived to maturity, they will not be near so good, nor keep so long as those which are perfectly ripened.

About the end of august the Onion seed will be ripe, which may be known by its changing brown, and the cells in which the seeds are contained opening; so that if it be not cut in a short time, the seeds will fall to the ground: when you cut off the heads, they should be spread abroad upon coarse cloths in the sun, observing to keep them under shelter in the night, as also in wet weather; and when the heads are quite dry, you must beat out the seeds, which are very easily discharged from their cells: then having cleared them from all the husks, &c. after having exposed them one day to the sun

to dry, you must put them up in bags to preserve them for use.

The directions here given are for the general crop of winter Onions; but there are two other crops of this common sort of Onion, cultivated in the gardens about London to supply the market one of which is commonly called Michaelmas Onion. These are sown in beds pretty close, the middle of august, and must be well weeded when they come up. In the spring of the year, after the winter Onions are over, they are tied up in bunches; but from the thinning of these, they carry to market young green Onions in march, for salads, &c.

And in the spring they sow more beds in the same manner, to draw up young Onions for salads, after the Michaelmas Onions are grown too large for that purpose; and where a supply of these is required, there may be three different sowings, at about three weeks distance from each other, which will be sufficient for the season.

[To have Onions for pickling, some seed should be sown late in light poor land: the middle of april is the proper time. Sow it pretty thick, and do not thin it, unless when it rises in clusters. The bulbs will be fit to take up in august.]

Scallion.

The Scallion, or Escallion, is a sort of Onion which never forms any bulbs at the roots, and is chiefly used in the spring for green Onions, before the other sorts, sown in july, are big enough; but this sort of Onion, how much soever in use formerly, is now so scarce as to be known to few people, and is rarely to be met with, except in curious botanic gardens: the gardeners near London substitute for this, those Onions which decay and sprout in the house: these they plant in a bed early in the spring, which in a short time will grow large enough for use; when they draw them up, and after pulling off all the outer coat of the root, they tie them up in bunches, and sell them in the market for Scallions.

The true Scallion is easily propagated by parting the roots, either in spring or autumn; but the latter season is preferable, because of their being rendered more fit for use in the spring: these roots should be planted three or four in a hole, at about six inches distance every way, in beds or borders three feet wide, which in a short time will multiply exceedingly, and will grow upon almost any soil and in any situation; and their being so hardy as to resist the severest of our winters, and being green, and fit for use so early in the spring, renders them worthy of a place in all good kitchen-gardens.

Cives, n. 40.

The Cives are a very small sort of Onion, which never produce any bulbs, and seldom grow above six inches high in the blade, which is also very small and slender, and in round bunches; this was formerly in great request for salads in the spring, as being milder than those Onions which had stood through the winter; these are propagated by parting their roots, and are also very hardy, and will be fit for use early in the spring.

Ciboule, n. 39.

The Ciboule, or Welch Onions, are also propagated for spring use only, these never make any bulb, and are therefore only fit to be used green for salads, &c. They are sown about the end of july, in beds of about three feet and a half wide, leaving alleys of two feet broad, to go between the beds to clean them, and in a fortnight's time they will appear above ground, when they must be carefully cleared from weeds; towards the middle of october their blades will die away, so that the whole spot will seem to be naked, which has led many people to dig up the ground again, supposing the crop totally lost; whereas, if they stand undisturbed, they will come up again very strong in january, and from that time grow very vigorously, resisting all weathers; and by march will be fit to draw for young Onions, and are, in the markets, more valued than

any other sort at that season; for they are extremely green and fine, though they are much stronger than the common Onion in taste, approaching nearer to Garlick, which has occasioned their being less esteemed for the table: but as no winter, however hard, will hurt them, it is proper to have a few of them to supply the table, in case the common sort should be destroyed by frosts.

The roots of these Onions, if planted out at six or eight inches distance, in march, will produce ripe seeds in autumn, but it will be in small quantities the first year; therefore the same roots should remain unremoved, which the second and third year will produce many stems, and afford a good supply of seeds; these roots will abide many years good, but should be transplanted and parted every second or third year, which will cause them to produce strong seeds.

n. 27.

[The *Eschalotte*, Chalott, or Shallot, is propagated by the smaller roots or off-sets, planted in november or february, on beds four feet wide, six inches from each other, and two or three deep. They want no culture but to keep them clean from weeds. The end of july or beginning of august, the roots will have attained their full growth; but the time of taking them up is best determined by the withering of the leaves: this should be done in a dry day. Spread them in the sun, and when dry, clean and tie them in bunches for use.]

ALLIUM. See *Hyacinthus*, *Hypoxis*, *Tradescantia*.

[ALLOPHYLUS. (From *ἄλλοφυλος*. alienigenus, foreign.)

Lin. gen. n. 476. Reich. 511. Schreb. 643. Juss. 259.

Class. 8. 1. Octandria Monogynia.

Nat. order of *Guttifera* Juss.

GENERIC CHARACTER.

CAL. Perianth four-leaved; leaflets orbiculate; two exterior, opposite, smaller by half.

COR. of four petals, less than the calyx, orbiculate, equal: claws broad, length of the two smaller leaves of the calyx.

STAM. Filaments filiform, the length of the corolla: anthers roundish.

PIST. Germ superior, roundish, twin; style filiform, longer than the stamens; stigma bifid, with the divisions rolled back.—quadrifid. Syst.

OBS. The flowers of *Rhus Cominia* and Cobbe agree with the character of this genus: and Aporetica of Forster should be referred to it. Swartz.

ESSENTIAL CHARACTER.

Cal. four-leaved; leaflets orbiculate, two opposite smaller. Pet. four, less than the calyx. Germ twin. Stigma quadrifid.

SPECIES.

1. *Allophylus zeylanicus*.

Lin. spec. 496. Reich. 2. 155. fl. zeyl. 140.

Leaves oval acuminate quite entire; racemes axillary very short.

2. *Allophylus rigidus*.

Swartz. prodr. 62.

Leaves simple, toothletted and spiny; flowers in racemes.

3. *Allophylus racemosus*.

Swartz prodr. 62.

Leaves ternate, flowers in racemes.

4. *Allophylus Cominia*.

Swartz. prodr. 62.

Rhus Cominia. Lin. spec. 381. Reich. 1. 730.

amen. 5. 395. Sloan. jam. 2. 100. n. 28. t. 208.

f. 1. Raii hist. 1593. Rheed. mal. 5. 49. t. 25.]

Cominia. Brown. jam. 205.]

Toxicodendron arboreum Mill. dict. n. 8.

[Leaves ternate, flowers in panicles.]

5. *Allophylus ternatus*.

Loureiro cochinch. 232.

Leaves ternate serrate, racemes long terminating.

DESCRIPTIONS, &c.

1. A tree, having the appearance of *Persea*. Branches round. Leaves acuminate, about seven inches long, smooth, veined, alternate, petioled. Flowers

Flowers in small racemes. Native of the island of Ceylon *

2, 3. Natives of Hispaniola †.

4. Stem the thickness of the human thigh, rising thirty feet in height, with a smooth ash-coloured bark. Petioles two inches long, russet-coloured and hairy. Leaflets four inches and a half long, two inches broad in the middle, dark green above, and woolly underneath. Flowers very numerous, whitish yellow, small, set very close to one another, round a stalk an inch and half long, like an ament or catkin: there are three or four of these spikes, and several of them come from the ends of the twigs. To these succeed small, orange-coloured, smooth berries, the size of a small pin's-head, having a single stone in them, with a thin, brittle shell, and a large kernel in proportion to the fruit. It grows plentifully in Jamaica ‡: and was introduced here in 1778, by Thomas Clark, M. D. §.

The leaves in Sloane's figure are scarcely serrate, but they are very much so in that of the Hortus Malabaricus.

5. This is only a shrub, five feet in height, with spreading branches. Leaves unequally serrate, large with a long common petiole. Flowers small, white, with hairy petals, and a nectary of four glands. Style bifid. It is a native of Cochinchina, by the banks of rivers. The inhabitants use the leaves as a cataplasm in contusions ||.]

[ALL-SEED. See *Linum* and *Chenopodium*.

ALL-SPICE. See *Myrtus*.

ALMOND, African. See *Brabeium*.

———— Dwarf } See *Amygdalus*.
———— Tree }

ALNI EFFIGIE. See *Cratægus* and *Mespilus*.

ALNIFOLIA. See *Clethra*.

ALNI FRUCTU. See *Conocarpus*, and *Theobroma*.

ALNUS. See *Betula*, and *Conocarpus*.

———— nigra. See *Rhamnus*.]

ALOE. (*Alon* Dioscor. *Aloe* Plin. Derivation uncertain; perhaps from the Hebrew *Abaloith*; or from *αλς*, the sea, or *ab adolendo*.)

Lin. gen. n. 430. Reich. 4654. Schreb. 581.

Tournef. 190. Juss. 52. Gært. 17.

Class. 6. 1. Hexandria Monogynia.

Nat. order of *Lilia* or *Liliaceæ*. *Coronariæ* Lin. *Asphodeli* Juss.

GENERIC CHARACTER.

CAL. none.

COR. one-petalled, erect, sexfid, oblong: tube gibbous; border spreading, small; nectareous at bottom.

STAM. Filaments awl-shaped, as long as the corolla or longer, inserted into the receptacle: anthers oblong, incumbent.

PIST. Germ ovate; style simple, the length of the stamens; stigma obtuse, trifid.

PER. an oblong Capsule, three-furrowed, three-celled, and three-valved.

SEEDS several, angular.

ESSENTIAL CHARACTER.

Cor. erect, with an expanded mouth, and a nectareous base. Filaments inserted into the receptacle.

SPECIES.

[1. *Aloe dichotoma*. Smooth-stem'd Tree Aloe.

Lin. suppl. 206. syst. 338. Thunb. Aloe, n. 1.

Ait. hort. kew. 1. 466.

Branches dichotomous, leaves sword-shaped, serrate.

2. *Aloe perfoliata*. Perfoliate Aloe.

Lin. spec. 457. syst. 337. Reich. 2. 84. mat.

med. 95. Ait. hort. kew. 1. 466.

Stem-leaves toothed embracing sheathing, flowers in corymbs drooping peduncled subcylindrical.]

VARIETIES.

α. *Aloe arborescens*. Narrow-leaved Sword Aloe.

Mill. dict. n. 3. Lin. spec. 1. n. Comm.

hort. 2. 27. t. 14.

Leaves embracing reflex toothed, flowers cylindrical, stem shrubby.

* Linneus. † Swartz. ‡ Sloane. § Hort. kew. || Loureiro.

β. *Aloe africana*. Broad-leaved Sword Aloe.

Mill. dict. n. 4. Lin. spec. 1. β. Comm. præl. 69. t. 18.

Leaves broader embracing, thorny on the edge and back, flowers in spikes, stem shrubby.

γ. *Aloe barbadensis*. Barbadoes Aloe.

Mill. dict. n. 2.

Leaves toothed upright succulent subulate, flowers yellow hanging down in a thyse.

δ. *Aloe succotrina*. Succotrine Aloe.

A. vera. Mill. dict. n. 15.

Leaves very long and narrow, thorny at the edge, flowers in spikes.

[ε. *Aloe purpurascens*. White-spined glaucous Aloe. Leaves purplish beneath, with small roundish spots at bottom.]

ζ. *Aloe glauca*. Red-spined glaucous Aloe.

Mill. dict. n. 16. Comm. præl. 71. t. 21.

Stem short, leaves embracing standing two ways, spines on the edges erect, flowers growing in a head.

[η. *Aloe lineata*. Red-spined striped Aloe.]

θ. *Aloe ferox*. Great Hedge-hog Aloe.

Mill. dict. n. 22.

Leaves embracing, very dark green, beset with spines on every side.

ι. *Aloe saponaria*. Great Soap Aloe.

Dill. elth. 18. t. 15. f. 16. Mill. dict. n. 5.

κ. *Aloe obscura*. Common Soap Aloe.

Mill. dict. n. 6.

Leaves broader spotted thorny at the edge, flowers in spikes.

[λ. *Aloe ferrulata*. Hollow-leaved perfoliate Aloe.

Leaves spotted finely serrate at the edge and the tip of the keel.

μ. *Aloe suberecta*. Upright perfoliate Aloe.

Leaves flat almost upright, thorny at the edge, and on the lower surface.]

ν. *Aloe depressa*. Short-leaved perfoliate Aloe.

Mill. dict. n. 8.

Leaves embracing, thorny on both sides; flowers in spikes.

ξ. *Aloe humilis*. Dwarf Hedge-hog Aloe.

Lin. hort. cliff. 131. 4. Mill. dict. n. 10.

Leaves upright subulate radicate, with weak spines all round.

ο. *Aloe mitræformis*. Great Mitre Aloe.

Mill. dict. n. 1. Dill. elth. 21. t. 17. f. 19.

π. *Aloe brevifolia*. Small Mitre Aloe.

3. *Aloe arachnoides*. Cobweb Aloe.

Thunb. Aloe, n. 7. Ait. hort. kew. 1. 467.

A. pumila δ, ε. *Lin. spec. 460. Reich. 2. 88.*

Stemless, leaves three-cornered cusped ciliate; flowers in a sort of spike, upright cylindrical.

α. *A. arachn. communis*. Common Cobweb Aloe.

Mill. dict. n. 17. Comm. præl. 78. t. 27.

Leaves short plane fleshy triangular at the end, the borders set with soft spines.

β. *A. arachn. pumila*. Small Cobweb Aloe.

A. herbacea. Mill. dict. n. 18. Boerb. lugdb. 2. 131. fig.

Leaves ovate-lanceolate fleshy triangular at the end, with numerous soft spines.

4. *Aloe margaritifera*. Pearl Aloe.

Thunb. Aloe, n. 8. Ait. hort. kew. 1. 468.

Gært. fruct. 1. 67.

A. pumila α, β, γ. *Lin. spec. 460. Reich. 2. 88.*

Stemless, leaves three-cornered cusped papillose; flowers in racemes drooping cylindrical.

α. *A. marg. major*. Great Pearl Aloe.

Mill. dict. n. 14. Bradl. succ. 3. 1. t. 21. Comm. hort. 2. t. 10.

β. *A. marg. minor*. Great Pearl Aloe.

Dill. elth. 19. t. 16. f. 17. Comm. hort. 2. t. 11.

γ. *A. marg. minima*. Least Pearl Aloe.

Dill. elth. 20. t. 16. f. 18.

5. *Aloe verrucosa*. Warted or Pearl-tongue Aloe.

Mill. dict. n. 20. Thunb. Aloe, n. 9. Ait. hort. kew. 1. 468.

A. disticha β. *Lin. spec. 459. Comm. hort. 2. 17. t. 9.*

Stemless, leaves sword-shaped sharp papillose distich, flowers in racemes reflex club-shaped.

6. *Aloe carinata*. *Keel-leaved Aloe*.
Mill. dict. n. 21. fig. t. 19. Ait. hort. kew. 1. 469.
Dill. elth. 22. t. 18. f. 20.
A. disticha γ. *Lin. spec. 459.*
Stemless, leaves acinaciform papillose, flowers in racemes drooping curved.
7. *Aloe maculata*. *Spotted Aloe*.
Thunb. Aloe, n. 10. Ait. hort. kew. 1. 469.
 α. *A. mac. pulchra*. *Narrow-leaved Spotted Aloe.*
Mill. fig. 195. t. 292.
Leaves sharp.
 β. *A. mac. obliqua*. *Broad-leaved Spotted Aloe.*
Leaves blunt with a point.
Almost stemless, leaves acinaciform smooth painted, flowers in racemes drooping curved.
8. *Aloe Lingua*. *Tongue Aloe*.
Thunb. Aloe, n. 11. Ait. hort. kew. 1. 469.
A. linguæformis. *Lin. suppl. 206.*
 α. *A. Lingua angustifolia*. *Common Tongue Aloe.*
A. linguiforme.
Mill. dict. n. 13.
A. disticha α. *Lin. spec. 459. Reich. 2. 86. Comm. hort. 2. 15. t. 8.*
Leaves narrower longer.
 β. *A. Lingua crassifolia*. *Thick-leaved Tongue Aloe.*
Leaves broader shorter.
Almost stemless, leaves tongue-shaped toothletted smooth distich, flowers in racemes upright cylindrical.
9. *Aloe plicatilis*. *Fan Aloe*.
Mill. dict. n. 7. Ait. hort. kew. 1. 470.
A. disticha ε. *plicatilis*. *Lin. spec. 459. Comm. hort. 2. t. 3.*
Kumara disticha. *Medic. Theodora. 70. t. 4.*
Almost stemless, leaves tongue-shaped even distich, flowers in racemes pendulous cylindrical.
10. *Aloe variegata*. *Partridge-breast Aloe*.
Lin. spec. 459. Reich. 2. 86. syst. 337. mant. 367.
Thunb. Aloe, n. 12. Ait. hort. kew. 1. 470.
Mill. dict. n. 9. Comm. præl. 79. t. 28. rar. t. 27. Tilli pisan. t. 7.
Almost stemless, leaves in three ranks painted channelled, angles cartilaginous, flowers in racemes, cylindrical.
11. *Aloe viscosa*. *Upright triangular Aloe*.
Lin. spec. 460. syst. 337. Reich. 2. 87. Thunb. Aloe, n. 13. Ait. hort. kew. 1. 470. Mill. dict. n. 11. Comm. præl. 82. t. 31. Dill. elth. 15. t. 13. f. 13.
Subcaulescent, leaves imbricate in three ranks ovate, flowers in racemes drooping cylindrical.
12. *Aloe spiralis*. *Spiral Aloe*.
Lin. spec. 459. syst. 337. Reich. 2. 87. Thunb. Aloe, n. 14. Ait. hort. kew. 1. 470. Mill. dict. n. 12. Comm. præl. 83. t. 32. Dill. elth. 16. t. 13. f. 14.
 α. *A. spir. imbricata*. *Imbricated Spiral Aloe.*
 β. *A. spir. pentagona*. *Five-sided Spiral Aloe.*
Subcaulescent, leaves imbricate in eight ranks ovate, flowers in racemes curved back.
13. *Aloe retusa*. *Cushion Aloe*.
Lin. spec. 459. syst. 337. Reich. 2. 87. Thunb. Aloe, n. 15. Ait. hort. kew. 1. 471. Gærtn. fruct. 1. 67. Mill. dict. n. 19. Comm. hort. 2. t. 6. Tilli pisan. t. 5.
Stemless, leaves in five ranks deltoid.
- [14. *Aloe spicata*. *Spiked Aloe*.
Lin. suppl. 205. syst. 338. Thunb. Aloe, n. 2.
Flowers in spikes horizontal bell-shaped, stem-leaves flat embracing toothed.

DESCRIPTIONS, &c.

Root perennial, stoloniferous. Stem none, or else formed from the bases of the leaves, round, generally single, seldom branched. Leaves succulent, embracing the stem; in some smooth and even, in others spotted or painted, in others warted; variously disposed. Scape or peduncle bracted, erect, frequently single, seldom branched. Native place of growth principally the Cape of Good Hope: all from hot climates*.

1. Trunk round, upright, very stiff, ash-coloured,

smooth, and of an extremely even surface, dichotomously branched at top, two fathoms in height, the thickness of a man's thigh. Branches dichotomous, upright; a foot and more in length, leafy at top. Leaves perfoliate, sword-shaped, toothletted, convex beneath, flat above, from spreading becoming upright, smooth, fleshy, a foot long, the upper ones gradually smaller. Native of the Cape of Good Hope†. Introduced in 1780, by Mr. William Forsyth||.]

2 α. Grows to the height of ten or twelve feet, with a strong naked stem, the leaves growing at the top, and closely embracing the stem; they are about two inches broad at the base, growing narrower to a point, and are reflex, and indented on their edges, each being armed with a strong crooked spine. The leaves are of a sea-green colour, and very succulent. The flowers grow in pyramidal spikes, and are of a bright red colour. These are in beauty in november and december.

β. Resembles the foregoing, but the leaves are broader, and have several spines on their backs towards their extremities; the flowers also grow in a looser spike.

γ. The leaves about four inches broad at their base, where they are near two inches thick; they have a few indentures on their edges: are of a sea-green colour, and when young are spotted with white. The flower-stem rises near three feet high, and the flowers stand in a slender loose spike, with very short peduncles, and hang downwards: they are of a bright yellow colour, and the stamens stand out beyond the tube. [The form of the flowers, and the manner of flowering, proclaim this to be but a variety of the second species, though the corolla seems less divided*.] This, though generally known in the shops by the name of Barbadoes Aloe, is very common in the other islands of America, where the plants are propagated on the poorest land, to obtain the Hepatic Aloes, which are brought to England, and used chiefly for horses.

[Preparation of Aloes in the island of Barbadoes.

In the month of march when the plants are a year old, the labourers carry a parcel of tubs and jars into the field, and each takes a slip, or breadth of it, and begins by laying hold of a bunch of the blades, as much as he can conveniently grasp with one hand, while with the other he cuts it just above the surface of the earth, as quickly as possible (that the juice may not be wasted) and then places the blades in the tub, bunch by bunch or handful by handful. When the first tub is thus packed quite full, a second is begun (each labourer having two) and, by the time the second is filled, all the juice is generally drained out of the blades in the first tub. The blades are then lightly taken out, and thrown over the land by way of manure, and the juice is poured out into a jar. The tub is then filled again with blades, and so, alternately, till the labourer has produced his jar full, or about four gallons and a half of juice, which is often done in six or seven hours, and he has then the remainder of the day to himself, it being his employer's interest to get each day's operation as quickly done as possible. Although Aloes are often cut in nine, ten, or twelve months after being planted, they are not in perfection till the second or third year: and they will be productive for a length of time, as ten or twelve years, or even for a much longer time, if good dung or manure of any kind, is strewed over the field once in three or four years, or oftner if convenient. The aloë-juice will keep for several weeks without injury. It is therefore not boiled, till a sufficient quantity is provided, to make it an object for the boiling-house. In the large way, three boilers, either of iron or copper, are placed to one fire, though some have but two, and the small planters only one. The boilers are filled with the juice, and as it ripens, or becomes more inspis-

* Thunberg, Aloe.

† Thunberg, Aloe. || Hort. Kew. * Linn.

fated, by a constant but regular fire; it is ladled forward from boiler to boiler, and fresh juice is added to that farthest from the fire, till the juice in that nearest the fire (by much the smallest of the three, and commonly called by the name of tatch as in the manufactory of sugar,) becomes of a proper consistency to be skipped, or ladled out into gourds, or other small vessels, used for its final reception. The proper time to skip, or ladle it out of the tatch is when it is arrived at what is termed a refin height, or when it cuts freely or in thin flakes, from the edges of a small wooden slice, that is dipped from time to time into the tatch for that purpose. A little lime water is used by some aloebailers, during the process, when the ebullition is too great. As to the sun-dried Aloes (which are most approved for medicinal purposes,) very little is made in Barbadoes. The process is however very simple, though extremely tedious. The raw juice is either put into bladders, left quite open at top, and suspended in the sun, or in broad shallow trays of wood, pewter, or tin, exposed also to the sun, every dry day, until all the fluid parts are exhaled, and a perfect refin formed, which is then packed up for use, or for exportation*.]

δ. This is the true Succotrine Aloe, from whence the best sort of Aloe for use in medicine is produced. It has long, narrow, succulent leaves, which come out without any order, and form large heads. The stalks grow three or four feet high, and have two, three, and sometimes four of these heads, branching out from it: the lower leaves spread out on every side, but the upper leaves turn inward toward the center; the flowers grow in long spikes, upon stalks about two feet high, each standing on a pretty long footstalk; they are of a bright red colour tipped with green: these generally appear in the winter season.

[The island of Zocotra or Socotora, in the straits of Babelmandel, having been formerly most famous for the preparation of the extract, that of the best quality has the name of Succotrine Aloe. It is of a yellowish brown colour, approaching to purple, and when reduced to powder is a sort of gold colour. The fourteenth species is reputed to produce the purest.]

The Hepatic Aloe from Barbadoes, is of different degrees of purity; it is a little darker than the Succotrine, and more bitter and nauseous.

Horfe Aloe is coarser, and the smell is more unpleasant.

These three sorts of this Gum-Refin, do not vary any otherwise than in the difference of their purity. A great quantity is made at the Cape of Good Hope from the second species, which our East-India ships bring home in their return.]

9. Rises to the height of eight or ten feet, with a strong stem; the leaves grow on the top, which closely embrace the stalk; these come out irregularly, and spread every way; they are near four inches broad at their base, and diminish gradually to the top, where they end in a spine. They are of a dark green colour, and closely beset with short thick spines on every side. This sort has not as yet flowered in England, nor does it put out suckers, so that it is difficult to increase.

ι. Seldom rises much above two feet high, the leaves are very broad at their base, where they closely embrace the stalk, and gradually decrease to a point: the edges are set with sharp spines, and the under leaves spread open horizontally every way; these are of a dark green colour, spotted with white, somewhat resembling the colour of soft soap. The flowers grow in umbels on the tops of the stalks, are of a beautiful red colour, and appear in august and september.

κ. Has broader leaves, of a lighter green; the edges and spines are copper-coloured, and the flowers grow in loose spikes.

ν. Is an humble plant, seldom rising more than a foot high: the leaves grow near the ground; they are broad at the base, where they embrace the stalk, and gradually diminish to a point; they are of a sea-green colour, with some white spots; their edges, and also their upper parts both below and above, are beset with pretty sharp spines: the flowers grow in loose spikes, the tubulous part being red, and the brim of a light green colour.

ξ. Hedge-hog Aloe is a very low plant, never rising into stem; the leaves are broad at their base, but taper to a point, where they are triangular; they are beset on their edges and both surfaces with soft spines, very closely, from whence this plant has the name of Hedge-hog Aloe. The flowers grow in a loose head, on the top of the stalk, which is very thick, but seldom a foot high: they are of a fine red colour below, but of a pale green above. [The flowers instruct us, that it belongs to this species, though it appears to be very different by its habit*.]

ο. Grows with an upright stalk, to the height of five or six feet; the leaves closely embrace the stalks, they are thick, succulent, of a dark green colour, and have spines on their edges, as also a few on their upper surface; they stand erect; and converging towards the top, form the resemblance of a mitre. The flower-stem rises about three feet high, the flowers come out at the top of it, in a sort of globular spike, which afterwards becomes cylindrical; these have long peduncles, which stand horizontally, and the flowers hang downwards; they are cut to the bottom into six unequal segments, three being alternately broader than the others. Three of the stamens are as long as the tube of the corolla, the other three are shorter. The tube is of a fine red colour, and the brim of a pale green.

3. α. Cobweb Aloe never rises from the ground, but the leaves spread flat on the surface; these are plain, succulent, and triangular towards the end: the borders and keel are closely set with soft white spines. The flower-stem rises about a foot high, is very slender, and has three, or four small distant herbaceous flowers.

β. Is also a small plant growing near the ground: The leaves are almost cylindrical towards their base, but angular near their ends, and are set with short soft spines at the angles: the leaves of this are shorter and of a darker green colour than those of the former, and the plants produce many suckers on every side. I have raised a variety of it from seed, which has shorter, whiter, and smoother leaves. [The flowers, which are the most certain marks of the species in this genus, join the Pearl to the Cobweb Aloe†.]

4. The Pearl Aloe is of humble growth; the leaves come out on every side without order near the ground; they are thick, triangular at their ends, and closely studded with white protuberances, whence the name. There is a smaller sort which has been long preserved in the English gardens. These flower in several seasons of the year.

5. Has long, narrow, tongue-shaped leaves, which are hollowed on their upper side, but keel-shaped below: these are closely studded on every side, with small white protuberances, from whence the plant has the title of Pearl-tongue Aloe. The flowers of this kind grow on pretty tall stalks, and form loose spikes, each hanging downward: they are of a beautiful red colour, tipped with green. This sort produces off-sets in plenty, and flowers at different seasons of the year.

6. Has broader and thicker leaves, spreading out every way, not so concave on their upper surface, nor are the protuberances so large as those of the foregoing; the flowers are of a paler colour, and the spikes are shorter. I have raised plants from the seeds of this, which have varied from the original, but none of them approached near the last.

* Lond. Med. journ. Vol. 8. art. 8. and Gent. mag. for 1778. p. 149.

* Linneus.

† Ibid.

7. [Leaves tongue-shaped, three-cornered, gradually drawing to a point, smooth, upright, a span in length. Corolla subcylindrical, thicker at the base, curved back in the middle, angular at the tip, the angles green, somewhat flesh-coloured: the three outer segments divided to the curvature, thicker; the inner ones distinct from each other, but longitudinally connected with the outer ones on the inside. It varies with large, oblong, white, confluent spots; and with small ones.—Native of the Cape of Good Hope; flowering from august *.]

8. *Tongue Aloe* grows with its leaves near the ground, they are about six inches in length. The flowers are in slender loose spikes, each hanging downwards, of a red colour at bottom, and green at the top. There is a variety of this, with leaves much more spotted.

9. *Fan Aloe* grows to the height of six or seven feet, with a strong stem, toward the upper part of which are produced two, three, or four heads, composed of long, compressed, pliable leaves, of a sea-green colour, entire, and ending obtusely; these are placed in a double row, lying over each other with their edges the same way. The flowers are produced in short loose spikes, are of a red colour, and appear at different times of the year.

10. *Partridge-breast Aloe* is a low plant, seldom rising above eight inches high. The leaves are triangular, and turn back at their extremity: they are fleshy and entire, their edges being very slightly serrated: they are curiously veined and spotted, somewhat like the feathers on a partridge's breast. The flowers grow in very loose spikes, upon stalks about one foot high; they are of a fine red colour tipped with green. [Corolla flesh-coloured with a sexfid mouth, the three inner divisions alternate, spreading; stamens bending down, stigma simple †.] I have raised a variety of this, from seeds which I received from the Cape of Good Hope, with broader leaves, which spread much more than those of the former, and are not so beautifully spotted: the flower-stalks also grow much taller.

11. Grows near a foot high, and is furnished with triangular leaves, from the ground upward; these are of a dark green colour, and are placed in form of a triangle; the flowers grow thinly on very slender peduncles, they are of a herbaceous colour, and their upper part turns backward.

12. Grows somewhat like the eleventh, being beset with leaves from the bottom; but these are rounder, and end in sharp points; the flowers grow upon taller stems, which branch out, and produce long close spikes. A variety of this, has been raised from seeds, which is much larger, the leaves thicker, and the stem taller.

13. *Cushion Aloe* has very short, thick, succulent leaves, which are compressed on their upper side like a cushion, from whence it had the name. This grows very close to the ground, and puts out suckers on every side: the flowers grow on slender stalks, and are of a herbaceous colour.

[14. Observed by Thunberg at the Cape. It much resembles the second species, but is very different in the spike, and figure of the flowers ‡.—Thunberg thus describes it. Stem round, leafy at the top, three or four feet high, the thickness of the human arm. Leaves subverticillate, broad at the base, gradually drawn to a point, channelled, acute, with remote teeth, spreading, two feet long. Flowers in very close spikes, spreading horizontally, a foot in breadth. A single bracte under each flower, ovate, acute, broad, membranaceous, white with three green streaks, a little shorter than the corolla: which is bell-shaped, almost six-petalled; the three inner segments not connected, broader, ovate, blunt, white with three green lines; the three outer connected with the others at the base, narrower and less concave, but like them. The flower is full of a purple honey juice. The best and purest Hepatic Aloe is obtained from this species.

* Thunberg Aloe. † Linn. mant. ‡ Linn. Supp.

Medical qualities and other uses.

The inspissated juice of the various species of Aloe is a hot irritating purgative. Three sorts of it are used in the shops, viz. The *A. socotrina* as it is called in the materia medica, which is the *Aloe vera* of Miller. It is gentler and purer than the others, and is generally the only kind used in medicine. It is distinguished from the other kinds by having little or no smell: it is the basis of most of the empyrical pills, as Anderson's, &c. &c. Succotrine Aloes may be given in considerable doses, as a scruple or half a dram at a time; and is a very good purge. It is particularly useful in phlegmatic habits, as it is a good aperient and deobstruent. The tincture called *Tinctura sacra* or *Hiera picra* is a solution of it in wine. It may be given as a purgative from one to two ounces or more, or may be taken as an alterant in smaller doses, and continued till it has induced a lax habit, or soluble state of the bowels. It is an excellent medicine in languid, phlegmatic habits; warming the solids, cleansing the primæ viæ, and attenuating viscid juices in the remoter parts. The Hepatic Aloes is said by some to be preferable as the basis of a common purge; to the Succotrine, as not stimulating so much. The London college however use only the Succotrine. The pills called *Pil. Rufi*, and the *Pil. Rudii* are both Aloetics, and are extremely serviceable medicines. Spanish liquorice is said to be the most efficacious ingredient of all others, in covering the ill taste of Aloes. Equal parts of Aloes and Spanish liquorice dissolved in water is said to be one of the most pleasant, and useful aloetic purges of all others. The medicine called *Elixir Aloes* is a liquid *Pil. Rufi*: and may be taken in doses of from twenty drops, to a tea-spoonful. *Elixir proprietatis* is the same medicine, with the ingredients in a somewhat different proportion. Dose from twenty drops to a tea-spoonful, twice a day.

As the drossy resinous part of Aloe is not soluble in water, it has been found, when combined with other mixtures, an excellent preservative to ship's bottoms against the worm to which ships trading to the east, or west Indies, are particularly subject. One ounce of Aloes is sufficient for two superficial feet of plank; about twelve pounds for a vessel of fifty tons burthen, and three hundred pounds for a first-rate man of war. It may be incorporated with six pounds of pitch, one pound of Spanish brown or whiting, and a quart of oil; or with the same proportion of turpentine, Spanish brown, and tallow. Such a coat will preserve a ship's bottom eight months, and the expense for a first-rate ship will be about eighteen pounds. The same composition may be used in the hot countries for preserving rafters, &c. from the wood-ant *.

The Hottentots hollow out the trunk of the first species to make quivers for their arrows. And several of them are used for hedges.]

PROPAGATION AND CULTURE.

The soil in which these plants thrive best, is one half fresh light earth from a common (and if the turf be taken with it and rotted, it is much better); the rest should be white sea sand or road sand and sifted lime rubbish, of each of these two, a fourth part; mix them together six or eight months at least before the compost be used, observing to turn it over often in the time.

The middle of july is a very proper season to shift these plants; at which time you may take them out of the pots, and with your fingers open the roots, and shake out as much of the earth as possible, taking off all dead or mouldy roots, but do not wound or break the young fresh ones: then fill the pot about three parts full of the above-mentioned earth, putting a few stones in the bottom of the pot, to drain off the moisture; and after placing the roots of the plant in such a manner as to prevent their interfering too much with each other, put in as much of the same earth, as to fill the pot al-

* Long's Jamaica, 3. 708.

most to the rim, and observe to shake the plant, so as to let the earth in between the roots; and then with your hand settle it close to the roots of the plant, to keep it steady in the pot; then water them gently, and set them abroad in a shady place, where they may remain for three weeks, giving them gentle waterings, if the weather should prove hot and dry.

Toward the end of september, in a dry day, remove them into the house again, observing to give them as much free open air as possible, while the weather is warm; but, if the nights are cool, you must shut up the glasses, and give them air only in the day; and, as the cold increases, you must not open the glasses, but observe to give them gentle waterings often, till the middle of october, when you must abate watering according to the heat of the house in which they are kept. For those plants which are placed in a stove, will require to be watered at least once a week, most part of the winter; whereas those which are kept in a green-house without artificial heat, should not be watered oftener in winter than once a month.

When these hardier sorts of Aloes are placed abroad in summer, they should have but little water given them; and if much rain should fall during the time they are abroad, they should be screened from it: for when they imbibe much wet in summer, they frequently rot the following winter, especially if they are not kept in a moderate warm air. Therefore, those who choose to treat these plants hardily, should be cautious of their receiving too much moisture.

The tender sorts, as the *viscosa*, *ferox*, and *cobweb* Aloes, should constantly remain in the stove, or be removed in summer to an airy glass-case, where they may have free air in warm weather, but be protected from rain and cold. With this management the plants will thrive and increase, and such of them as usually flower, may be expected to produce them in beauty at their seasons.

The hardier sorts thrive much better when they are exposed in summer, and secured from the cold and rain in winter, than if they are treated more tenderly. For when they are placed in a stove, they are kept growing all the winter, whereby they are drawn up weak; and although they will flower oftener when they have a moderate share of heat, yet in two or three years, the plants will not appear so tightly as those which are more hardily treated.

Most of these Aloes are increased by offsets, which should be taken from the mother plant, at the time when they are shifted, and must be planted in very small pots, filled with the same earth as was directed for the old plants; but if, in taking the suckers off, you observe that part which joined to the mother root to be moist, you must let them lie out of the ground in a shady dry place six or eight days to dry before they are planted, otherwise they are very subject to rot. After planting, let them remain in a shady place (as was before directed in shifting the old plants) for a fortnight, when you should remove the tender kinds to a very moderate hot-bed, plunging the pots therein, which will greatly facilitate their taking new root; but observe to shade the glasses in the middle of the day, and to give them a great share of air.

Toward the middle of august, begin to harden these young plants, by taking off the glasses in good weather, and by raising them at other times with props, that the air may freely enter the bed, which is absolutely necessary for their growth, and to prepare them to be removed into the house, which must be done toward the end of september, and they must then be managed as was before directed for the old plants.

The African Aloes, for the most part, afford plenty of suckers, by which they are increased; but those few that do not, may be, most of them, propagated, by taking off some of the under leaves, laying them to dry for ten days or a fortnight, as was

directed for the offsets; then plant them in the same soil as was directed for them, putting that part of the leaf which adhered to the old plant, about an inch, or an inch and a half (according to the size of the leaf) into the earth, giving them a little water to settle the earth about them; then plunge the pots into a moderate hot-bed, observing to screen them from the violence of the sun, and give them gentle refreshings with water once a week: the best season for this is in june, that they may push out heads before winter.

[Cultivation of the Aloe in the island of Barbadoes.

The lands within two or three miles of the sea, which are subject to drought, and are so stony and shallow as not to admit of the planting sugar canes; with any prospect of success, are generally found to answer best for the Aloe-plant. The stones, at least the larger ones, are first picked up, and either packed in heaps, upon the most shallow, barren spots, or laid round the field, as a dry fence. The land is then lightly ploughed, and very carefully cleared of all noxious weeds, lined at one foot distance from row to row, and the young plants set, like cabbages, at about five or six inches from each other. This regular mode of lining, and setting the plants, is practised only by the most exact planters, in order to facilitate the weeding of them, by hand, very frequently: because if they are not kept perfectly clean, and free from weeds, the produce will be very small. They will bear being planted in any season of the year, even the driest, as they will live on the surface of the earth, for many weeks, without a drop of rain*.]

ALOE AFRICANA. See *Craffula*.

ALOE AMERICANA. See *Agave*.

[ALOE PURPUREA. See *Dracana*.

ALOE UVARIA. See *Aletris*.

ALOE YUCCÆ FOLIIS. See *Yucca*.

ALOIDES. See *Stratiotes*.

ALOPECURO-VERONICA. See *Mentha*.

ALOPECUROS. See *Betonica*.]

ALOPECURUS. (*Αλωπεκος ουρα*, Fox-tail.)

[*Lin. gen.* 78. *Reich.* 84. *Schreb.* 102. *Gertn.* 1. 1.

Class. 3. 2. Triandria Digynia.

Nat. order of Gramina or Grasses.

GENERIC CHARACTER.

CAL. Glume one-flowered, two-valved: valves ovate-lanceolate, concave, compressed, equal, connate at the base.

COR. one-valved: valve ovate-lanceolate, concave, the edges united at the base, a little shorter than the calyx. Awn twice as long, with a bent joint, inserted into the back of the valve near the base.

Nectary none.

STAM. Filaments three, capillary, flattish at the base, longer than the calyx. Anthers forked at each end.

PIST. Germ roundish. Styles two, capillary, united at the base, longer than the calyx. Stigmas villous.

PER. none. Corolla investing the seed.

SEED ovate, covered.

ESSENTIAL CHARACTER.

Cal. two-valved. Cor. one-valved.]

SPECIES.

1. Alopecurus indicus. Indian Fox-tail Grass.

Lin. syst. 108. *mant.* 322. *Reich.* 164.

Panicum alopecuroideum. *Lin. spec.* 82. *Pluk.* *alm.* 1. 92. f. 5.

Panicum indicum. *Mill. dict.* n. 3.

Spike cylindrical; involucre setaceous, fasciculate, two-flowered; peduncles villous.

[2. Alopecurus bulbosus. Bulbous Fox-tail Grass.

Lin. spec. 1665. *Reich.* 164. *Huds. angl.* 27.

With. 59. *Rail syn.* p. 397. t. 20. f. 2.

Culm erect, spike cylindrical, root bulbous.

3. Alopecurus pratensis. Meadow Fox-tail Grass.

Lin. spec. 88. *syst.* 108. *Reich.* 165. *Huds. angl.*

27. *With.* 59. *Curtis lond.* 5. 5. *Fl. rust.*

1. 6. *Schreb.* 1. 19. f. 1. *Stilling. misc.* 1. 2.

* Millington in Med. journ.

Mor. hist. f. 8. t. 4. f. 8. row 2. Leers herborn. t. 2. f. 4. Hall. belv. n. 1539. Pollich pal. n. 64. Krock. fles. n. 104. Raii hist. 1264. 1. syn. 396. 1. Scheuch. 70. Bauh. pin. 4. prodr. 27. n. 10.

Culm spiked, erect; glumes villous, corollas awnless.

4. *Alopecurus agrestis. Field Fox-tail Grass.*

Lin. spec. 89. syst. 108. Reich. 165. Hudf. angl. 27. With. 59. Curtis lond. 2. 7. Fl. rust. t. 22. Schreb. t. 19. f. 2. Fl. dan. t. 697. Mor. hist. f. 8. t. 4. f. 12. Ger. herb. 9. 4. emac. 11. 2. Park. theat. 1169. 8. Bauh. hist. 2. 473. 1. Monti 51. Scheuch. 69. t. 2. f. 6. A. B. Hall. belv. n. 1540. Pollich pal. n. 65. Leers herborn. n. 44. t. 2. f. 5. Krock. fles. n. 105.

Culm spiked erect, glume smooth, calyx surrounded at bottom by a ring.

5. *Alopecurus geniculatus. Flote Fox-tail Grass.*

Lin. spec. 89. syst. 108. Reich. 165. Hudf. angl. 27. With. 60. Curtis lond. 5. 6. Flor. dan. t. 861. Morif. t. 4. f. 15. Leers t. 2. f. 7. Ger. 14. 2.

Culm spiked, inflexed, corollas awnless: (awns concealed within the calyx.)

6. *Alopecurus hordeiformis. Barley-like Fox-tail Grass.*

Lin. spec. 90. syst. 108. Reich. 166. Loureiro cochinch. 48. Pluk. phyt. 119. f. 1.

Raceme simple, flowers intrenched with awns.

7. *Alopecurus monspeliensis. Bearded Fox-tail Grass.*

Lin. spec. 89. syst. 109. Reich. 166. With. arr. 60.

A. aristatus. Hudf. angl. 28. Gouan hort. 37. Morif. hist. f. 8. t. 4. f. 3. Park. theat. 1166. 3.

Phleum crinitum. Schreb. t. 20. f. 3.

Panicle subspiked, calyxes rugged, corollas awned.

8. *Alopecurus paniceus. Hairy Fox-tail Grass.*

Lin. spec. 90. syst. 109. Reich. 167. Hudf. angl. 28. With. arr. 61. Schreb. t. 20. f. 13.

Panicle subspiked, glumes villous, corollas awned.

DESCRIPTIONS, &c.

1. Size of the Italian Panic, the whole plant villous: leaves a finger's breadth, hairy on both sides, as are the sheaths. Spike the size of the finger, with villous rugged involucres, formed of bunches of bristles, and involving two flowers, which stand on pedicles as long as themselves. The accessory valve of the flower of the same length with the others*. Native of the East Indies.

2. Culm slender, about a foot high; bent at the lower joint. Spike slender, one inch long. Leaves one, or one inch and half in length. Root bulbous, emitting many fibres and stems†. Florets longer, narrower, and much less hairy, than those of *A. geniculatus*‡. Culm sometimes slightly kneeed at the lower joint. Awns stiffer, and the valves of the calyx shorter, and more pointed than in *A. geniculatus*§. Mr. Hudson affirms, that this, planted in watery places, becomes the same with Flote Fox-tail, n. 5. According to him, therefore, it is only a variety, arising from a difference of soil. Mr. Woodward has found the *A. bulbosus* in a wet salt marsh near Yarmouth in great plenty, and the *A. geniculatus* unchanged in the same marsh. He observes also that this species is constantly awned: and therefore thinks that Mr. Hudson is mistaken in making it only a variety of *A. geniculatus*.

Gærtner has a species under the name of *Alopecurus sericeus*, approaching to this, but not a mere variety, in his opinion. The spike is cylindrical, an inch in length, very closely villose, ash-coloured, and of a silky brightness. Glumes of the calyx connate at the base, narrow, acuminate, equal, covered on all sides with long flexuose hairs. Corolla membranaceous, diaphanous, awned from the base: awn bristle-shaped, half the length of the flower. Culm naked a long way below the spike, thick, very smooth. Leaves scabrous about the edge‡. He refers to John Bauhin's figure in p. 475, vol. 2, of

his history, which is quoted by Ray under the Meadow Fox-tail Grass, n. 3.

3. Root perennial. Stalks from a foot or eighteen inches, to two and even three feet in height, according to the richness of the soil; round, streaked, smooth, with three or four knots or joints, at each of which is one smooth, broad leaf, tapering to a point. Spike an inch and half, or two inches in length or longer, soft and hoary. Flowers imbricate, solitary. The single valve of the corolla puts forth a jointed awn near the base, twice its length. The anthers are frequently purple, when in full vigour. The seed is very small, and covered by the glumes or chaffs, from which it does not readily fall. The Meadow Fox-tail Grass is a native of most parts of Europe, from Italy through France, Germany, Holland, Great Britain, to Denmark, Norway, Sweden and Russia: also in Siberia. It is most abundant in moist meadows, where the soil is good: neither very wet nor dry grounds agree with it. Ray affirms, that it is extremely common all over England: in many counties it is by no means the predominant grass; and in some places it is even scarce. About London, in the best pastures, it is certainly very common. It is one of the earliest of the grasses, producing the spike in april or may, with the Vernal grass, and the Ladies' smock. It frequently flowers twice in one season, and therefore should seem to be proper for such lands as will admit of a second crop being taken. It undoubtedly possesses the three great requisites of quantity, quality, and earliness, in a superior degree to any other: and therefore is highly deserving of cultivation on lands that are proper for it. The seed of this valuable grass may be collected without much difficulty, for it does not quit the chaff, and the spikes are very prolific.

4. Is readily distinguished from the Meadow Fox-tail Grass, to which it bears most resemblance, by the great length and slenderness of its spikes, tapering to a point, and usually of a purple colour. It is marked as perennial by Linneus, Hudson, and in the Kew catalogue; by Leers, Curtis, and others, as annual. The flowering stalk is a foot or eighteen inches high, upright, except that it is crooked at bottom; it has three or four joints, which are smooth, and purple. The leaves are about three inches long, and from a sixth to a quarter of an inch broad, roughish on the upper surface only, with a blunt membrane (ligula) at the base. The sheath investing the young spike has the keel or principal nerve rough. The flowers are loosely imbricate, on very short peduncles. The valves of the calyx have no awn; the single valve of the corolla has an awn proceeding from the base, nearly twice the length of the spicule. Filaments twice the length of the calyx, with anthers forked at each end. Seed very small, wrapped up in the corolla and calyx. The calyx is surrounded at bottom by a ring*. This grass is a weed in cultivated ground; it is also frequent by way-sides, on banks and the borders of fields, but rarely in pastures. It varies in the size both of the plant and spike, as well as in the colour of the latter, which is sometimes of a pale green or whitish, without any purple; when in full flower it bends a little. It has acquired the name of Mouse-tail grass in English, and *Myosuroides* in Latin, from the great length and slenderness of the spike, resembling the tail of a mouse. Its inferiority in every respect to Fox-tail grass is so manifest, that it would answer no purpose to make experiments, with any hopes of bringing it into cultivation. It flowers early, continues flowering till autumn, and comes into bloom remarkably quick after being sown†.

5. Root perennial. Stalks a foot and eighteen inches in length or more, procumbent at bottom and often creeping. Leaves two or three lines broad, the upper side if drawn backwards between the fingers rough, the under side smooth; the uppermost

* Linneus.

§ Woodward, MS.

† Ray.

|| Stokes.

‡ Gærtner, fruct. 1. p. 2.

* Curtis and Leers.

† Curtis.

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leaves only an inch or two long; strap ovate, pointed; sheaths smooth, streaked, ventricose. Spike an inch and half or more in length, subcylindrical, varying in form and colour, sometimes blunt, sometimes tapering to a point, greenish, purplish, and even appearing blackish when viewed at a distance. Valves of the calyx obliquely truncate, pubescent, three-nerved, with a ciliate keel. Valve of the corolla oblong, ovate, truncate, five-nerved, pellucid, without hairs, the awn proceeding from near the base, and twice the length of the corolla. Anthers at first purple, afterwards ferruginous †. It is easily known in its common state, by pools and in the wet parts of meadows, by the frequent joints of the culm or stem, changing their direction at an angle, and thus appearing as if it were broken. It frequently puts out roots under water from the joints, and thus spreads itself; the leaves floating on the surface. From the deep purple colour of the spikes, it is called in some places *Black-grass*. It sometimes occurs in dry pastures, and then, according to Mr. Curtis, it grows more upright, the spike becomes much slenderer, and the base of the stalk swells out into a kind of bulb.

It flowers in June. Cattle eat it readily, but it is not a profitable grass †.

6. Is an Indian Grass. It has the appearance of *Hordeum murinum* or Barley Grass. The height is about a foot. The leaves are flat and channelled, often longer than the culm. The spike is long and branching, consisting of many flowers, on very short pedicels, perfectly simple: the calyxes are fenced with bristles, resembling awns, thrice the length of the flowers: the two glumes of the corolla are oblong and acuminate; one is less than the other: the pistil is longer than the flower*.

7. Resembles *A. panicus*, but is three times as large. Calyx with a tubercle at the bottom. Corolla shorter than the awn. Culm and leaves stiff. Glumes rough, but smooth at the edge; both valves awned †. Grows wild in marshes and wet pastures. Annual, flowering in June and July.

8. This species very much resembles the *A. monspeliensis*, but the whole plant is soft, and only five or six inches high. Glumes downy: woolly at the edges. Awns of the corolla shorter than those of the calyx ††. Corolla valves two, as short again as the calyx; hollow, smooth; the outer three times as broad as the other, roundish-ovate, blunt, with four teeth; an awn longer than the valve, issuing from below the point. Inner valve ovate-lanceolate, pointed; with two teeth. Calyx ending at the base in a hard tubercle§. It grows on dry soils. Annual, flowering in July.

Mr. Hudson joins the two last under the name of *Alopecurus aristatus*, or bearded Fox-tail grass. He observes, that the glumes of the calyx are linear, diverging at the tip, and awned or bearded: that the awns are very long, and proceed from the extremity; that the corolla is very small, and has a short awn on the back: that the culm is suberect; the flowers in a close panicle in form of a spike; and that they are annual. He thinks that the difference of size may arise only from situation.

PROPAGATION AND CULTURE.

See GRASS.

ALPINIA. (So called after Prosper Alpinus, a famous physician and botanist, who travelled into Egypt between 1580 and 1584, practised medicine at Cairo, and published a book *de Plantis Aegypti*, besides several medical treatises. He died in 1615; and his son Alpinus Alpinus published a book *de Stirpibus exoticis*, from his father's MSS. with additions, in 1627.)

Lin. gen. n. 4. Reich. 4. Schreb. 5. Gært. 12. Swartz obs. 5. Juss. 3.

Class. I. I. Monandria Monogynia.

Nat. order of Scitamineæ. Cannæ Juss.

† Curtis.
† Linneus.

‡ Ibid.
†† Ibid.

* Linneus.
§ Stokes in With.

A L S

GENERIC CHARACTER.

CAL. Perianth one-leaved, tubulose, three-toothed; leaflets equal, erect, acute.

COR. monopetalous, tubulose: tube cylindraceous, short: border three-parted; parts nearly equal, oblong.

NECTARY connate with the tube of the corolla, two-parted: the lower part, forming the lower lip, is larger and longer than the parts of the corolla, broadish, spreading, often divided.

STAM. Filament proper none; but along the upper division of the nectary, forming the upper lip, which is flattish, and the length of the corolla, grows a large anther, either deeply bifid, or entire.

PIST. Germ inferior, oblong. Style filiform, often inserted into the fissure of the anther. Stigma incrassate, obtuse.

PER. Capsule oval, three-celled, three-valved, crowned with the permanent calyx.

SEEDS some, ovate, angular, covered with a sort of berried aril.

OBS. This genus differs from *Amomum* and *Costus*, only in the habit, and the inflorescence, which is racemed.—Rottboell joins it with *Amomum*, under the name of *A. Alpinia*.

ESSENTIAL CHARACTER.

Cal. three-toothed, equal, tubulose. **Cor.** three-parted, equal. **Nectary** two-lipped; the lower lip spreading.

SPECIES.

1. *Alpinia racemosa*.

Lin. spec. 2. syst. 51. Reich. 4. Swartz obs. 5. Plum. ic. t. 20?

A. jamaicensis. Gært. fruct. 1. 36.

Amomum Alpinia. Rottb. havn. 2. t. 2.

Raceme terminating spiked, flowers alternate, lip of the nectary trifid, leaves oblong acuminate.

[2. *Alpinia occidentalis*.

Swartz, prodr. 11.

Raceme radical compound erect, nectary emarginate, capsules three-celled; leaves lanceolate-ovate very smooth.

DESCRIPTION, &c.

1. Root fleshy branched, having the smell and taste of ginger. Stem from two to five feet in height, herbaceous, round, smooth, leafy. Leaves sheathing at the base, alternate, lanceolate-ovate, smooth and even, quite entire, with transverse nerves. Raceme erect, coloured, shining. Bractes alternate, lanceolate, acuminate, almost the length of the flowers, blood-red. Flowers on very short peduncles, one or two between the bractes. Calyx somewhat bell-shaped, red; the teeth obsolete, truncate. Corolla white; tube longer than the calyx; parts of the border erect. Nectary longer than the corolla, ventricose at the base; the lower lip broader, convex at the tip, three-parted, the middle part emarginate. Filament or upper lip of the nectary short, involved in the lower lip, embracing it with a toothlet at the sides. Germ three-cornered; the upper part of the style concealed within the channelled anther; stigma subcapitate, emarginate. Capsule inferior, roundish, with three blunt corners. Seeds shining*.

Native of the West Indies.

2. Native of Jamaica, St. Domingo, &c.]

PROPAGATION AND CULTURE.

1. Being a native of hot climates, it must be preserved in a stove, and the pot plunged into a tub of water. The leaves decay every winter, and are pushed out from the roots every spring, like the *Maranta*. It may be increased by parting the roots, when the leaves decay.

ALPINIA SPICATA. See *Costus*.

ALSINA. See *Theligonum*.

ALSINANTHEMUM. See *Arenaria*.

ALSINASTRUM. See *Costus* and *Elatine*.

ALSINE. (From *ἄλσος*, *lucus*, a grove.)

Engl. Chickweed. Fr. Morgeline.

* Swartz, obs.

[Lit.

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[*Lin. gen. n.* 380. *Reich.* 411. *Schreb.* 518.
Juss. 300. *Gärtn.* 129.
 Class. 5. 3. Pentandria Trigynia.
 Nat. order of *Caryophyllei*.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved; leaflets concave, oblong, acuminate.
 COR. of five equal *Petals*, longer than the calyx.
 STAM. *Filaments* capillary: *anthers* roundish.
 PIST. *Germ* subovate: *styles* filiform: *stigmas* obtuse.
 PER. an ovate, one-celled, three-valved *capsule*, covered with the calyx.
 SEEDS very many, roundish.

ESSENTIAL CHARACTER.

Cal. five-leaved. *Petals* five, equal. *Capsule* one-celled, three-valved.

SPECIES.

1. *Alfine media*. *Common Chickweed*.
Lin. spec. 389. *Juss.* 298. *Reich.* 746. *Huds.*
angl. 131. *With.* 323. *Curtis, lond.* 1. 20.
Flor. dan. 525. 438. *Morif. f.* 5. t. 23. f. 4.
Ger. 611. 2. *Plenck, ic.* t. 242.
Holosteum Alfine. *Swartz, obs.* 118.
Petals bipartite, leaves ovate-cordate.
2. *Alfine fegetalis*.
Lin. mant. 359. *Juss.* 298. *Reich.* 747. *Vaill.*
par. t. 3. f. 3. *Allion. ped. n.* 1696.
Petals entire, leaves awl-shaped.
3. *Alfine mucronata*.
Lin. mant. 358. *Juss.* 298. *Reich.* 747. *Hall.*
helv. n. 870. t. 17. *Gärtn. fruct.* 2. 223.
Petals entire, short; leaves setaceous; calyxes awned.

DESCRIPTIONS, &c.

1. *Common Chickweed* is so generally known, that it seems scarcely necessary to describe it; we may observe, however, that the number of stamens in the flower is very uncertain; from three to ten †. In plate 525 of the *Flora danica* it is figured with five stamens, and in plate 438 with ten. I have frequently observed it early in the spring with fewer than five; and Swartz informs us that in the West Indies it has constantly three. In gardens or on dunghills it quickly sheds abundance of seeds, and becomes a troublesome weed; but being annual, it may be destroyed with little trouble, if it is never suffered to seed. [The diversity of soils in which it grows causes it to put on different appearances, which may mislead the unwary botanist. It is distinct however from the *Cerastiums*, which it most resembles, in having the petals shorter than the leaves of the calyx; and from all the plants related to it, in having the stalk alternately hairy on one side only. When the flowers first open, the peduncles are upright; as the flowers go off they hang down; and when the seeds ripen they again become erect. It is commonly given as food to chickens and small birds; boiled it exactly resembles spinach. Swine are very fond of it; and it is eaten by many insects. As a medicine, it contains no active principle, but is frequently applied to swellings either alone or in poultices *. Flowers upright, and open from nine to noon; but if it rains they do not open. After rain they become pendent, but in a few days rise again †. Chickweed is a remarkable instance of the sleep of plants; at night the leaves approach in pairs, so as to inclose between their upper surfaces the tender buds; and the two upper leaves but one, at the end of the stalk, are furnished with longer petioles than the others, so that they can close upon the terminating pair, and protect the end of the branch ‡. It is found wild in most parts of the world.

2. The same with *Arenaria tenuifolia* according to La Chenal in *Hall. helv.* Annual. Grows about Paris, and in Piedmont.

3. Stems erect, a foot high, many together, branching, a little hairy. Leaves much more slender than the other species, long, and very sharp pointed, yet with broad connate bases. Flowers, in young plants, from the axils, in full grown ones,

† Lightfoot. * Curtis. † Withering. ‡ Linn.

A L S

in a sort of umbel. Calyxes marked with lines, and ending in a prickle: petals ovate, white †. Native of France and Switzerland. Introduced in 1777, by A. Gouan, M. D. ‖.

ALSINE. See *Androsace*. *Arenaria*. *Bufonia*. *Calitriche*. *Campanula*. *Centunculus*. *Cerastium*. *Corrigiola*. *Cucubalus*. *Draba*. *Frankenia*. *Glaux*. *Glinus*. *Gypsophila*. *Holosteum*. *Isnardia*. *Linum*. *Lemnifolia*. *Lycnis*. *Moebringia*. *Mollugo*. *Montia*. *Nama*. *Oldenlandia*. *Peplis*. *Pharnaceum*. *Sagina*. *Samolus*. *Sibthorpia*. *Silene*. *Spergula*. *Stellaria*. *Trientalis*. *Veronica*.

ALSINE AFFINIS. See *Androsace*.

ALSINES FACIE. See *Theligonum*.

ALSINEFORMIS. See *Montia*.

ALSINELLA. See *Sagina*.

ALSINOIDES. See *Bufonia* and *Montia*.]

[ALSTONIA. (So named from Charles Alston, M. D. Professor of Materia medica and Botany at Edinburgh.)
Mutis. Lin. suppl. p. 39. *Schreb. n.* 912. *Juss.* 157.
 Class. 13. 1. Polyandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* inferior, imbricate: *scales* ovate, very obtuse, concave; the inner ones gradually larger, forming as it were a quadri-partite or quinque-partite calyx.
 COR. one-petalled, shorter than the calyx; tube short; border spreading, divided into eight or ten parts: *divisions* equal, in a double row, alternately interior and exterior: obovate, obtuse, quite entire.
 STAM. *Filaments* very many, inserted into the tube, very short, imbricate, very smooth; the outer ones longer, linear, attenuated at the tip: *anthers* orbiculate, furrowed.

PIST. *Germ* superior, ovate, small: *style* simple, length of the corolla, filiform, erect: *stigma* capitate-obovate.

OBS. The fruit is unknown. This genus is imperfectly determined: it is nearly allied to *Symplocos*, and perhaps only a species of it. Swartz.

ESSENTIAL CHARACTER.

Cor. one-petalled, eight or ten-cleft: clefts alternated.

SPECIES.

1. *Alstonia theaeformis*.
Lin. suppl. p. 264. *Juss.* 487.
Symplocos Alstonia. *L'Herit. in transf. Lin. soc.* 1. 176.

DESCRIPTION.

This shrub was found by Mutis in South America. It is very smooth, and has the air of the Bohea tea, in the leaves, the imbricate calyxes, the situations of the flowers, &c. The dried leaves chewed give a greenish colour to the saliva, and have the taste of the Chinese tea. The leaves grow alternately on short petioles; they are elliptical in their form, rather obtuse at the end, entire at the base, but from the middle to the tip obtusely serrate, stiff and veined. The flowers are axillary, three or four together, and sessile; the calyx is very smooth, the scales rounded and green, with a membranaceous edge; the corollas are white and spreading *.

Monf. L'Heritier has joined this with *Hopea*, and *Ciponima*, under the same genus *Symplocos*.]

[ALSTROEMERIA. (So named from Baron Claes or Claudius Alstroemer of Sweden, who in his travels through Europe sent many plants to Linneus.)

Lin. gen. n. 432. *Reich.* 466. *Schreb.* 583. *Juss.* 56. *Gärtn. t.* 13.

Class. 6. 1. Hexandria Monogynia.

Nat. order of *Lilia* or *Liliaceae*. *Sarmentaceae* Lin. *Narcissi* Juss.

GENERIC CHARACTER.

CAL. none.
 COR. six-petalled, sub-bilabiate: the three outer petals wedge-shaped, retuse, mucronate; the inner which are alternate with the others, lanceolate; the two lower ones tubulous at the base.

† Haller. ‖ Hort. kew. * Lin. suppl. STAM.

STAM. Filaments awl-shaped, bending down, unequal : anthers oblong.

PIST. Germ inferior, hexangular, truncate : style bending down, filiform, the length of the stamens : stigmas three, oblong, bifid.

PER. a roundish, six-ribbed, mucronate capsule, three-celled and three-valved, valves concave, contrary to the dissepiment.

SEEDS very many, globose, covered with raised points, subumbilicate at the tip.

ESSENTIAL CHARACTER.

Cor. of six petals, subbilabiate : the two lower petals tubulose at the base. Stam. bending down.

SPECIES.

1. *Alstroemeria Pelegrina*. Spotted-flowered *Alstroemeria*.

Lin. spec. 461. fyst. 338. Reich. 2. 90. amæn. acad. 6. 247. ic. Jacq. hort. t. 50. Feuill. peruv. 2. 711. t. 5. Curt. magaz. t. 139. Gertn. fruct. 1. 41.

Stem erect, corollas bell-shaped, straight, leaves linear-lanceolate, sessile.

2. *Alstroemeria pulchella*.

Lin. suppl. p. 206. fyst. 338.

Stem erect, corollas reflex-spreading, acute : leaves sessile ; pedicles shorter than the involucre.

3. *Alstroemeria Ligtu*. Striped-flowered *Alstroemeria*.

Lin. spec. 462. suppl. 207. fyst. 338. amæn. 6. 247. Curt. mag. t. 125. Feuill. per. 2. 710. t. 4.

Stem erect, leaves spatulate-oblong, peduncles of the umbel longer than the involucre, corolla two-lipped.

4. *Alstroemeria Salsilla*.

Lin. spec. 462. suppl. 206. fyst. 338. Feuill. per. t. 6.

Stem twining, leaves petiolate, lanceolate, acuminate, umbel branching, peduncles longer than the involucre, bracted and loose.

5. *Alstroemeria multiflora*.

Lin. suppl. 207. fyst. 338.

Stem twining, leaves petiolate, lanceolate, acuminate, umbel simple, peduncles shorter than the bractes ; petals alternate, truncate.

6. *Alstroemeria ovata*.

Cavan. bisp. 54. t. 76.

Stem twining, leaves lanceolate, lanuginose on the upper surface, lucid on the lower ; corollas tubular.

DESCRIPTIONS, &c.

These are all found in South America. The leaves are refupinate, and the petals alternately larger and smaller *. The trivials of the first, third and fourth species are taken from their Peruvian names.

1. The flowers are whitish, most beautifully stained and veined with purple and red. It flowers from June to October, and was introduced in 1753, by Messrs. Kennedy and Lee †.

2. In appearance and structure very like the former ; but the leaves narrower, and the stem terminated by an irregular involucre, of larger, petiolate leaves ‡. Peduncles naked, very simple, one-flowered ; flowers four or six, rather nodding, irregular, of the same size as in the former species. Petals spreading from the base, recurved, acute, alternately less, whitish, red at the tip, streaked or dotted with red at the base : filaments yellow, equal : pistil red, rising : stigma trifid §.

3. The barren stems clothed with awl-shaped leaves, pressed to it ; terminated with spatulate-oblong leaves, placed in a kind of rose. The floriferous stem clothed also with awl-shaped leaves, clasping close to it, and terminated with a shorter involucre. Peduncles few, very simple, naked, longer than the involucre. The three upper petals of the corolla larger, white, dotted at the base, spotted at the tip with red ; the three lower ones shorter, especially the lowest, almost awl-shaped, red. Filaments longer than the lower petals, rugged : anthers twin, yellow ; pistil red. Remarkable for the largeness of the flowers, and for their fragrantcy ||,

* Linneus.

† Hort. kew.

‡ Linneus.

§ Lin. suppl.

|| Ibid.

in which they are scarcely inferior to Mignonette. It flowers in February and March. Introduced about 1776, by John Brown, Esq.

4. Leaves nervose ; petioles naked. Involucre many-leaved ; awl-shaped, reflex. Peduncles few, elongated, sustaining one or two flowers ; a bract at the branching of the peduncles : petals from erect spreading, rather blunt ; the outer ones red, the inner greenish §.

5. The habit and structure of the last ; but the petioles are wrinkled at the edge, nor is the umbel peduncled : the many-flowered involucre consists of broader leaflets ; the peduncles are quite simple and naked ; the flowers are of the size of the *Salsilla* : the three outer petals shorter, narrower, entire : the inner truncate, or emarginate with a point. This species is very distinct from the rest **.

6. Stem twining contrary to the fun, slender, hardish, three feet high. Leaves alternate, sessile, extremely sharp at the tip, contracted at the base into the petiole, and there writhed so as to be refupinate, the border revolute towards the lanuginose surface ; there is a single longitudinal nerve scarcely protuberant ; several lines nearly parallel to this, run from the base to the apex. Flowers terminating in umbels : involucre of unequal revolute leaflets, equal in number to the rays, which are frequently five, bifid at the bract, and thence two-flowered ; pedicels an inch and half long. Petals approximating into a tube, ovate-oblong, the three outer scarlet, green at the tip ; the three inner green, flattish towards the top, and variegated with black dots, the border at bottom rolled into a channel on each side : all fixed to the top of the germ, and making an open throat. Stamens fixed also to the germ near the base of the petals ; anthers ovate, brown. Germ green without, marked with six longitudinal grooves, and terminated with the same number of little notches : style thickish, subulate : stigmas sharp. Capsule globular, an inch in diameter, six-grooved, six-notched at the edge, cut transversely at top. It differs from *A. Salsilla* in its woolly leaves, and tubulose flowers. Native of Peru *.

PROPAGATION AND CULTURE.

These are stove plants, and where they can be obtained, may be propagated by parting the roots in autumn. The first is found to be much more hardy than the third, and may be treated as a green-house plant ; it will however flower and ripen its seeds better under the glass of a hot-bed frame, where air is freely admitted. This is more usually raised from seeds, sown in the spring, in a pot of light earth, on a gentle hot-bed, either of dung or tan †.]

ALTHÆA. (Ἀλθαία Diosc. from ἄλδος a remedy, or ἄλθαίνειν, to heal ; or as Dioscorides himself says, δια το πολυαλθεις αὐτης, from its many excellent qualities.)

Engl. Marsh-mallow. Fr. Guimauve.

Lin. gen. n. 839. Reich. 904. Schreb. 1132.

Cavan. diff. 2. 91. Juss. 272. Gertn. t. 136.

Class. 16. 5. Monadelphia Polyandria.

Nat. order of Columniferae. Malvaceae Juss.

GENERIC CHARACTER.

CAL. Perianth double : outer smaller, one-leaved, unequally novemfid : (6—12 G.) divisions very narrow : inner semiquinquefid : divisions broader, sharper.

COR. five-petalled, united at the base, obcordate, præmorse, flat.

STAM. Filaments many, inserted into the corolla ; anthers subreniform.

PIST. Germ orbiculate ; style cylindrical, short : stigmas many (twenty), setaceous, the length of the style.

PER. consists of arils not jointed, forming a flat ring about a columnar receptacle ; they are deciduous, and open on the inside.

SEED one, flat-kidney-shaped in each aril.

ESSENTIAL CHARACTER.

Cal. double : outer nine-cleft. Arils many, one-seeded.

|| Hort. kew.

§ Linn. suppl.

** Ibid.

* Cavanilles.

† Curtis magaz.

SPECIES.

1. *Althæa officinalis*. Common Marsh-Mallow.
Lin. spec. 966. *Reich.* 3. 340. *hort. cliff.* 348.
upf. 204. *mat. med.* 166. *Gertn. fruct.* 2. 258.
Huds. angl. 306. *With.* 735. *Lightf. scot.* 373.
Woodv. med. bot. 146. t. 53. *Scop. carn. n.* 855.
Pollich pal. n. 656. *Hall. belv. n.* 1074. *Fl.*
can. t. 530. *Blackw. t.* 90. *Mor. hist.* 5. t. 19.
f. 12. *Ger.* 787. *emac.* 933. 1. *Park. theat.* 303.
Bauh. pin. 315. *Bauh. hist.* 2. 954. *Raii hist.* 602.
Leaves simple, downy.
2. *Althæa cannabina*. Hemp-leaved Marsh-Mallow.
Lin. spec. 966. *Reich.* 3. 341. *Jacq. austr.* 2.
t. 101. *Scop. carn. n.* 856.
Lower leaves palmate, upper digitate.
3. *Althæa hirsuta*. Hairy Marsh-Mallow.
Lin. spec. 966. *Reich.* 3. 341. *Scop. carn. n.*
857. *Pollich pal. n.* 657. *Jacq. austr.* 2. t. 170.
Hall. belv. n. 1073.
Alcea Barr. ic. 1169.
Leaves trifid, hairy-hispid, smooth above; peduncles
solitary, one-flowered.
- [4. *Althæa Ludwigii*. Ludwig's Marsh-Mallow.
Lin. mant. 98. *syst.* 624. *Reich.* 3. 342.
Alcea Raii hist. 605?
Leaves lobed, naked on both sides, peduncles collected,
one-flowered.
5. *Althæa narbonensis*. Narbonne Marsh-Mallow.
Jacq. ic. 138. *collect.* 2. 275. *Cavan. diff.* 2. 94.
t. 29. *f.* 2. *Ait. hort. kew.* 2. 445.
Leaves tomentose on both sides; the lower five-lobed;
the upper three-lobed: peduncles solitary, one-flow-
ered.
6. *Althæa corymbosa*.
Swartz prodr. 101.
Leaves simple, cordate or angular, smooth, peduncles
and calyxes hairy, flowers in corymbs.
7. *Althæa racemosa*.
Swartz prodr. 102. *Brown. jam.* 284. 3. *Sloan.*
jam. 221. t. 139. *f.* 2.
Pavonia spicata Cavan. diff. 3. 136. t. 46. *f.* 1.
Leaves simple, cordate, ovate, serrate, scabrous on the
upper surface, raceme terminating, erect.]

DESCRIPTIONS, &c.

1. Common or officinal Marsh-Mallow grows naturally in salt marshes, and on the banks of rivers and ditches in Cambridgeshire, Norfolk and Suffolk; on the sea shores of Cornwall; in Holland, France, Italy, Siberia, &c. It has a perennial root, and an annual stalk, growing erect, to the height of four or five feet, and putting out a few lateral branches. The leaves are soft, angular, and alternate. The flowers are axillary, shaped like those of the Mallow, but smaller and of a pale colour. These appear in June or July, and the seeds ripen in September. [The outer calyx is frequently cleft into seven parts. Capsules about twenty, rounded-kidney-shaped, triangular-flattened, closed on every side, tomentose on the back, coriaceous, not gaping. Common-receptacle central, in the middle, swelling globularly, and grooved, but ending at top in a long conical point: proper none. Seeds smooth and brown*.]

There is a variety of this (Miller n. 2.) with the leaves rounder, and not ending in a point. [In Ray's synopsis this is named *Althæa vulgaris similis folio retuso brevi*, and is observed to grow in the isle of Ely. It also varies with lacinated leaves. *Bauh. pin.* 316. *Lin.* β.]

The whole plant, particularly the root, abounds with a mild mucilage, which is emollient in a much greater degree than common Mallow. The root boiled is much used as an emollient cataplasm, and an infusion of it is very generally prescribed in all cases wherein mild mucilaginous substances are useful†, as a pectoral, and in complaints of a gravelly nature. The infusion is much superior to the syrup which is kept in the shops.]

2. Hemp-leaved Marsh-Mallow has a woody stem, which rises to the height of four or five feet, and

puts out many side branches. The leaves are alternate. The flowers are axillary, not so large as those of the common Marsh-Mallow, but of a deeper red colour, and the calyx much larger. This sort seldom flowers the first year, unless the summer prove warm; but when the plants live through the winter, they will flower early the following summer, and produce good seeds. It grows naturally in Hungary, Istria, Austria, Carniola, Italy, the south of France, &c. by wood sides. [Cultivated by Gerard, in 1597*.]

3. A low plant, the branches trailing on the ground. The leaves and stalks are beset with strong hairs; the flowers are axillary, smaller than those of the common sort, and have purplish bottoms. The leaves are deeply cut into three parts, and have long petioles. The stalks are woody, but seldom last more than two years. [The outer calyx is eight-leaved; the inner is of the length of the corolla, and acuminate: the corolla is crenulate†.]

It grows wild in Spain and Portugal, [Italy, Austria, Carniola, Germany, Switzerland and France. Cultivated in 1683, by Mr. James Sutherland‡.]

4. This plant much resembles *Malva Alcea*. Peduncles axillary from two to five, one-flowered, the length of the petioles. The outer calyx eight-leaved, the leaflets lanceolate: the inner shorter, quinquefid, very rough with white villous hairs, less than that of *A. hirsuta*, which differs from this in having less-divided, sharper leaves; stem, peduncles and petioles hairy; calyxes strigose not woolly, four times larger, the inner not hispid nor woolly-white§.

5. Root perennial. Stems annual, upright, from four to six feet in height, branched, the thickness of a finger, round, hoary with whitish stellate hairs. The branches and midribs of the leaves have hairs of the same sort. Stipules subulate, acute, ciliate. Leaves alternate, petioled, ferrate; the lower ones bluntish, the upper ones sharp, with the lobes lanceolate, and the side-ones augmented with a small lobe. Bractes subulate, small. The outer perianth has six or seven deeply-cut, lanceolate, acute, segments; in both they are somewhat rough with hairs. Corolla purple-rose-coloured, twice as long as the calyx; the segments emarginate. Anthers dark purple. Stigmas white. Arils smooth||.

First discovered by Abbé Pourret near Narbonne; it is found also in Spain, and flowers in August and September¶. Introduced in 1780, by Monsieur Thouin**.

6. Native of Jamaica††.

7. Stems thick, stiff, five feet high, with many branches. Leaves alternate, on long petioles, very acuminate, rough with hairs, a little longer than the petioles. Stipules lanceolate, acuminate. Outer calyx deeply eight-cleft, so that it seems to consist of eight distinct, lanceolate, acuminate leaflets; inner somewhat tubulose, with five roundish, acuminate little notches; a little longer than the outer. Corolla yellow, double the length of the calyx; petals oblong, almost entire, from erect spreading, marked with deeper-coloured streaks. The fruit is composed of five bivalve capsules. Native of Jamaica‡‡.]

PROPAGATION AND CULTURE.

1. The common Marsh-Mallow may be propagated fast enough, either by seeds, or parting the roots. The seeds should be sown in the spring; but the best time for parting the roots is in autumn, when the stalks decay. It will thrive in any soil or situation, but in moist places will grow larger than in dry land. The plants should not be nearer together than two feet; for the roots spread wide.

2. Hemp-leaved Marsh-Mallow is propagated by seeds, which should be sown in the spring in the place where the plants are to remain; or if not, they must be transplanted young, otherwise they will not succeed. They must have a sheltered situation and dry soil, to live through the winter in

* Hort. kew. † Linneus. ‡ Hort. kew. § Linneus.
 || Jacquin collect. ¶ Cavanilles. ** Hort. kew.
 †† Swartz prodr. ‡‡ Cavanilles.

England. When they grow in a stony soil, or in lime rubbish, they will be stunted in their growth, but will endure the cold better. This sort seldom continues longer than two years in England, but as the seeds ripen here, the plants may be had in plenty.

3. If the seeds be sown in april, the plants will flower in july, and the seeds ripen in september. They should be sown where they are to remain, for as the roots shoot deep into the ground, unless the plants be removed very young, they seldom survive transplanting.

ALTHÆA. See *Hermannia*. *Hibiscus*. *Lavatera*. *Makva*. *Melochia*. *Napæa*. *Sida*. *Waltheria*.

ALTHÆA FRUTEX. See *Hibiscus*.

ALYSSUM. See *Globularia*.

ALYSSOIDES. See *Alyssum*.

ALYSSON. See *Alyssum*. *Glypeola*. *Draba*. *Marrubium*. *Myagrum*. *Veronica*.

ALYSSUM. (Αλυσσων *Dioscor.* from Αλυσσω, to be mad.)

Lin. gen. 805. *Reich.* 869. *Schreb.* 1081. *Tournef.* 104. *Juss.* 240. *Gärtn. t.* 141.

Alyssoides. *Tournef.* 104.

Vesicaria. *Tournef.*

Class. 15. 1. *Tetradynamia Siliculosa*.

Nat. order of Siliquosæ. Cruciferae Juss.

GENERIC CHARACTER.

CAL. *Perianth* four-leaved, oblong: leaflets ovate-oblong, obtuse, convergent, deciduous.

COR. four-petalled, cruciform. *Petals* flat, shorter than the calyx, very spreading: claws the length of the calyx.

STAM. *Filaments* six, the length of the calyx: two opposite a little shorter, marked with a toothlet. *Anthers* from erect, spreading.

PIST. *Germ* subovate: *style* simple, the length of the stamens, longer than the germ. *Stigma* obtuse.

PER. a subglobose, emarginate *silicle*, with a style the length of the filicle, two-celled: partitions elliptic, valves elliptic hemispherical.

SEEDS fixed to filiform receptacles, issuing forth at the end of the filicle: few, orbicular.

OBS. *The Petals in some species are emarginate, in others entire. The silicle in some is bellying, in others compressed. The essential character consists in the shorter filaments having a toothlet inserted at the base within.*

ESSENTIAL CHARACTER.

The shorter filaments marked with a toothlet, *Silicle* emarginate.

SPECIES.

* Undershrubs.

1. *Alyssum spinosum.* Thorny Madwort.

Lin. spec. 907. *syst.* 590. *Reich.* 3. 233. *Barr. ic.* 808.

The old racemes thorny, naked.

2. *Alyssum halimifolium.* Sweet Madwort.

Lin. spec. 907. *Reich.* 3. 233. *Hort. kew.* 2. 381. *Curt. mag.* 101.

Thlaspi. *Herm. lugdb.* t. 595.

β. *Thlaspi.* *Bocc. mus.* 2. t. 39.

Stems procumbent, perennial, leaves lance-linear, acute, quite entire.

3. *Alyssum faxatile.* Yellow Madwort.

Lin. spec. 908. *syst.* 590. *Reich.* 3. 233. *Ard. spec.* 1. p. 18. t. 7. *Mill. fig. t.* 20. f. 1. *Curt. magaz.* t. 159.

Thlaspi. *Bocc. mus.* t. 93.

Stems shrubby, panicled, leaves lanceolate, very soft, repand: petals entire.

4. *Alyssum alpestre.* Italian Madwort.

Lin. mant. 92. *syst.* 590. *Reich.* 3. 233. *Ger. prov. t.* 13. f. 2. *Allion. ped.* 888. t. 18. f. 2.

Stems undershrubby, diffused, leaves roundish, hoary, calyxes coloured.

** Herbaceous.

5. *Alyssum hyperboreum.* Northern Madwort.

Lin. spec. 910. *Reich.* 3. 324.

Lunaria. *Aët. Petrop.* 1747. t. 15. f. 1.

Leaves hoary, toothed, stamens four-forked.

6. *Alyssum incanum.* Hoary Madwort.

Lin. spec. 908. *syst.* 590. *Reich.* 3. 234. *Pollich palat. n.* 616.

Stem erect, leaves lanceolate, hoary, quite entire, flowers in corymbs, petals bifid.

[7. *Alyssum minimum.* Least Madwort.

Lin. spec. 908. *syst.* 590. *Reich.* 3. 234.

Stems diffused, leaves linear, downy, silicles compressed.]

8. *Alyssum calycinum.* Calycine Madwort.

Lin. spec. 908. *syst.* 590. *Reich.* 3. 234. *Gärtn. fruct.* 2. 282. *Jacq. vind.* 114. *austr.* 4. t. 338.

Pollich palat. n. 617. *Hall. belv. n.* 494. *Scop. carn. n.* 802.

Alysson Camer. epit. 558. f. 1.—*minimum Clus. hist.* 2. 133.

Stamens all toothed, calyxes permanent.

9. *Alyssum montanum.* Mountain Madwort.

Lin. spec. 907. *syst.* 590. *Reich.* 3. 235. *Jacq. austr. t.* 37. *Bauh. hist.* 2. t. 929. *Scop. carn. n.* 803. *Hall. belv. n.* 492.

Stems diffused, leaves sub lanceolate, dotted and echinate.

10. *Alyssum campestre.* Field Madwort.

Lin. spec. 909. *Reich.* 3. 236. *Pollich pal. n.* 618. *Hall. belv. n.* 495.

Stamens guarded with a pair of bristles, calyxes deciduous.

11. *Alyssum clypeatum.* Buckler-podded Madwort.

Lin. spec. 909. *Reich.* 3. 236.

Stem erect, silicles sessile, oval, compressed-flat, petals pointed, linear.

*** *Silicles inflated, or calyxes oblong, closed.*

12. *Alyssum sinuatum.* Sinuate-leaved Madwort.

Lin. spec. 909. *Reich.* 3. 236. *Gärtn. fruct.* 2. 283. *Mor. hist.* 2. 247. n. 6. f. 3. t. 9. f. 6.

Clus. hist. 2. 134. (*Eruca.*)

Stem herbaceous, leaves lance-deltoid, silicles inflated.

13. *Alyssum creticum.* Cretan Madwort.

Lin. spec. 910. *mant.* 92. *Reich.* 3. 237. *Alp. exot. t.* 118.

Stem shrubby, leaves lanceolate, a little toothed, downy, silicles inflated, globular.

[14. *Alyssum gemonense.* Gemonia Madwort.

Lin. mant. 92. *syst.* 591. *Reich.* 3. 237. *Ard. spec.* 2. p. 30. t. 14.

Stem herbaceous, branches divaricated, root-leaves obovate, rather downy, silicles inflated.

15. *Alyssum utriculatum.* Bottle Madwort.

Lin. mant. 92. *syst.* 591. *Reich.* 3. 237. *Allion. ped. n.* 891. *Curt. magaz.* t. 130.

Stem herbaceous, erect, leaves smooth, lanceolate, quite entire, silicles inflated.]

16. *Alyssum Vesicaria.* Bladder Madwort.

Lin. spec. 910. *Reich.* 3. 237.

Vesicaria. Tournef. itin. 2. 97. t. 14. *Leaves linear toothed, silicles inflated, angular, acute.*

17. *Alyssum deltoideum.* Deltoid-leaved Madwort.

Lin. spec. 908. *Reich.* 3. 237. *Curt. mag. t.* 126. *Leucoium faxatile thymi folio hirsutum cæruleo-purpureum. Bauh. pin.* 201.

Stems undershrubby, prostrate, leaves lance-deltoid, silicles baggy.

DESCRIPTIONS, &c.

1. Has woody branches, which rise about two feet high, and are armed with small spines. The leaves are hoary, lanceolate, and thinly placed on the stalks without any order. The flowers grow in small clusters at the extremities of the branches. [Petals white and entire. Filaments toothless*.] It grows naturally in Italy, Spain, and the south of France.

2. Spreads itself upon the ground, and never rises to any height. At the extremities of its branches it produces very pretty tufts of small white flowers, of which the plant is seldom destitute for six or seven months successively. [The stamens are simple; the filicles roundish and entire. It is a native of the southern countries of Europe: and was cultivated 1722 in Chelsea garden†.]

3. A low plant, with a fleshy stalk, which seldom rises more than one foot high, but divides into

* Linneus.

† Hort. kew.

many smaller branches, which grow near the ground, so that a single plant will spread to a considerable distance. The flowers are produced in loose panicles at the extremity of every branch, and are of a bright yellow colour. They appear at the end of april, or beginning of may, and if the season be moderate, will continue three weeks in beauty. [This is a small, showy, hardy plant, and not disposed to over-run others; it is very suitable to embellish rock-work †. Candia, Austria. It frequently flowers a second time in autumn. Cultivated 1731, by Mr. Miller §.]

4. Leaves spatulate, very obtuse. Calyxes yellowish, deciduous: petals entire, yellow. The stamens have a little membrane at the base; the style is deciduous; the filicles ovate and hoary. Perennial. On the mountains of Provence towards Italy || —Also on Mont Cenis, &c. It differs from the *Alyssums* in having an ovate-acute filicle, not inflated. In fewness of seeds it approaches to the genus *Clypeola*, but the filicle is not emarginate, nor surrounded by a furrowed edge. Though in the form of the fruit it approach to *Draba*, yet it differs in the whole habit, and in the filaments having a toothlet ¶.

5. Found by Krascheninnikof in North America. The two shorter filaments are marked with a sharp claw, the four longer ones at the base with an emarginate scale **.]

6. Grows to the height of two feet, having woody stalks, which divide into several branches toward the top. At the extremity of every shoot the flowers are produced in round bunches; they are small and white. The filicle is entire, oval, and full of brown seeds. It grows naturally in the south of France, Spain and Italy, Germany, Austria, Sweden, &c. chiefly on rocky or gravelly soils. Perennial. [Cultivated 1640, by Parkinson ††.]

7. An annual plant, and grows wild in Spain. The petals are yellow and subemarginate ††.

8. This is also annual, and found wild in Austria, Carniola, France, Germany, and Switzerland. The four longer filaments are toothed in the middle within, but the two shorter ones put out from their base a lance-shaped scale, the length of the germ. The petals are very small, scarce apparently emarginate, yellow, but growing white with age. Silicle slightly emarginate, with two seeds in each cell, but one commonly abortive. Calyx permanent §§. Cultivated 1768, by Mr. Miller |||.]

9. Branches trailing. Leaves oblong, hoary, rough to the touch, and alternate. The flowers are produced in small clusters at the extremities of the branches; they are of a dark yellow colour. [Four of the filaments are bifid at the top, the two others have a toothlet at the base ¶¶.] It grows naturally upon rocks in Burgundy and some other parts of France, about Basil, [in Germany, Austria, Carniola, &c. and is perennial. Cultivated 1759, by Mr. Miller ***.]

10. Is very like the eighth in stem, leaves, and petals, but is more decumbent and has lance-ovate leaves. The filaments have no teeth, but the two solitary ones have a bristle on each side not growing to the filament, but inserted into the receptacle. Silicles ovate, scarcely compressed, more downy. France, Germany, and Switzerland. Annual. Thought by some not to differ specifically from the eighth. Cultivated 1768, by Mr. Miller †††.]

11. A biennial plant [annual *Lin.*] with an herbaceous stalk; leave oblong, hoary, alternate; flowers axillary, solitary, filicles compressed like those of *Lunaria*. It grows naturally in Spain and Portugal. [Tournefort gathered it on mount Libanus. There is a toothlet in the middle of the filaments †††. Cultivated 1596, by Gerard §§§.]

12. A low spreading plant, which divides into small branches; these are garnished with hoary

leaves continuing through the year: the flowers are produced in small clusters at the extremities of the branches; they are of a bright yellow colour. [The petals are bifid, and the side filaments obscurely toothed *. The filicle is the size of a pea, subglobular, inflated, whitish. Seeds round, compressed, so as to be almost like a leaf or a bracte, dirty rufous or rusty iron colour, surrounded with a whitish membranaceous rim, and mucilaginous †. It is annual, or biennial, and grows wild in Spain, by way sides:] also in the islands of the Archipelago, but is hardy enough to live in the open air in England, in a dry soil, and a warm situation.—[Cultivated 1680 †.]

13. Grows more erect, having a shrubby stalk, which sends out a few lateral branches toward the top, with oblong hoary leaves. The flowers grow in small clusters at the extremities of the branches. It seldom continues longer than two years in England; and in a warm, dry situation, will live in the open air. [Spain and Candia. Cultivated 1739, by Mr. Miller §.]

14. Differs from the last in having divaricated branches, and smaller flowers of a deep yellow colour. Root perennial. Stem spread on the ground, suffruticose, four or five inches long, surrounded at the extremity with many leaves: among these, other stalks arise, which are upright, herbaceous, subflexuose, a foot high and more, very slightly hirsute, somewhat hoary, branched at top. Leaves roughish, ash-coloured, root-leaves ovate-oblong, slightly sinuate, about five inches long, and scarcely an inch broad; stem-leaves shorter, narrower, lanceolate, somewhat toothletted. Perianth spreading, yellow, hirsute. Petals obovate, emarginate, twice the length of the calyx.

This species was first discovered by Pietro Arduini, in september 1759, on the mountain *della Fontana*, near Gemona, in the district of Forli, in Italy; in the clefts of rocks. It flowers in may and june ||.

15. This has the flower of *Lunaria*; the radical leaves are hairy ¶: Seeds many, flat, gray, winged; on which account this plant would be referred to the genus *Lunaria*, were it not for its inflated filicles **. Found by Tournefort in the Levant: it also grows in the vineyards of Savoy. It is a hardy and beautiful perennial, flowering from april to june, at which time it begins to form its curiously inflated pods. Like the 17th it is well adapted to the decorating of walls or rock-work ††. Cultivated 1739, by Mr. Miller ††.]

16. and 17. Have trailing stalks, and produce their flowers toward the extremities in loose spikes.

[17. Stems woody, filiform, diffused, hairy; the older ones have the bases of the petioles toothletted, and are flexuose. Leaves lanceolate, with a strong angle or two on each side as it were deltoid, green, with a few hairs. Raceme simple, few-flowered. Flowers resembling those of the Stock-Gilliflower, and of a purple colour. Calyx oblong, closed, gibbous at the base §§. Cultivated 1739, by Mr. Miller |||. Both these were found by Tournefort in the Levant.]

PROPAGATION AND CULTURE.

All the species may be propagated by seed, and most of them by slips and cuttings. The seeds should be sown in a border of light earth in april. Cuttings or slips should be planted in april or may; shaded in the heat of the day, and gently refreshed with water.

In rich ground they seldom live through the winter in England; but in a dry, poor, rubbishy soil, or on old walls, they will abide the cold, and last much longer.

2. Seldom continues above two or three years with us, and must therefore be often sown to preserve it; but if the seeds be suffered to fall, and remain upon the ground, the plants will rise without any trouble.

† Curtis. § Hort. kew. || Lin. mant. ¶ Allion. ** Linneus.
†† Hort. kew. †† Linneus. §§ Ibid. ||| Hort. kew. ¶¶ Linneus.
*** Hort. kew. ††† Ibid. & Linn. ††† Linn. §§§ Hort. kew.

* Linneus. † Gartner. ‡ Hort. kew. § Ibid.
|| Arduini. ¶ Linneus. ** Allioni. †† Curtis.
†† Hort. kew. §§ Linneus. ||| Hort. kew.

3. The seeds ripen in July, but it is only from young plants that seeds can be expected; for the old plants, or those which are raised from slips or cuttings, rarely produce seeds in England.

6. Flowers from June to September, and the seeds ripen soon after; if these be permitted to scatter, the plants will come up, and require little care.

8. and 10. Should be sown where they are to remain: if they be thinned and kept clean from weeds they will flower in July, and perfect their seeds in autumn.

13. The seeds should be sown in August, soon after they are ripe; and if a few of the plants be potted in October, and sheltered under a frame in winter, they will flower the following June, by which means good seeds may be obtained the same year; for those plants which arise early in the year, grow luxuriantly in summer, but do not often ripen seeds, or live through the winter.

17. Rarely produces seed in this country, but may be propagated from its trailing branches, which if planted in April, will take root and become good plants by the following autumn, when two or three plants may be placed in a common frame for shelter in winter, to preserve the species; for in hard winters, those which are exposed are sometimes destroyed. [It is properly a rock plant, being hardy, forming with very little care a neat tuft of flowers, and not apt to encroach on its neighbours. It is valuable, from its beginning to flower in March, and continuing through the summer. It has usually been considered by the nursery-men about London as the *hyperboreum**.]

ALYSSUM. See *Cardamine*. *Clypeola*. *Draba*. *Myagrum*. *Peltaria*. *Stachys*. *Subularia*. *Sisymbrium*.

AMALAGO. See *Piper*.

AMANNIA. See *Ammannia* and *Peplis*.

AMARACUS. See *Origanum*.

AMARA INDICA. See *Momordica*.

AMARANTH, Globe. See *Gomphrena*.

AMARANTHI Spica. See *Phryma*.

AMARANTHO affinis. See *Gomphrena* and *Illecebrum*.]

AMARANTHOIDES. See *Celosia*, *Gomphrena*, and *Illecebrum*.

AMARANTHUS. (*Ἀμαράνθος*, *Dioscor.* incorruptible, from α, *μαραίνω* and *ανθος*; or, from α and *μαραίνω* only: because the flower being cropped does not soon wither. If the second derivation be right, it should be written *Amarantus*.)

Lin. gen. n. 1060. *Reich.* 1157. *Schreb.* 1431. *Tournefort* 118. *b, i, k, l.* *Juss.* 88. *Gärtn.* t. 128.

Class. 21. 5. *Monoecia Pentandria*.

Miscellanæ Lin. *Amaranthi* *Juss.*

GENERIC CHARACTER.

* Male flowers on the same plants with the females.

CAL. Perianth five or three-leaved, upright, coloured, permanent; leaflets lanceolate, acute.

COR. none. (unless you take the calyx for such.)

STAM. Filaments five or three capillary, from upright patulous, the length of the calyx. Anthers oblong, versatile.

* Female flowers in the same raceme with the males.

CAL. Perianth as in the male.

COR. none.

PIST. Germ ovate; styles three, short, subulate. Stigmas simple permanent.

PER. Capsule ovate, somewhat compressed, as is the calyx on which it is placed, coloured and of the same size, three-beaked, one-celled, cut open transversely.

SEED single, globular, compressed, large.

ESSENTIAL CHARACTER.

MALE. Cal. three, or five-leaved. Cor. none. Stam. three or five.

FEMALE. Cal. three, or five-leaved. Cor. none. Styles three. Capsule one-celled, opening horizontally. Seed one.

* Curtis.

SPECIES.

* With three stamens.

1. *Amaranthus græcizans*. Pellitory-leaved *Amaranth*.
Lin. spec. 1405. *syst.* 853. *Reich.* 4. 142. *Willdenow monogr.* 8. t. 4. f. 7. *Gron. virg.* 116. 148. *Lamarck, encycl.* 1. 115.
Glomerules axillary; leaves lanceolate repand obtuse.
- [2. *Amaranthus albus*. White *Amaranth*.
Lin. spec. 1404. *syst.* 853. *Reich.* 4. 142. *Willd. monog.* 9. t. 1. f. 2. *Lamarck, encycl.* 1. 115. *Tilli, pisan.* 44. (*Blitum*.)
Glomerules axillary; leaves roundish-ovate emarginate; stem four-cornered simple.
3. *Amaranthus deflexus*.
Lin. syst. 854. *Reich.* 4. 146. *mant.* 295. *Willd. mon.* 10. t. 10. f. 20.
Spike very short with few flowers, leaves rhomb-lanceolate, capsules not gaping.
4. *Amaranthus polygonoides*. Spotted-leaved *Amaranth*.
Lin. spec. 1405. *Reich.* 4. 146. *amæn.* 4. 409. *Willd. mon.* 11. t. 6. f. 12. *Swartz, obs.* 360. *Sloan. jam.* 1. 144. t. 92. f. 2. *Weinmann, t.* 252. *Pluk. alm.* t. 272. f. 2. (*Blitum*) *Brown. jam.* 184. *Burm. zeyl.* 60. t. 264. (*Chenopodium*.)
Glomerules three-leaved; female flowers funnel-shaped; leaves rhomb-ovate emarginate.
5. *Amaranthus polygamus*. Hermaphrodite *Amaranth*.
Lin. spec. 1403. *Reich.* 4. 143. *amæn.* 4. 294. *Willd. mon.* 12. *Rumph. amb.* 5. 231. t. 82. f. 1. *Loureiro cochinc.* 560. *Lamarck, encycl.* 1. 116.
Glomerules two-stamened, subspiked, ovate; flowers hermaphrodite and female; leaves lanceolate.
6. *Amaranthus mangostanus*.
Lin. spec. 1404. *Reich.* 4. 144. *amæn.* 4. 294. *Willd. mon.* 13. t. 12. *Lamarck, encycl.* 1. 116.
Glomerules subspiked, axillary, solitary; leaves rhomb-roundish.
7. *Amaranthus inamænus*.
Willd. monogr. 14. t. 7. f. 14.
Glomerules subspiked, three-leaved, axillary, geminate; leaves rhomb-lanceolate.]
8. *Amaranthus melancholicus*. Two-coloured *Amaranth*.
Lin. spec. 1403. *syst.* 853. *Reich.* 4. 143. *Willd. mon.* 15. t. 9. f. 18.
Glomerules axillary peduncled roundish, leaves ovate-lanceolate coloured.
- [9. *Amaranthus gangeticus*. Oval-spiked *Amaranth*.
Lin. spec. 1403. *Reich.* 4. 144. *Willd. mon.* 16. t. 6. f. 11.
Glomerules in very short spikes, ovate; leaves ovate-lanceolate, emarginate.]
10. *Amaranthus oleraceus*. Eatable *Amaranth*.
Lin. spec. 1403. *Reich.* 4. 145. *Willd. mon.* 17. t. 5. f. 9. *Loureiro cochinc.* 561.
Glomerules axillary branching, leaves wrinkled oblong very obtuse emarginate.
11. *Amaranthus viridis*. Green *Amaranth*.
Lin. spec. 1405. *Reich.* 4. 145. *Willd. mon.* 18. t. 8. f. 16. *Sloane jam.* 1. 143. t. 92. f. 1?
Glomerules axillary geminate, male flowers trifid, leaves ovate emarginate, stem erect.
12. *Amaranthus tricolor*. Three-coloured *Amaranth*.
Lin. spec. 1403. *Reich.* 4. 143. *Willd. mon.* 19. *Lour. cochinc.* 560. *Sabb. hort. rom.* 4. 55. *Buchoz, t.* 54. *Lob. ic. t.* 252. f. 2. *Swert. floril.* 2. t. 21. f. 5. *Best. exst. aut. ord.* 2. f. 6. *Mor. hist. f.* 5. t. 31. f. 1. *Barrel. ic.* 647. *Weinmann, t.* 93. *Dod. pempt.* 677. f. 4. *Ger. herb.* 254. n. 3. *Park. theat.* 754. *Bauh. hist.* 2. 970. f. 1. *Bauh. pin.* 121. 5. *Raii hist.* 203. 5.
Glomerules sessile roundish stem-clasping, leaves lanceolate-ovate coloured.
13. *Amaranthus lividus*. Livid *Amaranth*.
Lin. spec. 1404. *syst.* 854. *Reich.* 4. 144. *Willd. mon.* 20. t. 11. f. 1. *Gron. virg.* 116.
Glomerules subspiked rounded, leaves elliptic retuse, stem upright.
14. *Amaranthus*

14. *Amaranthus tristis*. Round-headed Amaranth.
Lin. spec. 1404. *Reich.* 4. 144. *Willd. mon.* 21.
t. 5. *f.* 10. *Lour. coch.* 560. *Rumph. amb.* 5.
231. *t.* 82. *f.* 2. *Pis. bras.* 241.
Glomerules in loose spikes, leaves subcordate-ovate emarginate, shorter than the petioles.
15. *Amaranthus Blitum*. Least Amaranth or Blite.
Lin. spec. 1405. *Reich.* 4. 145. *fl. suec. n.* 865.
Huds. angl. 418. *Wither. arr.* 1075. *Relb. cant. n.* 706. *Hall. belv. n.* 1606. *Scop. carn. n.* 1178. *Villars, dauph.* 2. 567. *Camer. epit.* 236. *Baub. hist.* 2. 967. 3. *Petiv. brit. t.* 7. *f.* 9. *Mor. hist. f.* 5. *t.* 30. *f.* 5. *Lob. ic.* 1. 250. 1. *Ger. emac.* 321. 3. *Park. theat.* 753. *f.* 1. *Baub. pin.* 118. 2. *Raii hist.* 200. 4. (*Blitum*).
β. *Blitum album majus*. *Baub. pin.* 118. 1. *Mor. f.* 2. *Dod. pempt.* 617. *f.* 1. *Baub. hist.* 2. *Raii hist.* 200. 3.
γ. *Bl. majus rubrum*. *Baub. pin.* 118. 4. *Lob. ic.* 1. 249. 2. *Ger. emac.* 320. 2. *Baub. hist.* 2. 966. *Raii hist.* 200. 1.
δ. *Bl. rubrum minus*. *Baub. pin.* 118. 5. *Camer. epit.* 235. *Dod. pempt.* 617. *f.* 1. *Ger. emac.* 321. 4. *Park. theat.* 753. 2. *Baub. hist.* 967. *f.* 1. *Raii hist.* 200. 2. *syn.* 157.
Sanguinaria. *Brunfels.* 2. 85.
Glomerules subsplined, flowers three-leaved, leaves ovate retuse, stem diffusid.
- [16. *Amaranthus scandens*. Climbing Amaranth.
Lin. suppl. 419. *Lamarck, encycl.* 1. 117. *Willd. mon.* 24.
Spikes interrupted compound, spikelets bent in, leaves ovate, stem weak.
** With five stamens.
17. *Amaranthus hcticus*.
Willd. monogr. 25. *t.* 13. *f.* 13. and 11. *f.* 22.
Barrel. ic. 46. *t.* 643. *Foršk. aegypt.* 34?
Flowers in simple spikes, axillary, glomerate; leaves ovate, acute.]
18. *Amaranthus hybridus*. Clustered Amaranth.
Lin. spec. 1406. *Reich.* 4. 146. *Willd. mon.* 26.
t. 9. *f.* 17. *Gron. virg.* 148. *Retz, obs.* 1. 31.
n. 105. *Barrel. ic.* 648. 650. *Raii hist.* 200.
201. *Baub. pin.* 120. 1.
Racemes decom-pound, heaped, erect; leaves ovate-lanceolate.
- [19. *Amaranthus strictus*.
Willd. mon. 27. *t.* 3. *f.* 5.
Racemes compound, erect, strict; leaves ovate, concave.
20. *Amaranthus lætus*.
Willd. mon. 28. *t.* 8. *f.* 15.
Racemes compound, erect; leaves ovate, obtuse, mucronate.]
21. *Amaranthus cruentus*. Various-leaved Amaranth.
Lin. spec. 1406. *Reich.* 4. 148. *Willd. mon.* 29.
Loureiro cochinch. 561. *Mart. cent. t.* 6. *Barrel. ic.* 645? 641?
Racemes decom-pound, naked, patulous; leaves lanceolate-ovate.
22. *Amaranthus hypochondriacus*. Prince's-feather Amaranth.
Lin. spec. 1407. *Reich.* 4. 148. *hort. cliff.* 444.
upf. 286. *Willd. mon.* 30. *Gartn. fruct.* 2. 215.
Racemes compound, crowded, erect; leaves oblong-lanceolate, mucronate.
23. *Amaranthus sanguineus*. Spreading or Bloody Amaranth.
Lin. spec. 1407. *Reich.* 4. 147. *Willd. mon.* 31.
t. 2. *f.* 3. *Mill. fig.* 15. *t.* 22. *Barrel. ic.* 649. 640. 639.
Racemes compound, erect; branches spreading, smooth; leaves oblong, acute.
- [24. *Amaranthus paniculatus*.
Lin. spec. 1406. *Reich.* 4. 147. *Willd. mon.* 32.
t. 2. *f.* 4. *Barrel. ic.* 658?
Racemes compound; branches spreading, pubescent; leaves ovate-lanceolate.]
25. *Amaranthus retroflexus*. Hairy Amaranth.
Lin. spec. 1407. *Reich.* 4. 147. *Willd. mon.* 33.
t. 11. *f.* 21.

- Racemes superdecompound, erect; branches pubescent; leaves ovate, waved.*
- [26. *Amaranthus chlorostachys*.
Willd. mon. 34. *t.* 10. *f.* 19.
Racemes compound, nodding; leaves lanceolate.]
27. *Amaranthus flavus*. Pale Amaranth.
Lin. spec. 1406. *Reich.* 4. 147. *Willd. mon.* 35.
t. 3. *f.* 6.
Racemes compound, nodding; leaves ovate-lanceolate.
28. *Amaranthus caudatus*. Pendulous Amaranth, or Love-lies-bleeding.
Lin. spec. 1406. *Reich.* 4. 148. *hort. cliff.* 443.
upf. 285. *fl. zeyl. n.* 563. *Willd. mon.* 36.
Weinmann t. 89. *Barrel. ic.* 657. 660. 644.
Mor. hist. f. 5. *t.* 31. *f.* 2. *Ger. herb.* 254. *f.* 4.
Baub. pin. 121. 2.
β. *A. maximus*. Tree Amaranth. *Mill. dict. n.* 5.
Weinm. t. 88. *f.* 6. *Swert, 2. t.* 21. *f.* 1. *Besl. exst. aut.* 2. *f.* 7. *Dod. pempt.* 185. *f.* 2. and 518.
f. 2. *Lob. ic.* 251. *f.* 2. *Barrel. ic.* 659. 663. 664. *Raii hist.* 201.
Blitum maximum. *Baub. pin.* 120. *Dalech. hist.* 1. 539. *f.* 1. *Camer. epit.* 234. *Matth.* 357. *f.* 1. *Tabern.* 2. 142. *f.* 111. *Baub. hist.* 2. 968. *f.* 1. *Clus. hist.* 2. 81.
29. *Amaranthus spinosus*. Prickly Amaranth.
Lin. spec. 1407. *Reich.* 4. 148. *hort. cliff.* 444.
fl. zeyl. n. 338. *Willd. mon.* 38. *t.* 4. *f.* 8.
Lour. coch. 561. *Gron. virg.* 148. *Sabb. hort. rom.* 4. *t.* 53. *Herm. lugdb. t.* 33. *Weinm.* 252.
Rumph. amb. 5. 234. *t.* 83. *f.* 1. *Sloan. jam.* 1. 143. *Brown. jam.* 340. 1. *Raii hist.* 199. (*Blitum*).
Racemes terminating compound, axils thorny.

DESCRIPTIONS, &c.

[The Amarantus are annual, herbaceous plants. The leaves simple, alternate, ending in a little bristle. Stipules none. Flowers loosely disposed either in glomerules or in spikes. Almost all the species are natives of America, especially North America; some however are found in the tropical countries of Asia and Africa, and two only in Europe*.

1. Stem a span high, upright or rather ascending, smooth, grooved, whitish except at the base where it is purplish, branches reflex-spreading, usually somewhat flexuose, especially towards the top. Leaves somewhat waved, green, smooth, marked with lines, the younger ones ending in a little bristle, which vanishes with age: petiole very short. Glomerules in pairs, green, four or five-flowered, pressed close to the angles of the leaves, with a subflexuose rachis, and supported by subulate, scattered bractes. The calyx both of the male and female flowers is composed of three subulate, mucronate leaflets†.

Native of North America. Cultivated in Chelsea garden in 1723. It flowers from July to September‡.

2. Stem greenish white, a span high, decumbent, smooth, four-cornered with the corners blunt especially towards the top. Leaves petioled, green, smooth, marked with lines, ending in a herbaceous, reflex, minute, whitish point. Petioles winged, channelled, almost the length of the leaves. Glomerules in pairs, sessile, few-flowered, with scattered subulate bractes intermixed. The three leaflets of the calyx are oblong-lanceolate whitish, with a green nerve, and at the end a long, subulate, herbaceous point. This species is nearly related to the first, from which however it may easily be distinguished by its simple, decumbent stem, by the longer petioles of the leaves which are not so stout as in the other, by the roundish glomerules, and by the squareness of the stem§. Native of Pennsylvania, on the coast, from whence it has migrated into Italy. It was introduced here in 1778, by Mons. Thouin; and flowers in July and August||.

3. Stem weak, filiform, decumbent, divided at the base into a few branches, green except at bottom where it is brownish, round, slightly streaked, smooth. Leaves blunt, emarginate, green, smooth. Petioles of a middling length, channelled, green;

* Willdenow. † Ibid. ‡ Hort. Kew. § Willdenow. || Hort. Kew.

edged with the decreasing leaf. Spike solitary, terminating, quite simple, composed of only five or six flowers. No lateral glomerules, but only a flower or two scattered in the axils of the leaves. Calyx five-leaved; leaflets diaphanous, white, oblong, acute, edged with green. It is distinguished from the rest, by the capsule not opening transversely, but being entire*. The plant, from which Willdenow made his description, was weak, and would probably have produced a greater abundance of flowers, if it had been placed in a moderate stove.

Linneus thinks that it has the appearance of *A. viridis*; but Willdenow is of opinion that it bears more resemblance to the foregoing and the next species.

Its native place is unknown.

4. Stem decumbent or ascending, branched at the base, round, streaked, red and smooth: branches quite simple, diffused. Leaves smooth, green, glaucous beneath, with a short, green, herbaceous point below the incisure, more conspicuous in the younger than the older leaves. Petioles green, channelled, surrounded at top with a leafy edge. Glomerules axillary, at the base of each petiole, with from six to eight flowers in each: bractes numerous, subulate, acuminate, mucronate, transparent-white, with a green nerve. Calyx of the female flower one-leaved, ventricose: the five segments spreading very much, blunt, transparent-white. When the seed is ripe, the capsules fall with the calyx, which is then twice as long as the bractes. Calyx of the male flower three-leaved, the length of the bractes, membranaceous, transparent; the leaflets oblong, obtuse, with a green nerve.

This species varies in different situations. In a hot-bed the stems were a foot high, and the whole plant was green except the calyxes. In the open air the stem was red, the length of the middle finger, almost upright; and the leaves were much smaller.

It differs from the other species, particularly from the second, which it most resembles, in having the stem round, and the calyx of the female flowers one-leaved and funnel-shaped.

Found wild by way sides and among rubbish in the tropical countries of Asia, Africa, and America; as in Jamaica, Guiana, Senegal, Guinea, Ceylon, &c.†.

It was introduced here in 1778, by Mons. Thouin; and flowers in august‡.

5. Stem upright, a foot and half high, green, streaked, smooth and even. Leaves petioled, naked; petioles swelling a little at the base: from the axils comes a branch and a head, consisting of a very short, many-flowered peduncle, with a branch on each side at the base converging into a green head. Spike terminating, short, ovate, small, almost like the lateral heads. Flowers several, the hermaphrodites with two stamens, and two styles; the females with three styles§.

Native of Guiana, China, Cochin, and Amboina. The inhabitants eat the leaves and stalks of this sort, boiled, with oil and pepper||, and prefer it to any of the others.

It was introduced among us in 1780, by Sir Joseph Banks, baronet; and flowers in july and august¶.

6. Stem obscurely angular, streaked, green, a foot high and more, smooth, decumbent. Leaves smooth, green, very blunt, slightly emarginate, with a very small bristle; the breadth almost equal to the length. Petioles as long as the leaves, and even longer, smooth, channelled, bordered at top with the decreasing leaf. Flowers in large, solitary, roundish glomerules, from the axils, on short peduncles: at the top they form a close, blunt spike, an inch in length, nodding a little. Calyxes five-leaved; leaflets white-membranaceous, transparent, oblong, with a green nerve ending in a bristle of the same colour. Bractes copious, resembling the calycine leaflets. Native of the East Indies**.

7. Stem a foot and half high, upright, streaked, smooth, green, round, with short branches at bottom. Leaves green with whitish veins, blunt, slightly emarginate, with a small green bristle at the end. Petioles channelled, surrounded with a leafy margin, green, much shorter than the leaf. Glomerules in pairs, roundish, on very short peduncles, from the axils; on the top of the stalk a slender, interrupted, upright, linear spike, almost two inches in length. Calyxes three-leaved; leaflets white-membranaceous, oblong, acuminate, with a green nerve, and a long point. Oblong, membranaceous bractes, of the same structure with the leaflets of the calyx, surround the flowers. This resembles the foregoing species very much; but differs in having a three-leaved calyx; the glomerules axillary and in pairs; the spike terminating, erect, and more slender; the leaves rhomb-lanceolate; and the petiole shorter than the leaves.

Supposed to be a native of Japan*.

8. Stem upright, half a foot high, dark purple, smooth, streaked, simple. Leaves blunt, wrinkled, waved, emarginate, mucronate, with a short, white point; the lower ones rufous liver-coloured on the upper surface, bright purple on the lower; with elevated veins; the upper ones green, with red tips. Petioles channelled, bright purple, smooth, edged at top with the decreasing leaf; the lower ones nearly the length of the leaves. Glomerules sessile, dark purple, on a very short, undivided peduncle. Calyxes five-leaved; leaflets oblong, purple-membranaceous, ending in a dark red point.—This species varies in the colour of the leaves. In the open air, they are of a dirty purple on their upper surface, and the younger ones are green; in a stove the whole plant is of a fine purple colour. It is however easily distinguished in all states by its colour, its leaves, and the lateness of its flowering, after all the others are past.—Lamarck joins this with *A. tricolor*. Native of Guiana†; and the East Indies. Cultivated in 1731, by Mr. Miller‡;] who observes that it grows to the same height with the *tricolor*, and in the manner of growth greatly resembles it; but that the leaves have only two colours, an obscure purple and a bright crimson, so blended as to set off each other, and making a fine appearance when the plants are vigorous.

[9. Stem a foot high, not more, dark red, upright, streaked, smooth, somewhat flexuose at top, and a little pubescent. Leaves green on the upper surface, red on the lower, smooth, with small, elevated, red veins. Petioles red, channelled, shorter than the leaf, smooth, edged with the decreasing leaf. Glomerules sessile in the axils of the leaves, ovate: at the top of the stalk they form a very short ovate, sessile spike, of a reddish green colour. Calyxes five-leaved; leaflets membranaceous green, with a red nerve, and a point of the same colour.—It varies with leaves entirely green.—Perhaps it may be a variety of the foregoing species; but it differs from it, in having a terminating spike; axillary, sessile glomerules; leaves not so much waved or wrinkled; and also in its colour.—It differs from *A. tristis*, in having a shorter, closer, red spike; leaves attenuated to both ends; shorter petioles; in its red colour, and whole habit. Native of Bengal, and the Society Isles§.

It was introduced here in 1778, by Mons. Thouin, and flowers from july to september||.

10. Stem upright, a foot or a foot and half in height, smooth and even, round, white. Leaves smooth, pale green, so deeply emarginate as to appear sometimes obcordate; they have hardly any point. Petioles slightly channelled, white, very smooth. Glomerules short, on trifid peduncles; pedicels branched, conglobate at top. Calyx of the male flower three or five-leaved, with three or five stamens; the leaflets white-membranaceous, bluish. Calyx of the female five-leaved; leaflets obtuse, green-membranaceous. Bractes lanceolate, obtuse,

* Willdenow. † Ibid. ‡ Hort. kew. § Willdenow and Lin. amn. || Rumphius. ¶ Hort. kew. ** Willdenow.

* Willdenow. † Ibid. ‡ Hort. kew. § Willdenow. || Hort. kew.

alternate along the rachis of the glomerule. Capsules even, not wrinkled, as in the other sorts.—It resembles *A. viridis*; but differs from it in the great bluntness of the leaves, which are deeply emarginate; in the edge of the leaf being neither red nor waved; in the glomerules being branched and solitary; and in the peduncles and pedicels not being flexuose.—Native of Guiana, the East Indies, and Egypt ¶.]

It is not entitled to a place in gardens on account of its beauty. This and the next sort are esteemed in some parts of India as esculent herbs; they gather them when young, and dress them as we do Spinach; but being much inferior to it, they are seldom used where Spinach will thrive. [It was cultivated by Mr. Miller in 1768; and flowers in July *.

11. Stem a foot or a foot and half high, upright, obscurely angular, streaked, red, smooth. Leaves on long petioles, bluntish, the older ones are a little emarginate, the younger ones have a white, short point, bent in; the edge is red, and waved so as to have the appearance of being obscurely crenulate; they decrease into the petiole: in open situations they are bright green, but in the shade dusky. Petioles green, channelled, sometimes a little scabrous at bottom. From the axils of the leaves spring glomerules in a sort of double spike, with a branchlet from the axils of which there are sometimes very short glomerules in pairs. Rachis flexuose, red, thinly set with minute bractes. Calyx of the male flower three-leaved; leaflets oblong, blunt, white-membranaceous, with a green nerve. Calyx of the female flower five-leaved; leaflets oblong, sharp. Capsule blunt, much wrinkled. This sort is distinct from all the rest, in having the bractes not surrounding the flowers, but scattered along the rachis of the glomerule. Native of Jamaica and Brasil. The European botanists have confounded this with a large variety of *A. Blitum* †.

Cultivated in 1768, by Mr. Miller. It flowers in August and September ‡.

12. Stem a foot and half or two feet in height, obscurely angular, smooth, upright. Leaves blue with a red point, smooth, waved; the younger ones red with yellow tips; those in a mature state coral-red at the base, violet in the middle, green at the end; the old ones green with a violet base. Petioles very long, smooth, green, channelled, bordered. Glomerules geminate, green, axillary. Calyxes three-leaved; leaflets oblong, acuminate, membranaceous, with a green nerve. It varies in the colour of the leaves, which are less painted in the open air than in the stove §. It was in Gerard's garden, in 1596, and flowers from June to September ||.] It has been long cultivated for the beauty of its variegated leaves, in which the colours are elegantly mixed. When the plants are in full vigour, these are large, and closely set from the bottom to the top of the stalks; the branches also form a sort of pyramid: so that there is not a more handsome plant than this, when it is in full lustre.

[Native of Guiana, Persia, Ceylon, China, Japan, the Society Isles, &c.]

13. Stem upright, two feet high, hollow, dark red, smooth, round, deeply streaked or grooved. Leaves dusky green with pale purple veins, bluntly emarginate, with a short and very blunt point; the edge a little waved. Petioles smooth, channelled, red, the length of the leaves. Flowers glomerate in the axils, rounded, green, on branched peduncles. Others terminating, in a slender interrupted spike, about three inches in length. Calyxes five-leaved; leaflets oblong, blunt, white-membranaceous, with a green nerve. Bractes subulate, very short. Native of Virginia and Guiana**.

It was cultivated in 1768, by Mr. Miller; and flowers from July to September ††.

14. Stem a foot and half high, streaked, green, smooth, upright, putting forth a few branches at

bottom. The bottom leaves subcordate-ovate, smooth, green, with a very short, green point; the upper ones are rather rhomb-ovate, and more acute. Petioles much longer than the leaves, channelled, red, bordered at top. Flowers green, in a loose slender spike. Calyxes five-leaved; leaflets oblong, obtuse, white-membranaceous, ending in a green, setaceous point*.—Native of China, Cochin, Amboina, and Brasil.] The young plants of this sort are much used, as we do Spinach, in these countries. [Linneus says, that the leaves have a livid spot underneath, but this is not always observable. The colour of the leaves, although it be remarkable in this genus, is yet changed by culture. This species is nearly related to the following, but may easily be distinguished by its upright stalk, more loose and slender spike, rhomboidal leaves, and five-leaved calyx †.

It was cultivated in 1759, by Mr. Miller, and flowers from June to August ‡.

15. Stem a span high, upright, flexuose, reddish, streaked, smooth, with diffused branches at the base. Leaves smooth, green, emarginate, with a very short, white point, a little waved about the edge. Petioles green, smooth, and long. Flowers axillary, sessile, glomerate, collected at the top into a single slender spike, two inches long. Calyxes three-leaved; leaflets oblong, bluntish, green-membranaceous. Bractes scattered, oblong, blunt.—Native of all Europe, except the very cold parts, Japan, &c. in cultivated grounds, on dung-hills, banks, among rubbish, &c.

16. Stems two feet high, loose, (not upright and stiff) flexuose, climbing among shrubs. Leaves petioled, remote. Flowers in a few terminating, loose, green spikes; spicules very short, curved inwards. Capsules ovate. It resembles the foregoing species. Native of America §.

17. Stem red, near a foot high, upright, streaked, smooth, a little flexuose at top. Leaves smooth, green, spreading, with a very short point. Petioles channelled, smooth, green. Spike quite simple, terminating, green; in some slender and interrupted, in others thick and blunt: there are also glomerules in the axils. Calyxes five-leaved; leaflets oblong, lanceolate, acute, membranaceous, with a green nerve. Bractes very many, subulate, mucronate, surrounding the flowers.—It is doubtful whether this be a distinct sort, or merely hybridous; as perhaps several others are. It is the connecting link, in point of outward form, between the three-stamened and five-stamened Amaranths. It varies much; for from the same seed arise individuals wholly green, red, and rufous liver-coloured; with spikes both green and red, sometimes very thin and slender, sometimes condensed, blunt, and thick, sometimes again long and interrupted: their stature however is always low, and the spike simple. The native place is not known ||.

18. Stem two feet high, and in gardens double that height, green or red, upright, smooth, streaked. Leaves green with the edges red, sometimes entirely green, sharp at the end with a short, red point. Petioles slightly channelled, red. Racemes naked, compound, upright; in the open air very much crowded; in plants raised in a hot-bed somewhat distant, branched, and green. Calyxes five-leaved: leaflets oblong, membranaceous, acuminate. Bractes subulate, green, in some red, surrounding the flowers ¶.—Retzius describes the leaves as cordate; the petioles and nerves as hirsute; and the number of stamens three or four. These differences may perhaps be attributed to soil. Nothing is more common than to find a difference in the number of stamens among the Amaranths; and the species which are set down as three-stamened have frequently four stamens in the flowers **. Willdenow enumerates four varieties—1. Wholly green. 2. With a red stalk. 3. With the racemes red-

¶ Willdenow.

* Hort. kew.

† Willdenow.

‡ Hort. kew.

§ Willdenow.

|| Hort. kew.

** Willdenow.

†† Hort. kew.

* Willd.

† Ibid.

‡ Hort. kew.

§ Willdenow. Lin. suppl.

|| Willdenow.

¶ Ibid.

** Ibid.

dish, the rest green. 4. With red racemes. These are different in their appearance, but arise from the same seed. There are probably more, for in this genus, and especially in this species, hybridous plants are very apt to arise, on account of the separation of the sexes. It is found wild in Virginia and Arabia Felix *. It was cultivated in 1656, by Mr. John Tradescant, junior, and flowers from June to September †.

19. Stem two feet high and more, obscurely angular, grooved, smooth, green, red or marked with red lines at the base. Leaves green; the end produced, blunt, emarginate with a small point, decreasing at the base into the petiole, with whitish veins underneath. Petioles channelled, green, upright. Racemes heaped, cylindraceous, pressed close to the stalk, green. Calyxes five-leaved; leaflets green, ovate, acuminate, membranaceous, with a green nerve, and a point of the same colour. Bractes subulate-ovate, pointed, with a green nerve. It differs from all the five-stamened species, in its upright racemes pressed close to the stalk; and the stiffness of the whole habit. Its native place of growth is unknown ‡.

20. Stem upright, a foot high, green, roundish, smooth, streaked. Leaves green, smooth; the point very short, herbaceous. Petioles red at the base, smooth, channelled. Raceme green, terminating, somewhat diffused; in the lower part of the stem the racemes are quite simple. Calyxes five-leaved; leaflets oblong, obtuse, membranaceous. Bractes subulate, pointed, green, surrounding distant glomerules of flowers. Capsule oblong, wrinkled at bottom. Seed dark brown, shining. It varies with a reddish stalk and leaves. The edge of the leaves has almost always a tendency to red, but the other parts are green. It is distinguished from *A. hybridus*, which it resembles very much, in having the leaves blunt at the end, and being much smaller in stature. The stem is never more than a foot high §.

21. Stem a foot and half or two feet in height, grooved, green with red streaks, smooth, slightly pubescent among the flowers. Leaves green, spotted with brown above, red beneath, bluntnish with a reddish, short point. Petioles red, channelled, smooth. Racemes red and green, with branchlets spreading and nodding a little. Calyx five-leaved; leaflets oblong, pointed, white-membranaceous, with a red nerve, and a point of the same colour. It varies of a shining red colour, with a red stalk, with pale leaves, with a green stalk, with variegated leaves, &c. || As first cultivated in England in 1728, the stem was wholly red and smooth; the petioles, ribs, and nerves of the leaves underneath purple; the spikes purple, much spreading, and a little nodding ¶. They were very beautiful, and made a gay appearance for the two first years; but afterwards the seeds degenerated, and the plants had little beauty; which is the same with some others of this genus. [It is a native of the East Indies and of China: and flowers from June to August.]

22. Stem erect, a foot and half or two feet in height, smooth, except under the leaves, where it is a little scabrous, reddish, roundish, streaked and grooved. Leaves red and green, acute, with elevated veins. Petioles channelled, reddish. Racemes naked, red, lateral, short, placed about the stem without order. Calyxes five-leaved; leaflets oblong, acute, membranaceous, red.—It varies with leaves more or less red, with very red and paler racemes, with a green and red, with a rough and smooth stalk. It approaches very near both in structure, and variableness of colour to *A. hybridus*; and is distinguished from it, not without difficulty, only by the following circumstances. 1. The racemes are more red. 2. The leaves are much sharper at the end. 3. The base of the leaves runs far down along the petiole. Upon the whole it seems only to be a variety of that. It is a native of Virginia **. It flowers from July to September. Mr. Miller cultivated it in 1739 ††:] but it is now become a common weed, frequently growing upon dung-hills: the

plants abound with seeds, so that where they are permitted to scatter, they will come up abundantly the following summer; and will remain in the ground several years.

23. [Stem upright, four feet high, firm, red, round, streaked. Leaves somewhat convex, or rather so contracted as to have the form of a boat, pointed; the older ones rather blunt; the upper surface is a mixture of red and green, the lower more or less purple. Petioles tinged with purple, channelled, roughish, winged at top with the leaf. Racemes very red; branches smooth, the lower ones spreading. Calyxes five-leaved; leaflets oblong, blunt, membranaceous, red. Bractes subulate-setaceous, red, longer than the flowers, closely surrounding the glomerules. These are more distant; and the racemes are more branched than in *A. paniculatus* *.]

The seeds were sent to Mr. Miller from the Bahama Islands before 1755, as an esculent plant, bearing fine flowers. He describes it as growing three feet high, with purple stalks and leaves; the spikes short and swelling out in the middle, frequently produced from the axils; but at the extremity of the stalk arises a large cluster of spikes placed crosswise, with one upright stalk in the middle: these are of a bright purple colour at first, but afterwards become darker, as the seeds ripen. It flowers from the middle of June to September.

[24. Stem upright, firm, a fathom in height, grooved, bluntly angular, green, slightly pubescent. Leaves roughish, green, purplish about the edge, and with veins of the same colour. Petioles channelled, reddish, pubescent. Racemes red, closely imbricate. Calyxes five-leaved; leaflets oblong, red, pointed. Bractes oblong, pointed, surrounding the glomerules of flowers.—It differs from *A. sanguineus* in its pubescent branches, pointed calyxes, closer glomerules, and the whole habit.—Native of America †.

25. Stem upright, three feet high, somewhat flexuose, green, round, grooved, very pubescent, branched at bottom, branches reflex when young, afterwards upright. Leaves ovate-acuminate, with a very short, green point, the veins beneath pubescent. Petioles green, scabrous, channelled, pubescent. Racemes green, with the branches spreading. Calyxes five-leaved; leaflets transparent, white-membranaceous with a green nerve, oblong, obtuse, with a membranaceous white point. Bractes setaceous-subulate, green, twice as long as the flowers. It differs very much from all the other species, in its pubescent stem, stouter stature, green colour of the whole, and peculiar habit. It approaches to *A. paniculatus* in the pubescence of the racemes; but differs in having green spikes, setaceous-subulate bractes, and leaves waved about the edge. Native of Pennsylvania ‡. It flowers from July to September; and was cultivated by Mr. Miller, in 1759 §.] Being now become a common weed in many gardens near London, it is seldom allowed a place except in botanic gardens.

[26. Stem four feet high, somewhat flattened, streaked and grooved, smooth; that and the whole plant are green. Leaves flat, smooth, acute, pointed. Petioles long, channelled, smooth, bordered. Racemes loose, the upper ones nodding, and a little pubescent. Calyxes five-leaved; leaflets oblong, transparent, acuminate, nerve and point green. Bractes scattered, oblong, acuminate. It differs from *A. retroflexus*, which it otherwise resembles very much, in its smooth stalk, lanceolate flat leaves, the glomerules in more distant racemes, and in being much more slender. The native place of growth is not known ||.

27. Stem four feet high and more, roundish, streaked and grooved, somewhat flexuose, green marked with red lines, smooth. Leaves somewhat waved, pointed, green with reddish veins beneath. Petioles red, channelled, bordered. Flowers crowded in the racemes, green, with red pubescent branches.

* Willdenow. † Hort. kew. ‡ Willd. § Ibid. || Ibid.
¶ Martyn rar. ** Willdenow. †† Hort. kew.

* Willdenow. † Ibid. ‡ Ibid. § Hort. kew.
|| Willdenow.

Calyxes five-leaved; leaflets oblong, sharp. Bractes lanceolate-setaceous, scatteringly surrounding the flowers. It differs from the foregoing, in the form and waving of the leaves; in the red lines on the stalk; in the red rachis of the flowers, and in the greater closeness of the racemes: from *A. retroflexus*, in having the leaves less waved, ovate-lanceolate, much less obtuse; the stem at bottom and the petioles smooth; and the colour in the stem, rachis, and veins of the leaves red. Although it has the name *flavus*, the flowers are always green; only turning yellow as the seed ripens*. It is a native of the East Indies. Mr. Miller, who cultivated it in 1768, mentions, that he received the seeds from Portugal, by the title of *Bredos*, recommending it to be cultivated as a culinary herb: but the Portuguese call all the green Amaranths by this name†.

28. Stem generally two feet high, green, obscurely angular, grooved and streaked, smooth, covered at top with thin, whitish, scattered hairs: the upper part nods on account of the great length of the racemes. Leaves smooth, bright green, blunt, emarginate, with an incurved transparent point. Petioles much shorter than the leaf. Racemes terminating, elegantly purple, very long, cylindrical, composed of flowers very closely glomerate. Calyxes five-leaved; leaflets oblong, red, acuminate, membranaceous. Bractes oblong, pointed, scattered‡.] Mr. Miller says, that he has measured some of the spikes two feet and a half long.

β. The *Tree-Amaranth*, which Mr. Miller makes a distinct species, rises to the height of seven or eight feet. The spikes are seldom half the length of those of the other, but are much thicker.—[This degenerates gradually into the smaller. The seeds also, which at first are white, become red§.—It flowers in august and september; and was cultivated in 1683, by Mr. James Sutherland||.—Native of Persia, Ceylon, Guiana, Peru, &c.

29. Stem upright, flexuose, a foot or eighteen inches high, green, roundish, smooth, streaked; with short branches. Leaves rhomb-ovate, waved, green, smooth, blunt, spreading, emarginate, with a very short, whitish point. Primordial leaves obovate. Petioles long, green, channelled, smooth, bordered at top. At each side of the petiole is a stiff spine, about four lines in length, three-cornered, sharp, green. Racemes almost erect, green, cylindraceous except that they become narrower at the top: flowers very closely heaped together, the upper ones male, the lower female. In the axils are glomerules, which seem usually to have none but female flowers. Calyxes five-leaved; leaflets green-membranaceous, oblong, acute. Bractes minute, subulate every where among the flowers.—When raised in a stove it is more slender, and the stem decumbent: in the open air it is rigid and upright.—It varies with the spikes and stem reddish.—Native of the East and West Indies, Guiana, Guinea, &c. In the former they eat it as a green boiled, with *Basella cordifolia*¶.—It was cultivated in 1683, by Mr. James Sutherland; and flowers from july to september**.] This species makes no great figure, and therefore is rarely allowed a place, except in botanic gardens.

[The old English names of the few sorts formerly known, were *Flower-gentle*, *Floramour*, and *Velvet-flower* or *Flower-Velure*; but all these have given place to *Amaranth*.]

Most of the species are used as culinary plants in hot countries; and the seeds of several have been sent to England, with advice to cultivate them for the same purpose here. Where esculent plants are scarce, these may be esteemed; but Spinach being cultivated with us with greater ease, and being also much preferable, these are not worthy of being propagated as esculents.

PROPAGATION AND CULTURE.

The sorts which are worthy of a place in the pleasure garden, are particularly the eighth and

* Willdenow, † Ibid. ‡ Ibid. § Ibid. || Hort. kew.
¶ Willdenow, ** Hort. kew.

twelfth: these are tender, and require some art and care to bring them to perfection in England, therefore their management will be hereafter more particularly inserted. They are generally disposed in pots with Cocks-combs and other showy plants, to adorn court-yards, and other immediate environs of the house.

Next to these are the twenty-third and twenty-eighth sorts, for the ornament of principal borders in the pleasure-garden or parterres. The seeds of these should be sown upon a moderate hot-bed toward the end of march, and when the plants come up, they should have a large share of air admitted to them in mild weather, to prevent their drawing up weak. When they are large enough to transplant, there should be another moderate hot-bed provided, to which they should be removed, placing them at six inches distance every way, observing to water them, as also to shade them from the sun until they have taken new root; after which the air should be freely admitted to them, at all times when the weather is favourable; their waterings should be frequent, but not given in great quantities. As the plants advance, and the warmth of the season increases, they should have a greater share of air, that by degrees they may be hardened to bear the open air. The beginning of june they may be taken up with large balls of earth to their roots, and planted some into pots, and others into the borders of the pleasure-garden, observing to shade them until they have taken good root; after which they must be frequently watered in dry weather, especially those in the pots, which will require watering every evening in warm dry weather. The tree Amaranth, (28. β.) will not thrive in pots, but should be planted in a rich light soil, where, if it be allowed room, and plentifully watered in dry weather, the plants will grow to a very large size, and make a fine appearance.

The twenty-first sort is also tender, whoever therefore is inclinable to cultivate that plant, should treat it in the same manner as is directed for the twenty-third and twenty-eighth.

The other sorts being hardy enough to grow in the open air, may be sown on a bed of light earth in the spring, and when the plants are fit to remove, they may be transplanted into any part of the garden, where they will thrive and produce plenty of seeds, which, if permitted to scatter, will stock the garden with plants.

The twenty-third and twenty-eighth sorts must be sown on a good hot-bed in february, or the beginning of march at farthest; and in about a fortnight's time, if the bed is in good temper, the plants will rise; soon after which you must prepare another hot-bed, covered with good, rich, light earth, about four inches thick; then raise up the young plants with your finger, so as not to break off the tender roots, and prick them into your new hot-bed about four inches distance every way, giving them a gentle watering to settle the earth to their roots; but in doing this, be very cautious not to bear the young plants down to the ground by hasty watering, which rarely rise again, or at least so as to recover their former strength in a long time, but very often rot in the stems, and die quite away.

In the middle of the day keep them screened with mats from the heat of the sun, and give them air by raising up the glasses; and if the glasses are wet, it will be proper to turn them every day, in good weather that they may dry; for the moisture which is occasioned by the fermentation of the dung, and the perspiration of the plants, is of a noxious quality, and very unkindly to plants; so that if the weather happens to prove bad, that you cannot turn your glasses, it will be of great service to the plants to wipe off all moisture two or three times a day with a woollen cloth to prevent its dropping upon the plants. When the plants are firmly rooted, and begin to grow, you must observe to give them air every day, more or less, as the weather is cold or

hot, to prevent their drawing up too fast, which greatly weakens their stems.

In about three weeks or a month's time, these plants will have grown so as to meet, and will stand in need of another hot-bed, which should be of a moderate temper, and covered with the same rich earth about six inches thick, into which they should be removed, observing to take them up with as much earth about their roots as possible, and plant them six or seven inches distance every way, giving them some water to settle the earth about their roots; but be very careful not to water them heavily, so as to bear down the plants, as was before directed; and keep them shaded in the heat of the day, until they have taken fresh roots; and be sure to refresh them often gently with water, and give them air in proportion to the heat of the weather, covering the glasses with mats every night, lest the cold chill your beds, and stop the growth of the plants.

The middle of May you must provide another hot-bed, which should be covered with a deep frame, that the plants may have room to grow. Upon this hot-bed you must set as many three-penny pots as can stand within the compass of the frame; these pots must be filled with good rich earth, and the cavities between each pot filled up with any common earth, to prevent the heat of the bed from evaporating, and filling the frame with noxious steams: when the bed is in good order to receive the plants, they should be carefully taken up with a trowel, observing to preserve as much earth to their roots as possible; then place each single plant in the middle of one of the pots, filling the pot up with the earth before described, and settle it close to the root of the plant with your hands; water them gently, as before, and shade them in the heat of the day from the violence of the sun, by covering the glasses with mats.

In about three weeks more these plants will have grown to a considerable size and strength, so that you must now raise the glasses very much in the day-time; and when the air is soft, and the sun is clouded, draw off the glasses, and expose them to the open air; and repeat this as often as the weather will permit, which will harden them by degrees to be removed abroad into the places where they are to remain the whole season; but it is not adviseable to set these plants in the open air until after the first week in July, observing to do it when the air is perfectly soft, and, if possible, in a gentle shower of rain.

Let them at first be set in shelter for two or three days, where they may be screened from the violence of the sun, and strong winds, to which they must be inured by degrees. These plants, when grown to a good stature, perspire very freely, and must be every day refreshed with water, if the weather proves hot and dry; otherwise they will stint, and never produce so large leaves, as those which are skilfully treated.

This is the proper management, in order to have fine Amaranths, which, if rightly followed, and the kinds are good, in a favourable season, will produce large fine leaves, and these plants are the greatest ornament to a good garden for upwards of two months in the latter part of summer.

Where persons are curious in having these annual plants in great perfection, there should be a glass-case erected with upright and sloping glasses on every side, with a pit in the bottom for tan, in which the pots should be plunged; if this be raised eight or nine feet to the ridge, and the upright glasses are five feet, there will be room and height enough to raise these and other annual plants to great perfection, and in such a building, many of those tender annual plants, which rarely perfect seeds in this climate, without such contrivance, may be every year brought so forward as to ripen their seeds.

[The state of the cultivation of exotic plants in England, at the end of the sixteenth century, appears from the direction which Gerard gives for that

of *Amaranthus tricolor*. "The Floramor, says he, "would be sown in a bed of hot horse-dung with "some earth strowed thereon in the end of March, "and so covered with mats or such like in the "night and laid to the sun in the day time; other- "wise the winter will approach before it cometh to "perfection, for that it is very impatient of our "cold climate. The right honourable the Lord "Edward Zouche gave me the seedes thereof, the "which brought forth their pleasant leaves, but "perished before the seed was ripe, which chanced "for want of this instruction*."

The Amaranths are very prolific; Willdenow informs us that he saved eight ounces of seed from one plant of *A. caudatus*. The seeds preserve their germinating quality several years, but continue longer in the ground than fresh seeds, which germinate in eight days†.

AMARANTHUS. See *Achyranthes*. *Celosia*. *Illecebrum*. *Iresine*. *Rivina*.

AMARANTHUS LUTEUS. See *Gnaphalium*.

AMARELLA. See *Gentiana*.]

AMARYLLIS. (The name of a shepherdess in Theocritus and Virgil: if it be derived from *αμαρυγία* or *αμαρυγν*, splendor, it is given with great propriety to this splendid genus.)

Lin. gen. n. 406. Reich. 439. Schreb. 554. Juss. 55.

Lilio-narcissus. Tournef. 207.

Class. 6. 1. Hexandria Monogynia.

Nat. order of Lilia or Liliaceæ. Spatheaceæ Lin. Narcissi Juss.

GENERIC CHARACTER.

CAL. Spathe oblong, obtuse, compressed, emarginate, gaping on the flat side and withering.

COR. Petals six, lanceolate. Nectary six very short scales without the base of the filaments.

STAM. Filaments six, awl-shaped; with oblong, incumbent, rising Anthers.

PIST. Germ roundish, furrowed, inferior; Style filiform, almost of the length and in the situation of the stamens: Stigma trifid, slender.

PER. a sub-ovate, three-celled, three-valved Capsule.

SEEDS several.

OBS. The inflection of the petals, stamens, and pistil is very various in the different species of this genus. The corolla in most of the species is rather hexapetaloid than six-petalled:

ESSENTIAL CHARACTER.

Cor. hexapetaloid, irregular. Filaments inserted into the throat of the tube, bending down, unequal in proportion or direction.

SPECIES.

1. *Amaryllis lutea*. Yellow Amaryllis, or Autumnal Narcissus.

Lin. spec. 420. Reich. 2. 25. hort. cliff. 135. Ait. hort. kew. 1. 415. Berg. phyt. 2. 163. Clus. hist. 1. 164. Weinm. phyt. 3. t. 652. f. C. (Lilio-narcissus) Rüd. elys. 2. 129. f. 1. (Colchicum.)

Spathe undivided, obtuse; flower sessile; corolla bell-shaped, erect, shortly tubular at the base; stamens erect, alternately shorter.

[2. *Amaryllis Pumilio*: Dwarf Amaryllis.

Ait. hort. kew. 1. 415.

Spathe two-leaved, one-flowered; corolla funnel-shaped, equal, segments revolute; stamens bent in, alternately shorter.]

3. *Amaryllis Atamasco*. Atamasco Lily.

Lin. spec. 420. Reich. 2. 25. hort. cliff. 135. Ait. hort. kew. 1. 416. Gron. virg. 36. Catesb. car. 3. t. 12. Barrel. ic. 994. Mor. hist. 2. 366. f. 4. t. 24. f. 4. Rüd. elys. 2. 94. t. 16. Weinm. phyt. 3. t. 652. f. 6. Trew; seligm. t. 37.

Spathe bifid; acute; flower pedicelled, corolla bell-shaped, nearly equal; erect, shortly tubular at the base; stamens bent down, equal.

4. *Amaryllis formosissima*. Jacobea Lily.

Lin. spec. 420. Reich. 2. 26. hort. cliff. 135.

* Gerard's Herball. edit. 1597.

† Willd. p. 6.

- upf. 75. Ait. hort. kew. 1. 416. Curtis, magaz. t. 47. Aët. Stockb. 1742. p. 93. t. 6. Mor. bist. f. 4. t. 10. f. 31. Barrel. ic. t. 1035. Dill. elib. 195. t. 162. f. 196. (Lilio-narcissus). Rudb. elyf. 2. 89. f. 10. Clus. bist. 1. 157. Park. parad. 71. f. 3. Baub. bist. 2. 609. Swert. flor. t. 28. Trew, seligm. t. 24. (Narcissus.)
Spathe undivided; flower pedicelled; corolla two-lipped, nodding, deeply six-parted; stamens and pistil bent down.
5. *Amaryllis reginæ*. Mexican Lily.
Lin. spec. 421. Reich. 2. 26. Ait. hort. kew. 1. 416. Mill. fig. 16. t. 23.
Spathe with about two flowers; pedicels divaricating; corollas bell-shaped, shortly tubular, nodding; throat of the tube hirsute; leaves lanceolate patulous.
- [6. *Amaryllis purpurea*. Purple-flowered *Amaryllis*.
Ait. hort. kew. 1. 417.
A. speciosa. L'Herit. fert. angl. 12. n. 11.
Crinum speciosum. Lin. suppl. 195.
Spathe with about two flowers, corollas somewhat erect, tubular at the base, throat of the tube smooth; leaves linear-lanceolate.
7. *Amaryllis equestris*. Barbadoes Lily.
Ait. hort. kew. 1. 417. Herm. par. 194. Merian. fur. t. 22. (Lilium).
A. dubia. Lin. aman. 8. 254.
Spathe with about two flowers, pedicels erect shorter than the spathe, tube filiform horizontal, border spreading open obliquely and curved upwards, throat hairy.
8. *Amaryllis reticulata*. Flat-stalked *Amaryllis*.
L'Herit. fert. angl. t. 14. Ait. hort. kew. 1. 417.
Spathe with about two flowers, corollas tubular at the base and nodding, throat of the tube smooth, scape compressed, leaves oblong attenuated at the base.]
9. *Amaryllis Belladonna*. Belladonna Lily.
Lin. spec. 421. syst. 320. Reich. 2. 26. hort. cliff. 135. Ait. hort. kew. 1. 417. Swartz, obs. 124. Mill. fig. 15. t. 24. Mill. illustr. Sloan. jam. 1. 244. Seba, thes. 1. 25. t. 17. f. 1.
Corollas somewhat erect, six-petalled, petals flat; scape compressed; leaves sharply channelled, bluntly keeled, very smooth.
- [10. *Amaryllis vittata*. Superb or Ribband *Amaryllis*.
L'Herit. fert. angl. t. 15. Ait. hort. kew. 1. 418. Curtis, magaz. t. 129.
Flowers pedicelled, corollas wedge-funnel-shaped, the rachis of the outer fastened to the edge of the inner petals, scape round, stigmas grooved.
11. *Amaryllis falcata*. Sick-leaved *Amaryllis* or *Crinum*.
Ait. hort. kew. 1. 418. L'Herit. fert. angl. 13. n. 15.
Crinum falcatum. Lin. syst. 319. Jacqu. hort. 3. 34. t. 60.
Corollas peduncled, erect, six-petalled; scape compressed, length of the umbel; leaves flat, pressed to the ground, about the edge sickle-shaped, white-cartilaginous crenate.
12. *Amaryllis ornata*. Cape Coast Lily or *Amaryllis*.
Ait. hort. kew. 1. 418. Ebret. piët. t. 5. f. 2?
Flowers sessile, corollas tubular at the base, tube longer than the spathe and border, curved, segments of the border oblong, awned, lowest segment divaricate concave.]
13. *Amaryllis longifolia*. Long-leaved *Amaryllis*.
Lin. spec. 421. Reich. 2. 27. Ait. hort. kew. 1. 419. Ebret, piët. t. 13. Herm. par. t. 195. L'Herit. fert. angl. 13. n. 16.
Flowers pedicelled, 12—20 flowers in a spathe, corollas tubular at the base, tube curved short, segments of the border lanceolate obtuse, leaves broad-subulate channelled flaccid at the tip.
- [14. *Amaryllis revoluta*. Revolute *Amaryllis*.
Ait. hort. kew. 1. 419. L'Herit. fert. angl. 14. n. 18.
Flowers pedicelled, corollas tubular at the base, tube filiform short curved, leaves linear narrow channelled long flaccid from their origin.
15. *Amaryllis aurea*. Golden *Amaryllis*.
Ait. hort. kew. 1. 419. L'Herit. fert. angl. t. 15.
Flowers pedicelled somewhat erect, corollas funnel-form-club-shaped, almost six-petalled, segments linear-lanceolate, stamens and style straight; leaves linear, erect, channelled, with a reflex, smooth margin.]
16. *Amaryllis orientalis*. Broad-leaved African *Amaryllis*.
Lin. spec. 422. Reich. 2. 27. Ait. hort. kew. 1. 420. Mor. bist. 2. 368. f. 4. t. 10. f. 35. (Lilio-Narcissus.) Swert. flor. 31. f. 1.
Brunsvigia. Heist. mon. fig.
Spathe many-flowered, flowers pedicelled, six-parted, considerably shorter than the peduncles, irregular; germs wedge-shaped, angular.
17. *Amaryllis farniensis*. Guernsey Lily.
Lin. spec. 421. Reich. 2. 27. hort. cliff. 135. upf. 75. Ait. hort. kew. 1. 420. Thunb. jap. 131. Lour. cochinch. 200. Douglas mon. fig. (Lilium.) Corn. canad. 157. t. 158. Rudb. elyf. 2. 23. f. 14. Ebret. sel. t. 9. f. 3. Kämpf. amen. 872. Seba, mus. 1. t. 17. f. 3. (Narcissus.) Trew, seligm. t. 30.
Petals linear, flat, stamens and pistil straightish longer than the corolla, stigmas parted, revolute.
- [18. *Amaryllis undulata*. Waved-flower African *Amaryllis*.
Lin. syst. 320. Reich. 2. 26. Ait. hort. kew. 1. 420. Jacqu. hort. 3. 11. t. 13. Meerburg ic. 13. f. Fr. Miller ic. 8.
Petals linear channelled waved, stamens and pistil bent down, shorter than the corolla, stigma obsolete.
19. *Amaryllis radiata*. Snow-drop-leaved *Amaryllis*.
Ait. hort. kew. 1. 421. L'Herit. fert. angl. 16. n. 26.
Lilio-Narcissus 5. Trew, seligm. t. 35.
Petals lanceolate waved, stamens and pistil bent down, diverging, twice as long as the corolla, stigma obsolete.
20. *Amaryllis montana*.
Billardiere ic. syr. 2. 5. t. 1.
Spathe many-flowered, leaves linear-subulate, petals alternate mucronate, stamens and style erect.
21. *Amaryllis tubispatha*.
L'Herit. fert. angl. 9. n. 2.
Spathe one-leaved tubular bifid one-flowered, peduncle twice as long as the spathe.
22. *Amaryllis tubiflora*.
L'Herit. fert. angl. 10. n. 3. Feuill. obs. 3. 29. t. 20. (Lilio-narcissus).
Spathe one-flowered two-leaved, corolla funnel-shaped, with a very long tube.
23. *Amaryllis spiralis*.
L'Herit. fert. angl. 10. n. 4. t. 13.
Spathe two-leaved few-flowered, peduncles filiform very long, leaves subulate.
24. *Amaryllis maculata*.
L'Herit. fert. angl. 10. n. 6.
Spathe one-flowered two-leaved linear, flower peduncled, stamens and style bent down.
25. *Amaryllis chilensis*.
L'Herit. fert. angl. 11. n. 7. Feuill. obs. 3. t. 21.
Spathe one or two-flowered, one or two-leaved, lanceolate, flowers peduncled, leaves linear.
26. *Amaryllis clavata*.
L'Herit. fert. angl. 11. n. 8.
Spathe one-flowered two-leaved subulate, corolla club-shaped.]
27. *Amaryllis zeylanica*. Ceylon Lily.
Lin. spec. 421. L'Herit. fert. angl. 13. n. 17.
Crinum zeylanicum. Lin. syst. 318. Reich. 2. 24. Comm. hort. 1. 73. t. 37. Rudb. elyf. 2. 181. f. 9. Ebret. piët. 5. f. 2? Trew, ebret. 3. t. 13? (Lilio-narcissus). Rumph. amb. 5. 306. t. 105.
A. bulbisperma. Burm. prodr. 19.
Spathe many-flowered, corollas reclining, tube filiform very long, segments uncinat.
28. *Amaryllis latifolia*.
L'Herit. fert. angl. 14. n. 19.
Crinum latifolium. Lin. spec. 419. Reich. 2. 23. Mill. dict. n. 4. Rheed. mal. 11. 77. t. 39.
Spathe many-flowered, flowers pedicelled, somewhat reclining, tubular at the base; leaves oblong-lanceolate.
- [29. *Amaryllis*

[29. *Amaryllis cinnamomea*.

L'Herit. fert. angl. 16. n. 27. t. 17.

Spathe many-flowered; corollas subhexapetalous lanceolate waved, stamens and pistil erect shorter than the corolla.

DESCRIPTIONS, &c.

1. The flowers of *Yellow Amaryllis* seldom rise above three or four inches high; they are shaped somewhat like those of the large yellow *Crocus*; the green leaves come up at the same time, like the Saffron, and after the flowers are past, the leaves increase all the winter. The roots are shaped like those of the *Narcissus*. [It is a native of the south of France, Spain, Italy and Thrace*, and was cultivated in 1596, by Gerard. It flowers in september†.]

This species recedes a little from the genus‡.

2. Root-leaf linear, narrowed at bottom. Scape round, a palm high, greenish. Flower terminating, solitary. Leaflets of the spathe linear-subulate, embracing at the base, longer than the tube of the corolla, green. Tube of the corolla an inch in length, white, with six raised white lines on the outside, and as many red ones on the inside, alternate with the former. Segments of the border ovate-oblong, acute, reflex, longer than the tube, white on the outside, black-coloured within. Filaments filiform, inserted into the tube below the throat, bent in at the tip, white; three alternately shorter: anthers oblong, incumbent, yellow. Germ oblong: style filiform, longer than the stamens, white: stigma trifid; the segments linear, red with a white tip. Native of the Cape of Good Hope; where it was found by Mr. Francis Masson. It was introduced here in 1774, and flowers in november§.]

3. The flowers of the *Atamasco Lily* at their first appearance are of a fine carnation colour on the outside, but fade till they are almost white. They are nearly as large as those of the small *Orange Lily*, but do not grow above six or eight inches high; they appear the end of may, or beginning of june, and sometimes in august. It is a native of Virginia and Carolina, where it grows plentifully in the fields and woods, and makes a beautiful appearance when in flower. [Cultivated in 1680, by Mr. Charles Hatton||.]

4. The flower-stems of the *Jacobæa Lily* are produced from the sides of the bulbs, so that after the flower produced on one side is decayed, another stalk arises from the other side of the bulb; but there is usually no more than one flower produced on the same stalk. The flowers are large, and of a very deep red; the under petals are very large, and the whole flower stands nodding on one side of the stalk, making a most beautiful appearance. [Each filament has a scale, arising from the receptacle, sitting close at the base. Sometimes, but rarely, two flowers proceed from the same spathe. It is a native of South America, and was first known in Europe in 1593¶. It was figured by Parkinson in 1629, and called by him, the Indian Daffodil with a red flower**. In 1658, it was cultivated in the Oxford garden††.]

5. *Mexican Lily*. Bulb green, scape round, sub-compressed. Corolla scarlet, with a bottom of a whitish green: the three outer petals reversed at the tip, the three inner fringed at the base; the style red‡‡.] The flower-stems seldom rise more than one foot high; each stem supports two, three or four flowers, rarely more; they are large, and of a bright copper colour, inclining to red; the spathe, which covers the buds before they open, divides into two parts to the bottom, standing on each side the umbel of flowers, joined to the peduncles. It flowered in Mr. Fairchild's garden at Hoxton in 1728, when the late Dr. James Douglass caused a figure of it to be drawn, and wrote a folio pamphlet on it. He gave it the title of *Lilium Regina*, because it was in

full beauty on the first of march, which was the late queen's birth-day. Mr. Fairchild told me the roots were brought from Mexico; so he gave it the name of Mexican Lily, which is still continued to it by the English gardeners. It flowers constantly in the spring, when it is placed in a very warm stove. It is in beauty in february, and those which are in a moderate temperature of air, will flower in march or april. [This species is, by a mistake of the engraver, numbered xxiii. in Mr. Miller's plates; it should have been xxiv.]

6. Very nearly allied to the foregoing; inasmuch that Mons. L'Heritier doubts whether it be a distinct species. The corolla is large, and of a blood-red purple colour. It is a native of the Cape of Good Hope, where it was found by Thunberg and Masson. Introduced here in 1774*.

7. Native of the West Indies. Introduced, in 1778, by William Pitcairn, M.D.†.

8. This is distinguished by the petals being transversely veined, and by the smoothness of the throat‡. It flowers in april; is a native of Brazil; and was introduced in 1777, by Edw. Whitaker Gray, M.D.§.

9. *Belladonna Lily*, differs from the fifth species in having the edges of the petals waved, and not reversed at the tip||. Scape purple, sustaining from five to seven flowers, in shape like the common Red Lily, and near as large, but of a soft purple colour, inclining to white within side toward the bottom, and having an agreeable scent. It was first brought to England about the year 1712; from Portugal, where the gardens formerly abounded with these flowers; but the *Jacobæa Lily* has since supplanted this in most of their gardens, and the bulbs imported thence for this of late years have generally proved to be the *Jacobæa Lily*. The gardens in Italy have great quantities of these flowers, especially about Florence, where they are commonly sold in the markets, under the name of *Narcissus Belladonna*. This sort usually flowers about the end of september, or the beginning of october, in England; and, if the roots are strong, the stem will rise upwards of two feet high. If the season is favourable, or the flowers are screened from frosts, violent winds and heavy rains, they will continue in beauty a month or longer; and are very ornamental plants to a garden, at a season when there is a great scarcity of flowers. [Native of the West Indies, on shady hills, by the side of streams¶. It is numbered xxiv in Mr. Miller's plates; but should have been xxiii.]

10. The petals uniting at bottom form a fleshy tube, but the edges of the outer ones are free at the base**. Mons. L'Heritier gave it the name of *vittata*, from their ribband-like appearance, being striped with red on a white ground. When it blossoms in perfection, it deserves the name of superb, which the late Mr. Aiton has given it; the stem rising to the height of three feet or more, and producing from two to five beautiful flowers. It usually blossoms in april or may, but may be forwarded by artificial heat. Of what country it is a native is not known with certainty, but most probably of the Cape††. It was introduced into England by Mr. William Malcolm, in 1769‡‡.

11. Leaves linear, obtuse, thickish, glaucous. Scape lateral, upright, half the height of the leaves, rufous. Spathe two-leaved; valves ovate, bluntish, entire, suberect, dirty rose-colour and yellowish. Flowers sweet-scented, as many as seven in number, suberect, in a sort of umbel, on obscurely angular, shining peduncles, an inch and half in length. Corolla equal, funnel-shaped; tube short, petals long, narrowing a little towards the base; white with the middle of the back red. Stamens not bent down. Style bent down, red§§. Professor N. J. Jacquin received the bulb of this species from the Cape in 1770. Introduced here in 1774, by Mr. Francis Masson|||.

* Linneus. † Hort. kew. ‡ L'Heritier.
§ Hort. kew. || Ibid. ¶ Linneus.
** Curtis mag. †† Hort. kew. ‡‡ Linneus.

* Hort. kew. † Ibid. ‡ L'Heritier. § Hort. kew.
|| Linneus. ¶ Swartz obs. ** L'Heritier. †† Curt. mag.
‡‡ Hort. kew. §§ Jacq. hort. ||| Hort. kew.

12. *Cape Coast Lily* is a native of Guinea, and flowers with us in June and July. It was probably cultivated by Robert James Lord Petre in 1740*.]

13. The flower-stem rarely rises more than three or four inches high, but supports a great number of flowers, of a deep purple colour, appearing in December. The bulbs are large; the leaves long and narrow. It is a native of the Cape of Good Hope; [and was introduced in 1773, by Mr. Francis Masson. It flowers in July†.

14. Leaves two feet long, half an inch broad, channelled. Scape a foot high. Umbel four-six flowered. Flowers sweet-scented: tube three-cornered, green, bent in; segments of the border two inches long, white within, on the outside pale red about the middle, to which part they are rolled back. Native of the Cape of Good Hope. Found there by Mr. Francis Masson. Introduced in 1774. It flowers in September‡.

15. Leaves keeled, a foot and half long, scarcely an inch broad. Scape a little compressed, scarcely two feet high. Spathe two-leaved, lanceolate, shrivelling, three inches long, containing from five to nine flowers. Pedicels unequal, an inch or more in length, with a membranaceous, lanceolate bract at the base, the length of the pedicels. Corolla yellow: tube three-cornered, scarcely half an inch in length; segments of the border thicker at the end, slightly hooked, two inches and a half long, with blunt, greenish keels. Filaments inserted into the throat, three alternately longer, and three shorter than the corolla: anthers linear-oblong, straight, pale yellow. Germ ovate, bluntly three-cornered: style filiform, longer than the stamens: stigma tripartite, scarlet. Native of China. Introduced in 1777, by John Fothergill, M.D. It flowers in August and September§.]

16. Bulbs large and almost round; leaves long, broad, and rounded at their extremities, these spread two ways on the surface of the ground, and do not come up till after the flower-stem appears, which is generally in November; and after the flowers are past, the leaves increase till spring, and in May they begin to decay, so that from the middle of June to October the plant is void of leaves. It grows naturally at the Cape of Good Hope; from whence Mr. Miller says that he received the roots, which succeeded in the Chelsea garden. [In the Kew Catalogue, it is said to be introduced in 1767, by Mr. William Malcolm.

17. *Guernsey Lily*. Bulb an oblong spheroid, flattened most at the lower end, six or seven inches round where thickest. Leaves dark willow-green, shining, from half an inch to three quarters of an inch in breadth, a little blunt at the end, from two to four in number, rarely five. Scape flattened, twelve or fourteen inches in height, and more. Spathe splits and falls back in two unequal pieces of a reddish colour and triangular figure. Pedicels from an inch to almost two inches in length. Number of flowers commonly from eight to twelve. Circumference of each flower about seven inches. The corolla, when in its prime, has the colour of a fine gold tissue wrought on a rose-coloured ground; and when it begins to fade, it is a pink: when beheld in a full sun-shine, it seems to be studded with diamonds, but by candle-light the specks or spangles look more like fine gold dust: when the petals begin to wither, they assume a deep crimson colour. The flowers begin to come out at the end of August, and the head is usually three weeks in expanding gradually. This beautiful plant is a native of Japan, and has been long naturalized in Guernsey. According to Cornutus, it was brought from Japan to Paris, and cultivated in Morin's garden before 1634. It was in the royal garden before 1666. In England, it was cultivated by General Lambert, at Wimbledon, in 1659, but it seems then to have been little known. In 1664 it was grown more common. It

does not appear to have been in Holland before the year 1695.

The plants are reputed to owe their origin in Guernsey, to the shipwreck of a vessel in its return from Japan, probably before the middle of the last century*.

18. Bulb roundish-ovate. Leaves few, linear, bluntish, almost erect. Scape obscurely and bluntly ancipital, the length of the leaves. Spathe two-leaved, leaflets oblong, streaked, quite entire, purple on the outside, flesh-coloured within, subpellucid, erect. Peduncles about twelve in an umbel, slender, patulous, one-flowered; among which some capillary, rose-coloured threads are intermixed. Petals rose-coloured. The flowers are void of scent, and expand from November to the beginning of January. Native of the Cape of Good Hope†. Introduced about 1767, by John Blackburne, Esq. and flowers here from April to June‡.

19. It is not known where this species grows naturally. It was cultivated by Mr. Miller, in 1758; and flowers in June§.

20. Stem upright, somewhat flexuose, often branched, leafy, scarcely streaked. Leaves sheathing; those on the stem half-stem-clasping, membranaceous at the base. Flowers panicled, terminating, usually in an umbel. Spathe many-leaved, leaflets the number of the flowers, lanceolate, withering. Petals oblong, blue, three alternately pointed at the tip, the rest blunt. Filaments filiform, straight, inserted into the segments of the corolla at the claws; three of them shorter, fixed to the pointed petals. Anthers four-grooved. Germ turbinate. Style longer than the stamens. Stigmas three, recurved. Capsule ovate-oblong, drawn to a point at bottom, scarcely streaked. Seeds ovate-oblong, black. Native of the higher parts of Mount Lebanon||.

21. Scape erect, four inches high. Spathe occupying almost the middle of the scape, tubulose, cylindraceous, bifid, with the segments opposite. Flower upright. Three alternate filaments shorter. Found at Buenos Ayres, by Commerfon¶.

22. According to Dombey, who observed this species in Peru, the filaments are equal. Monf. L'Heritier thinks them only nearly so**.

23. Corolla six-parted, with an equal border spreading out very wide, and a short tube. Filaments erect, alternately shorter. Scape twisted at the base. Discovered by Bruguere, in sandy grounds near the Cape of Good Hope††.

24. Scape variegated with linear spots. Corolla bell-shaped. Found in Chili, by Dombey‡‡.

25. This has the flowers of *A. Belladonna* or *Reginæ*; they are of a purple colour. Found also in Chili, by Dombey§§.

26. Flower pedicelled. Tube narrow at the base and then widening; border very short. Native of the southern part of Africa|||.

27. Stature of *Crinum americanum*. Leaves of *Scilla officinalis*, fleshy, scabrous with a toothletted edge. Spathe bivalve, besides some interior scales or fragments. Germs sessile. Tube of the corolla of the same colour with the scape, which is rufous. Border white, with lanceolate, recurved petals, with a red keel underneath. Filaments and style blood-red¶¶. Pericarps viviparous***.

I have left this species where Linneus had first placed it, and in the genus to which Monf. L'Heritier has restored it. The *Lilio-narcissus*, figured by Ehret, is said to have come from the Cape, whereas this is a native of the East Indies, and it is doubtful whether his be the same with ours. Mr. Miller has the *A. zeylanica*, which he says is commonly called *Ceylon Lily*; and refers to Commelin's figure: but since he affirms that he has received roots and seeds of it from the West Indies, and gives

* Douglas descr. of the Guernsey Lily, fol. 1737.

† Hort. kew.

§ Ibid.

|| Billardiere.

** L'Heritier.

†† Ibid.

‡‡ Ibid.

||| L'Heritier.

¶¶ Lin. syst.

*** L'Heritier.

* Hort. kew.

† Ibid.

‡ Ibid.

§ Ibid.

no description of the plant, we cannot be certain that he intended this species.]

28. Mr. Miller compares this species with *Criminum asiaticum*; and says, that it has roots like that; the leaves narrower at their base, and stained with purple on their under side; the scapes purple, and growing to the same height as those of *C. asiaticum*; the flowers of the same shape, but the tube purple, and the segments having a purple stripe running through them; the stamens also are purple: so that this species is more beautiful than that. [It is a native of the East Indies.]

29. Flowers smaller by half than in *A. undulata*. Petals twice as broad, and the outer ones more revolute. Stigma simple. It is allied to *Hemanthus*. Found at the Cape of Good Hope, by Bruguiere*.

PROPAGATION AND CULTURE.

These plants are of the Liliaceous or Bulbous tribe; most of them have flowers of singular beauty, highly deserving the care and attention of the curious Botanist and Florist.]

1. The yellow autumnal Amaryllis is very hardy, and increases fast by offsets. The season for transplanting these roots is any time from may to the end of july, when their leaves are decayed, after which it will be too late to remove them; for they will begin to push out new fibres by the middle of august, or sooner if the season be moist, and many times they flower the beginning of september; so that if they are transplanted, it will spoil their flowering. This plant will grow in any soil or situation; but it will thrive best in a fresh, light, dry soil, and in an open situation; not under the dripping of trees, nor too near walls. It is commonly called by the gardeners, the Yellow Autumnal Narcissus, &c. and is usually sold by them with Colchicums, for autumnal ornaments to gardens; for which purpose this is a pretty plant, as it will frequently keep flowering from the beginning of september to the middle of november, provided the frost is not so severe as to destroy the flowers; for although there is but one flower in each cover, yet there is a succession of flowers from the same root, especially when they are suffered to remain three or four years unremoved.

3. The Atamasco Lily also is so hardy, as to thrive in the open air in England, provided the roots be planted in a warm situation, and on a dry soil: it may be propagated by offsets from the bulbs.

4. The Jacobæa Lily is now become pretty common in the curious gardens in England, the roots sending forth plenty of offsets, especially when they are kept in a moderate warmth in winter: for the roots of this kind will live in a good green-house, or may be preserved through the winter under a common hot-bed frame; but then they will not flower so often, nor send out so many offsets, as when they are placed in a moderate stove in winter. This will produce its flowers two or three times in a year, and is not regular to any season; but from march to the beginning of september, the flowers will be produced when the roots are in vigour.

It is propagated by offsets, which may be taken off every year; the best time to shift and part these roots is in august, that they may take good root before winter; in doing this, there should be care taken not to break off the fibres from their roots. They should be planted in pots of a middling size; and if they are kept in a moderate degree of warmth, they will produce their flowers in plenty, and the roots will make great increase.

5. The Mexican Lily being not so hardy as the foregoing, or the Belladonna Lily, must be placed in a warm stove; and if the pots are plunged into a hot-bed of tanner's bark, the roots will thrive better, and the flowers will be strong. It is increased by offsets, as the others, and flowers usually the beginning of spring, when it makes a fine appearance in the stove.

9. The method in which I have cultivated the

Belladonna Lily for some years past with great success, is as follows. I prepared a border close to a wall which had a south-west aspect, of about six feet wide, in the following manner, viz. I removed all the earth to the depth of three feet, then I put some very rotten dung in the bottom, six inches thick; upon which I laid light garden mould about twenty inches deep; after making this level, I placed the roots at six inches distance every way, and then covered them over with light sandy earth, to the height of the border, whereby the upper part of the roots were five or six inches buried, and in the winter I covered the border all over with rotten tanner's bark, three inches deep, to prevent the frost from penetrating the ground; and when the frost was very severe, I laid some mats or straw over the leaves to protect them from being killed. With this management the roots have greatly increased, and have constantly flowered every year; some of them have put out two or three stems, which grew near three feet high, and produced many flowers in each umbel, which have made a fine appearance during the month of october. The green leaves come up soon after, and abide all the winter and spring until june, at which time they decay; soon after which the roots should be transplanted, for if they are let stand till july, they will have sent forth new fibres, when it will greatly injure the roots, if they are disturbed. If some of these roots are planted in a warm border, close to a south wall, and on a dry soil, they will thrive very well, especially if they are covered in severe frost; and these roots will flower much stronger than those which are kept in pots, and will multiply faster.

[10. Rarely puts forth offsets from the roots, but readily produces seeds, by which it is propagated without difficulty.]

13. The thirteenth sort may be treated in the same manner as the Jacobæa Lily. It will increase pretty fast by offsets, when properly managed. It usually flowers in winter, if the pots be placed in a moderate stove; and as at that season there are few flowers in the open air, this is more valuable on that account.

16. The sixteenth species must be placed during winter in a stove, where there is a moderate share of warmth, nor should it have so much water as the Jacobæa Lily.

17. The Guernsey Lily is supposed to come originally from Japan, but has been many years cultivated in the gardens of Guernsey and Jersey; in both which places, it seems to thrive as well as if it was their native country; and from those islands their roots are sent annually to the curious in most parts of Europe. The bulbs are generally brought over in june and july; but the sooner they are taken out of the ground after their leaves decay, the better they are: for although the roots which are taken up when their flower-stems begin to appear, will flower, yet their flowers will not be so large, nor will their roots be near so good after, as those which were removed before they had sent out fresh fibres.

When these roots come over, they should be planted in pots filled with fresh, light, sandy earth, mixed with a little very rotten dung, and placed in a warm situation, observing now and then to refresh the earth with water: but by no means let them have too much wet, which would rot their roots, especially before they come up. About the middle of september, such of the roots as are strong enough to flower, will begin to shew the bud of their flower-stem, which is commonly of a red colour; therefore you should remove these pots into a situation where they may have the full benefit of the sun, and may be sheltered from strong winds: but by no means place them too near a wall, nor under glasses, which would draw them up weak, and render them less beautiful. At this season they should be gently refreshed with water, if the weather be warm and dry; but if it should prove very wet, they should be screened from it.

When

* L'Heritier.

When the flowers begin to open, the pots should be removed under shelter, to prevent the flowers from being injured by too much wet: but they must not be kept too close, nor placed in a situation too warm, which would occasion their colour to be less lively, and hasten their decay. The flowers of this plant will continue in beauty, if rightly managed, a full month; and though they have no scent, yet, for the richness of their colour, they are justly esteemed in the first rank of the flowery tribe.

After the flowers are decayed, the leaves will begin to shoot forth in length, and if sheltered from severe cold, will continue growing all the winter; but they must have as much free air as possible in mild weather, and be covered only in great rains or frosts; for which purpose, a common hot-bed frame is the properest shelter for them; because the glasses may be taken off constantly every day in dry open weather, which will encourage the leaves to grow strong and broad; whereas when they are placed in a green-house, or not exposed to the open air, they will grow long and slender; and have a pale weak aspect, whereby the roots will become weak, so that it seldom happens that they produce flowers under such management.

These roots should be transplanted every fourth or fifth year toward the latter end of June, or beginning of July, and planted into fresh earth, but they should not be oftener removed, for that would retard their flowering. The offsets should also be taken off, and planted into several pots, which, in three years time, will produce flowers; so that after a person is once stocked with these roots, he may increase them, so as to have a supply of blowing roots, without being at the trouble or expense of sending to Guernsey every year for fresh roots; and the roots preserved here will flower stronger than those which are usually brought from thence, for the inhabitants of those islands are not very curious in cultivating them. Their usual method is to plant them at a great distance in a bed of common earth, where they let them remain for many years; in which time they produce such a number of offsets, that many times one single cluster has contained above a hundred roots; by which means, those which grow on the inside are so much compressed by the outer roots, that they are perfectly flatted; and from the number of roots growing in each cluster, they are all rendered weak, and unfit to produce such large stems of flowers, as those which have grown single, and are of a spherical figure.

But when a person is possessed of a large number of these roots, it will be troublesome to preserve them in pots, therefore there should be a bed prepared of the following earth, in some well-sheltered part of the garden, viz. Take a third part of fresh virgin earth from a pasture ground, which is light, then put near an equal part of sea-sand, to which you should add rotten dung, and sifted lime-rubbish, of each an equal quantity. With this earth, when well mixed and incorporated, you should make your bed about two feet thick, raising it about four or five inches above the surface of the ground, if the situation be dry; but if the ground be wet, it should be raised eight or nine inches higher. In this bed, about the beginning of July, as was before directed, you should plant the roots about six or eight inches asunder each way; and in the winter, when the frost begins, you should either cover the bed with a frame, or arch it over, and cover it with mats and straw, to prevent their leaves from being pinched with cold; but in the spring the covering may be entirely removed, and the bed kept constantly clear from weeds, during the summer, observing to stir the surface of the earth now and then; and every year, when the leaves are decayed, you should sift a little fresh earth over the beds, to encourage the roots. In this bed the roots may remain until they are strong enough to produce flowers, when they may be taken up and planted in pots, as was before directed, or suffered to remain in the same bed to flower.

The roots of these plants do not flower again the succeeding year, as in many other sorts of bulbs; but if their bulbs contain two buds in their center, as is often the case, they very often flower twice within the compass of three years; after which, the same individual root does not flower again in several years, but only the offsets from it.

27. The *Ceylon Lily* is tender, and must be treated in the same manner as the Mexican Lily; this is more common in the gardens in Holland than in this country, and as it is a plant which increases but slowly, will not be very common here. It flowers usually in June and July, and sometimes the same root will flower again in autumn; for if the pots are plunged into a bed of tanner's bark, the roots generally flower twice every year, but the flowers are not of long duration.

28. May be increased by offsets from the roots, or by the bulbs which succeed the flowers. It must be treated in the same manner as is directed for the *Crinum*s.

The best time to transplant the roots of all the species is about the beginning of August, when their leaves are quite decayed, before they put out new fibres, for it will be very improper to remove them afterwards.

All these bulbous-rooted flowers delight in a loose sandy earth, mixed with good kitchen-garden mould; and in the culture of them there should be but little water given them at those times when their leaves decay, and the roots are not in a growing state, for much moisture at that time will often cause them to rot; but when they are growing, and putting out their flower-stems, they should be frequently refreshed with water, but not given in too great quantities at a time. The pots, with the tender sorts, should constantly be kept in the stove; and in summer they should have as much free air as possible; for although some of these sorts may be kept abroad in summer, yet those do not thrive so well, nor flower so constantly, as those which are treated in the manner here described.

[*AMARYLLIS capensis*. See *Hypoxis stellata*.

———— *ciliaris*. See *Hemantbus ciliaris*.

———— *disticha*. See *Hemantbus toxicarius*.

———— *umbrella*. See *Cyrtanthus obliquus*.

AMASONIA. (Named from Amason, a traveller into America.)

Lin. suppl. 48. n. 1409. syst. 581. Gen. Schreb.

n. 1061. Juss. 418.

Taligalea. Aubl. 252?

Class. 14. 2. Didynamia Angiospermia.

GENERIC CHARACTER.

CAL. Perianth one-leaved, bell-shaped, semiquinquefid, acute, equal, permanent.

COR. one-petalled, tubulous, longer than the calyx: border quinquefid, subequal, spreading, small.

STAM. Filaments four, at the upper side of the corolla and longer than it; bending in at the end: two of them shorter. Anthers oval, incumbent.

PIST. Germ ovate; style in the situation and form of the stamens: stigmas two, sharp.

PER. none.

SEEDS an ovate, one-celled Nut, of the same length with the calyx.

OBS. This agrees with the *Taligalea* of Aublet, in every thing except the fruit, which, according to him, is a drupe longer than the calyx, one-celled, and containing two, small, hemispherical, one-celled nuts. Perhaps Linneus saw only an imperfect fruit.

ESSENTIAL CHARACTER.

Cor. tubulous; limb small, quinquefid. Nut ovate, one-celled.

SPECIES.

1. *Amasonia erecta*.

Lin. suppl. p. 294. syst. 581.

DESCRIPTION.

1. It is a native of Surinam. The stem is herbaceous, three feet in height, round, and quite simple. The leaves are alternate, petiolate, remote, elliptic-lanceolate, subserrate, scabrous. The flowers

ers in a simple, terminal raceme, a foot long, with about three flowers on a pedicle. Bractes ovate, sessile, a little longer than the flowers, which are yellow, nodding, and grow all on one side of the stalk*.

AMBAPAYA. See *Carica*.

AMBAYBA. See *Cecropia*.

AMBEL. See *Nymphaea*.

AMBELANIA. See *Willughbeia*.

AMBERBOI. See *Centaurea*.

AMBER-TREE. See *Anthospermum*.

AMBORA. See *Mithridatea*.

AMBRARIA. See *Anthospermum*.

AMBROMA. See *Abroma*.]

AMBROSIA. (Plin. *Ἀμβροσία*, *Dioscor.* from α , and $\beta\rho\sigma\iota\varsigma$, immortal food.)

Lin. gen. n. 1057. *Reich.* 1153. *Schreb.* 1427.

Gertn. t. 164. *Tournef.* 252. *Juss.* 191.

Class. 21. 5. Monoecia Pentandria.

Nat. order of Compositæ Nucamentaceæ. Corymbiferae Juss.

GENERIC CHARACTER.

** Male flowers compound.

CAL. Perianth common, one-leafed, flat, of the same length with the floscules.

COR. compound, uniform, tubulous, equal, hemispherical. Proper one-petalled, tubulous, funnel-shaped, erect, quinquefid, (trifid, Syst.)

STAM. Filaments very small; anthers erect, parallel, acuminate.

PIST. Style filiform, length of the stamens: stigma orbiculate, membranaceous.

REC. common, scarcely any, naked.

** Female flowers below the males, doubled.

CAL. Perianth one-leafed, acuminate, entire, permanent, the belly five-toothed, one-flowered.

COR. none.

PIST. Germ ovate, in the bottom of the calyx; style filiform of the same length with the calyx: stigmas two, setaceous, long, divaricate.

PER. a subovate nut, formed from the calyx hardened, one-celled, not opening, crowned with the five acuminate teeth of the calyx.

SEED single, roundish.

ESSENTIAL CHARACTER.

MALE. Calyx common one-leafed. Cor. one-petalled, trifid, funnel-shaped. Recept. naked.

FEMALE. Cal. one-leafed, entire, the belly five-toothed, one-flowered. Cor. none. Nut of the hardened calyx one-seeded.

SPECIES.

1. *Ambrosia trifida*. Trifid-leaved *Ambrosia*.

Lin. spec. 1401. *Reich.* 4. 138. *hort. upf.* 284.

cliff. 443. *Mor. hist.* 3. p. 4. n. 5. f. 6. t. 1. f. 4.

Gertn. fruct. 2. 417.

β . *A. gigantea inodora. fol. asperis trifidis. Raii hist.* 3. 109.

Leaves three-lobed, serrate.

2. *Ambrosia elatior*. Tall *Ambrosia*.

Lin. spec. 1401. *Reich.* 4. 139. *hort. upf.* 284.

Swartz obs. 359. *Brown. jam.* 339. n. 1.

Leaves pinnatifid; racemes panicled, terminal, smooth.

3. *Ambrosia artemisiifolia*. Mugwort-leaved *Ambrosia*.

Lin. spec. 1401. *Reich.* 4. 139.

Leaves bipinnatifid, the first leaves at the origin of the smaller branches undivided, and quite entire.

4. *Ambrosia maritima*. Sea *Ambrosia*.

Lin. spec. 1401. *Reich.* 4. 139. *hort. cliff.* 443.

Leaves multifid, spikes solitary, hairy, subsessile.

5. *Ambrosia arborescens*. Tree *Ambrosia*.

Mill. dict. n. 5.

Leaves pinnatifid hirsute, racemes solitary terminating, stem shrubby.

DESCRIPTIONS, &c.

[The four first are annual plants, and the last is perennial. The three first are natives of North America. The fourth grows naturally in Cappadocia, Tuscany, and the county of Nice, on sandy shores; and the fifth is a native of Peru. The second grows also in the West India islands.]

* Linneus.

1. Is a common weed in North America; it often grows eight or ten feet high; and if it be planted in a rich moist soil, or often watered, it will grow much higher, and spread out into many branches; in which case they must be supported by stakes, being very subject to break with strong winds. The flowers are not more conspicuous than those of hemp, and therefore this plant is preserved only by persons curious in botany. [Cultivated in 1699, by Mr. Jacob Bobart*. The sort common in gardens has three-lobed leaves; but the larger variety (β) has the lower leaves five-lobed†.

2. Tall *Ambrosia* is an annual, herbaceous plant, from two to three feet in height, upright and branched. Leaves bipinnatifid, with a very long point, nerved, wrinkled, somewhat hirsute. Racemes composed of opposite branches, from four to six inches in length, lax, rather erect. Male flowers more numerous, approximating, nodding: common perianth five-toothed, cup-shaped, with very minute florets in it: proper extremely small, five-cleft: corolla five-parted, the size of the calyx, with ovate, acute segments: filaments five; anthers oblong: the rudiment of a pistil: five or six smaller flowers in the ray; their calyx five-cleft, their corolla consisting of five linear petals, no pistil, germ, nor pericarp, but an upright, thick, pellucid style with a pencil-shaped stigma. Female flowers fewer, sessile, from three to six, aggregate: calyx none except the minute lanceolate leaflets between the germs: germ oblong, angular, style two-parted, stigmas recurved, simple. Native of Jamaica, in barren, sandy and rocky situations, by river sides, in the southern part of the island. It flowers there from february to june‡: but with us in july and august. It was cultivated by Mr. Samuel Doody, in 1696§.

It has the appearance and taste of Wormwood||.] Mr. Miller affirms, that he has frequently received the seeds from Virginia and Carolina, as well as from the West India islands.

3. Divides into many branches, the lower part of which has entire leaves, but the upper has compound leaves, resembling those of the second sort; the spikes of flowers are axillary, in which this differs from the second.

[The primary stem, scarcely more than a foot in height, is more diffused: the branches four feet long, rising above the racemes, so that the racemes are lateral, not terminal as in the foregoing species¶. Cultivated 1759, by Mr. Miller**.]

4. Rises about two feet and a half high: the leaves, upon being handled, emit a strong odour: the spikes of flowers are axillary.

[The stems are hairy; the leaves very soft and pubescent; the racemes close; the male flowers subsessile; nor does the spike sit on a long peduncle, as in the foregoing species††. Cultivated 1570‡‡.]

5. Grows to the height of ten or twelve feet, with a woody stem, dividing into several branches; the leaves are hairy, composed of several winged lobes, placed alternately; the spikes of flowers are single, hairy, and produced at the extremities of the branches; the female flowers grow in small, separate clusters.

PROPAGATION AND CULTURE.

1. The seeds, when sown in the spring, seldom germinate the first year, but frequently remain in the ground until the following spring; so that when the plants do not appear, the ground must not be disturbed till after the spring following. When the plants come up, some of them may be transplanted into a moist rich soil, allowing them at least four or five feet room every way. If the seeds ripen and are suffered to scatter, they will vegetate the following spring, provided the ground be not disturbed; or if the seeds be sown in autumn, the plants will come up in the spring, and may be treated as above.

* Hort. kew.

§ Hort. kew.

** Hort. kew.

† Linneus.

|| Swartz.

†† Linneus.

‡ Swartz.

¶ Linneus.

‡‡ Hort. kew.

A M B

2. This sort will come up and thrive in the open air in England, but the plants so raised will not produce good seeds, unless the season is warm; therefore to obtain them every year, it is necessary to cultivate them in the following manner. The seeds of this plant should be sown on a moderate hot-bed in march, and when the plants are come up two inches high, they must be transplanted into another moderate hot-bed, allowing each plant three or four inches square: observing to water them pretty well, and shade them until they have taken new root; afterward they must have a large share of fresh air every day, when the weather is warm, and frequent waterings, for they are very thirsty plants. When the plants are grown pretty strong, they must be taken up with balls of earth to their roots, and planted in large pots filled with light earth; and if they are placed on a very moderate hot-bed until they are well rooted, it will greatly forward their flowering. Toward the latter end of may, they should be placed abroad with other hardy annual plants, among which they will make a variety. These will flower in july, and their seeds ripen in september.

3. May be cultivated in the same manner.

4. Seldom perfects its seeds in England, unless the plants are brought forward in the spring; therefore the seeds should be sown in the autumn in a warm border, and when the plants come up in the spring, they should be transplanted into another warm border of poor ground; for when these plants are put into rich moist land, they grow very luxuriantly, and do not flower till late in the season. The best method therefore to obtain good seeds, is to plant some of them in lime-rubbish. The seeds of this sort also will come up spontaneously. There is not much beauty in it, and it is admitted into gardens only for variety.

5. May be propagated by cuttings or seeds: if by the former, they should be planted in a shady border, in any of the summer months; they will require to be frequently watered. In a month or five weeks they will have good roots, and should be taken up and potted; for when they are left longer in the full ground, they will grow very luxuriant, and not so soon recover their removal. This sort is hardy enough to be exposed to the open air in summer; and in winter, if it be sheltered in a common greenhouse, will live several years. In mild winters, the roots live in the full ground, in a warm border, but hard frost will kill them.

The seeds, when sown in the spring, seldom come up the same year; but those which fall in the autumn, or are sown at that time, will come up the spring following.

AMBROSIA. See ARTEMISIA and COCHLEARIA.

[AMBROSINIA. (So named in honour of the two brothers Bartolomeo and Hyacinto Ambrosini, Professors of Botany at Bologna fifty-two years.)

Bassii monogr. Lin. gen. n. 1238. app. Reich. 1118. Schreb. 1386. Juss. 24.

Class. 20. 7. Gynandria Polyandria.—21. 1. Monoccia Monandria. Schreb. 12. 1. Polyandria Monogynia. Swartz.

Nat. order of *Piperitæ*.—*Aroideæ* Juss.

GENERIC CHARACTER.

* Males.

CAL. *Spathe* one-leaved, cowed, convolute at the base, converging at the tip; *partition* membranaceous. (*Spadix Bassii*.) divided into two cells communicating at top.

COR. none.

STAM. *Filaments* none. *Anthers* very many, solitary, within the hinder cell of the *spathe*, in the upper part of the partition, digested in a distinct order.

Nectaries two, roundish, concave, at the base of the anthers.

* Female.

CAL. *Spathe* common with the males. *Perianth* none.

PIST. *Germ* in the anterior cell of the *spathe*, and the

A M E

lower part of the partition, solitary, roundish. *Style* cylindrical, shorter than the *spathe*. *Stigma* obtuse. PER. *Capsule*? roundish, one-celled. SEEDS very many, ovate, nestling.

ESSENTIAL CHARACTER.

Spathe one-leaved, separated by a partition. *Stamens* on the inner: *pistils* on the outer side of it.

SPECIES.

1. *Ambrosinia Bassii*.

Lin. syst. 827. Reich. 4. 68.

Ambrosina Bassii monogr. fig.

Arisarum Bocc. sic. t. 26. Mor. hist. 3. f. 13. t. 6. f. 19. Raii hist. 1907. Cup. hort. 21 & 22.

DESCRIPTION.

Root perennial, tuberous, acrid. Leaves radical, petiolate, ovate, shining. Spadix quite simple, cylindrical. Spathe fleshy, greenish white on the outside, deeper green on the inside, with purple spots, ending in a sharp recurved point. The leaves appear at the beginning of autumn, and decay in the spring. It is a native of Sicily near Palermo; and was first found, described and figured by Bocconi*.

PROPAGATION AND CULTURE.

It requires the protection of a green-house, and may be increased from the root.

AMELANCHIER. See *Chionanthus* and *Mespilus*.

AMELLOIDES. See *Cineraria*.]

AMELLUS. (From *Mella*, a river of Gaul according to some; from *Mel*, honey, according to others.)

Lin. gen. n. 978. Reich. 1065. Schreb. 1315. Gertn. t. 173. Juss. 190.

Class. 19. 2. Syngenesia Polygamia Superflua.

Nat. order of *Compositæ oppositifoliæ*.—*Corymbiferae*. Juss.

GENERIC CHARACTER.

CAL. common imbricate, roundish, (scales linear, pressed close. G.)

COR. compound radiate. Corollets hermaphrodite very many in the disk. Females very many in the ray. Proper of the hermaphrodite tubulous, five-cleft. Female ligulate, lax, two or three-toothed.

STAM. in the hermaphrodites: Filaments five, capillary, short. Anther cylindrical, tubulous.

PIST. in the hermaphrodites: Germ obovate. Style filiform, the length of the stamens. Stigmas two, filiform. Females very like the hermaphrodites.

PER. none. Calyx unchanged.

SEEDS to the hermaphrodites solitary, obovate. Down capillary—to the females, very like the others.

REC. chaffy.

OBS. The teeth in the corollets of the ray are scarcely to be seen. G.

ESSENTIAL CHARACTER.

Cal. imbricate. Corollets of the ray undivided. Down simple. Recept. chaffy.

SPECIES.

1. *Amellus Lychnitis*. Trailing *Amellus*.

Lin. spec. 1276. syst. 778. Reich. 3. 873. mant. 476. hort. cliff. 415. Berg. cap. 298. Gertn. fruct. 2. 459.

Verbescina asteroides. Lin. spec. edit. 1. 902.

Chrysanthemum africanum, &c. Breyn. prodr. 3. t. 15. f. 2.

Leaves opposite, lanceolate, obtuse, downy, peduncles one-flowered.

2. *Amellus umbellatus*. Umbelled *Amellus*.

Lin. spec. 1276. Reich. 3. 873. Amæn. acad. 5. p. 407. Swartz obs. 310.

Solidago villosa, &c. Brown. jam. 320. n. 1. t. 33. f. 2. (good.)

Leaves opposite, three-nerved, downy underneath, flowers umbelled.

DESCRIPTIONS, &c.

1. Rises from two to three feet high, sending out branches on every side, terminated by flower-stalks, each supporting one violet-coloured flower, with a yellow disk, shaped like those of the *Aster*, and appearing in july or august. [Stem round. Leaves quite entire, sessile, roughish. Peduncles terminal,

* Bassi.

with

with one or two leaflets. On account of the length of the chaffs it cannot be associated with *Cineraria asteroides*; which however it resembles much; but the leaves are opposite, except the upper ones, sessile and cinereous. The down is villose with few rays*. It grows naturally at the Cape of Good Hope. Cultivated in 1768, by Mr. Miller†.

2. This has herbaceous, upright, simple, round, hairy stems, two feet high, or at most two feet and a half. Leaves at first radical (afterwards the stem is naked at bottom), petioled, wedge-shaped at the base, somewhat decurrent and serrate, nerved, smooth, dark green, white and soft beneath. Upper stem-leaves on shorter petioles, smaller. The stem towards the top is generally divided into three branches; each of which is subdivided into many small flower-branches, forming a sort of umbel. The umbellules have from three to eight flowers, with linear leaflets, from two to four, under them. Peduncles an inch long, each sustaining one large yellow flower. Scales of the calyx lanceolate, membranaceous, hoary. Hermaphrodite corolllets fewer in the disk, funnel-shaped, with a reflex border: females in the ray numerous, linear, blunt, bifid. Seeds to all the flowers obconical. Down sessile, simple, hairy. Receptacle hirsute, not bristly. It has the habit of *Tussilago*, and would be of that genus, if the down were stipitate, and the receptacle naked‡. Linneus observes, that this is extremely different from the first species, but is connected with it by means of the bristly chaffs between the florets. It is a native of Jamaica, in the cooler woods and mountains, and flowers there in summer.]

PROPAGATION AND CULTURE.

1. A perennial plant, easily propagated by cuttings, planted in the shade during any of the summer months, and duly watered. These should be taken up with balls of earth to their roots, and planted in pots, that they may be sheltered in winter, either under a common frame, or in a green-house, where they may have plenty of air in mild weather, otherwise they will draw up weak and have little beauty.

2. May be propagated by seeds, which should be sown on a hot-bed in the spring; when the plants are fit to remove, two or three of them should be planted in pots, then plunged into a hot-bed of tan, to bring them forward to get ripe seeds in the autumn, otherwise the plants will require a stove in winter.

AMELLUS. See *Calea* and *Erigeron*.

AMELLUS Virgilii. See *Aster*.

AMERI. See *Indigofera*.

AMERICAN EARTH-NUT. See *Arachis*.

[AMERIMNUM. (Browne's name is *Amerimmon*, which is exactly the Greek word for any thing void of care, or in a state of security; but what induced him to give this name to the shrub I cannot conjecture, unless it was the careless flow of the branches.)

Lin. gen. Schreb. 1160. Jacq. amer. 199. Swartz prodr. 104. Juss. 363. Brown. jam. 299. t. 31. f. 2.

Class. 17. 4. Diadelphia Decandria.

Nat. order of *Papilionaceæ* or *Leguminosæ*.

GENERIC CHARACTER.

CAL. Perianth one-leafed, tube bell-shaped, five-toothed; teeth sharp.

COR. papilionaceous.

Standard with an oblong claw, roundish heart-shaped, expanding, convex.

Wings lanceolate, shorter than the standard.

Keel short.

STAM. Filaments ten, conjoined. Anthers roundish.

PIST. Germ pedicelled, oblong, compressed-leafy, varicose, with lateral veins, within woody, not gaping. Cells disposed longitudinally within.

SEEDS solitary, kidney-shaped, thicker at the base, appendicled at the tip.

* Linneus.

† Hort. kew.

‡ Swartz.

ESSENTIAL CHARACTER.

Cal. two-lipped. Legume compressed-leafy, two-valved, gaping. Seeds few, solitary.

SPECIES.

1. *Amerimnum Brownei*.

Swartz prodr. 104. Brown. jam. 288. t. 3. f. 3.

Jacqu. amer. 199. t. 180. f. 58.

Unarmed: leaves petioled, alternate, subcordate-ovate; racemes compound, axillary and lateral.

2. *Amerimnum Ebenus*. Prickly *Amerimnum*, or *Jamaica Ebony*.

Swartz prodr. 104.

Pterocarpus fessilifolius. Lin.

P. buxifolius. Murray in syst. 642. Ait. hort. kew.

3. 7.

Aspalathus Ebenus. Lin. spec. 1001. Reich. 3. 414. syst. 647.

Brya. Brown. jam. 299. t. 31. f. 2.]

Spartium arborescens. Mill. dict. n. 10. Sloan. jam. 2. 30. t. 175. f. 1.

Spiny: leaves subsessile aggregate obovate-oblong, peduncles two-flowered.

DESCRIPTIONS, &c.

[1. This shrub rises commonly to the height of ten feet, and supports itself upon other shrubs. It divides into long, round branches, covered with a blackish bark, and subdividing into a great number of alternate twigs. Leaves quite entire, sharp, shining, two or three inches in length. The common peduncles sustain about ten flowers; which are small, white, and have a very sweet scent: they come out in great abundance after the rainy season. The standard of the corolla after fecundation becomes erect, whereas before it spread out wide. Native of Carthage, Jamaica, and Domingo*.

2. The second sort is very common in Jamaica, and several other places in the West-Indies, where the wood is cut, and sent to England under the title of Ebony, though it is not the true Ebony, which is a native of the eastern country, and is a plant of a very different genus. The wood of this American Ebony being of a fine greenish brown colour, and polishing very well, is much coveted by the instrument-makers; and is of a very hard durable nature. [Dr. Browne adds, that the small dimensions of this shrubby tree render it fit only for few purposes, the trunk seldom exceeding three or four inches in diameter: but that the slender branches, being very tough and flexible, are frequently used for riding switches, and generally kept at all the wharfs about Kingston, to scourge the refractory slaves.]

This tree has a pretty thick stem which rises twelve or fourteen feet high, covered with a rugged brown bark, and divides into many spreading branches, which grow almost horizontal, and are armed with short brown crooked spines. The leaves are small, stiff, and wedge-shaped, coming out in clusters, and sit close to the branches. The flowers come out upon slender foot-stalks from the side of the branches singly; they are of a bright yellow colour, and are succeeded by compressed moon-shaped pods, which inclose one kidney-shaped seed.

PROPAGATION AND CULTURE.

2. The second sort is propagated by seeds, which must be procured from the countries of its natural growth, for the plants do not produce seeds in this climate. These seeds should be sown in pots filled with light fresh earth early in the spring, and plunged into a good hot-bed of tanner's bark, or placed in tan under pots, as their covers are very hard. In about six weeks the plants will appear, when they must be carefully treated, being very tender while young; they must have fresh air admitted to them every day when the weather is warm, and should be frequently refreshed with water, when the earth in the pots appears dry. In about five or six weeks after the plants appear they will be fit to transplant, when they should be carefully shaken out of the pots and separated, planting each into a small pot filled with light rich earth, and then plunged into the hot-bed again, being careful to shade them from the sun

* Jacqu. amer.

every day until they have taken root; after which time they must be treated in the same manner as other very tender exotic plants, by giving them air every day in warm weather, and watering them once in two or three days gently, and when the nights are cold, to cover the glasses. In this hot-bed the plants may remain till autumn, when they must be removed into the stove, and plunged into the bark-bed. Those of them whose roots have filled the pots, should be carefully shifted into pots one size larger before they are plunged; but as these plants are not of quick growth while young, they do not require to be often shifted out of the pots. During the winter season these plants must be kept warm, especially the first year, and must have but little water, and in cold weather it must be given to them in small quantities; and if their leaves should contract filth, they must be washed with a sponge to clean them, otherwise the plants will not thrive. As these plants are very tender when young, they will not live in the open air in this country, even in the warmest part of the year; therefore they must be constantly kept in the stove, and should be kept plunged in the bark-bed, observing in the summer season, when the weather is warm, to admit a large share of fresh air to the plants; but when they have obtained strength, they may be exposed for three months in a warm situation in the summer.

AMETHYSTEA. (From the amethystine colour of the flowers.)

Lin. gen. n. 34. Reich. 37. Schreb. 45. Gertn. t. 66. Juss. 111.

Class. 2. 1. Diandria Monogynia.

Nat. order of Verticillatae. Labiate Juss.

GENERIC CHARACTER.

CAL. Perianth one-leafed, tube bell-shaped, angular, femiquinefid, subequal, acuminate, permanent.

COR. one-petalled, ringent, little longer than the calyx: border five-parted, subequal; upper lip erect, rounded, concave, two-parted, gaping; lower three-parted, the sides rounded, erect, shorter; the middle quite entire, concave, the length of the upper lip.

STAM. Filaments filiform, approximating, under the upper lip, and longer than it: anthers simple, roundish.

PIST. Germ quadrifid: style size of the stamens: stigmas two, acute.

PER. none; but the calyx becomes more bell-shaped and spreading.

SEEDS four, shorter than the calyx, obtuse, angular within.

ESSENTIAL CHARACTER.

Cor. quinquefid; the lower division more spreading. Stam. approximated. Cal. subcampanulate. Seeds four, gibbous.

SPECIES.

1. Amethystea cærulea.

Lin. spec. 30. syst. 67. Reich. 56. hort. upf. 9. amæn. 386. Gertn. fruct. 1. 315.

Amethystina. Amm. ruth. 4. Hall. in comm. gott. 1751. t. 10. æt. upf. 1742. p. 51. f. 1.

DESCRIPTION, &c.

It is an annual plant with an upright stalk, which rises about a foot high; toward the top it puts out two or three small lateral branches, with small trifid leaves, sawed on their edges, of a very dark green colour; at the extremity of the branches the flowers are produced in small umbels; they are of a fine blue colour, as are also the upper part of the branches, and the leaves immediately under the umbel; so that although the flowers are small, yet from their colour, with that of the upper part of the stalks, the plants make a pretty appearance, during their continuance in flower. If the seeds of this plant are sown in the autumn, or are permitted to scatter, the plants will come up early the following spring, and these will flower the beginning of June; but those which are sown in the spring, will not flower till July; and in dry seasons, the seeds will remain in the ground a

whole year, so that the best time for sowing them is in the autumn.

This plant is a native of the mountains of Siberia, from whence the seeds were sent to the imperial gardens at Petersburg, where the plants flourished and perfected their seeds, part of which were sent me by the late Dr. Ammann, which grew in 1759, in the Chelsea garden, where the plants annually produce seeds.

PROPAGATION AND CULTURE.

When the plants come up, they will require no other care but to keep them clean from weeds, and where they are too close, to thin them; for they do not thrive when transplanted, therefore the seeds should be sown where they are to remain.

AMMANNIA. (Named by Houstoun in honour of John Ammann, Professor of Botany at Petersburg. Paul Ammann was Professor of Medicine at Leipzig.)

Reliqu. Houst. t. 5. Lin. gen. n. 155. Reich. 163. Schreb. 206. Gertn. t. 112. Juss. 333.

Class. 4. 1. Tetrandria Monogynia.

Nat. order of Calycanthemæ. Salicariæ Juss.

GENERIC CHARACTER.

CAL. Perianth bell-shaped, oblong, erect, with eight streaks, and folds, quadrangular, eight-toothed: teeth alternate bent in, permanent.

COR. none, or four-petalled: petals vertically ovate, spreading, inserted into the calyx.

STAM. Filaments (four or eight G.) bristly, the length of the calyx, into which they are inserted: anthers twin.

PIST. Germ subovate, large, superior: style simple, very short: stigma headed.

PER. a roundish, four-celled capsule, (Berry, G.) covered with the calyx.

SEEDS numerous, small.

OBS. The petals are often deficient, but sometimes occur in the same species.

A. baccifera has four-toothed calyxes.

ESSENTIAL CHARACTER.

Cor. four-petalled, inserted into the calyx. Cal. one-leafed, plaited, eight-toothed, inferior. Caps. four-celled.

SPECIES.

1. Ammannia latifolia. Broad-leaved Ammannia.

Lin. spec. 174. syst. 162. Reich. 339. mant. 331. hort. cliff. 344. upf. 30. Amm. herb. 344. Gertn. fruct. 2. 142.

Isnardia. Brown. jam. 148.

Aparines. Sloan. jam. 1. t. 7. f. 4.

Leaves half-stem-clasping, stalk square, branches erect.

2. Ammannia ramosior. Branching Ammannia.

Lin. spec. 175. syst. 162. Reich. 340. mant. 332. Fungh. ic. cent. 1. f. 7.

Ludvigia. Clayt. virg. 774.

Leaves half-stem-clasping, stalk square, branches very spreading.

3. Ammannia baccifera. Berry-bearing Ammannia.

Lin. spec. 175. syst. 162. Reich. 340. Burm. ind. t. 15. f. 3.

Cornelia verticillata. Ard. spec. 2. p. 9. t. 1.

Leaves sub-petiolate, capsules larger than the calyx, and coloured.

[4. Ammannia octandra. Eight-stamened Ammannia.

Lin. suppl. p. 127. syst. 162.

Flowers petaloid and eight-stamened.

5. Ammannia pinnatifida. Pinnatifid-leaved Ammannia.

Lin. suppl. p. 127. syst. 162.

Stalks procumbent, rooting, compressed, leaves linear, pinnatifid.

6. Ammannia debilis. Cluster-flowered Ammannia.

Ait. hort. kew. 1. 163.

Leaves lanceolate attenuated at the base, stem branching, flowers in bundles from the axils, capsules two-celled.

7. Ammannia sanguinolenta.

Swartz prodr. 33.

Leaves half-stem-clasping, cordate at the base, flowers subpeduncled, eight-stamened, petal-bearing.

DESCRIPTIONS, &c.

1. Root annual. Stem with obtuse angles, the alternate

alternate sides convex. Flowers verticillate, three on each side, sessile. The alternate teeth of the calyx convergent. Style shorter than the germ. Petals four white ones, or none*.] It grows about a foot and half high, with an upright square stalk, and long narrow leaves in form of a triangle; these grow the whole length of the stem; they are of a pale green, and the consistence of Purslane leaves; the stalks are also succulent, and of the same colour with those of that plant. The flowers come out in whorls, at the joints where the leaves adhere, in clusters. This grows naturally in moist places in Jamaica, from whence Dr. Houstoun (about 1731) sent the seeds to England, which succeeded at Chelsea, and have thence been distributed to most of the botanic gardens in Europe.

[2. Stem with acute angles, the sides flat; branches spreading. Leaves lanceolate-linear, dilated at the base, reddish. Flowers lateral, axillary, five on each side, subpetiolate. Calyx with eight spreading teeth. Style longer than the germ. Petals four, purple, roundish, spreading. Filaments purple.]

This is an annual plant, growing naturally in Virginia and Carolina. It rises about a foot high, with red succulent stalks, putting out side branches, which are opposite, round and simple. The flowers are produced single from the axils on the lower part of the branches, but toward the top they are in clusters; they have little beauty, and therefore are only preserved in botanic gardens for the sake of variety. [Cultivated 1759 †.

3. This is a tender low plant, erect, without branches. Stem reddish, round. Leaves opposite, lanceolate, quite entire. Flowers in whorls, many at the axils of the leaves, sitting each on its proper peduncle, and very small. Capsule red, larger than the calyx ‡.] It is a native of China, and is now naturalized in Italy. Having but little beauty, it is rarely preserved in gardens.

4. Stem erect, lofty, smooth, branched. Leaves opposite, sessile, stem-clasping, linear-lanceolate, smooth, quite entire. Peduncles axillary, very short, three or one-flowered. Petals blood-red §. Found by Koenig in the East-Indies.

5. Leaves sparse, approximating, the smaller pinnae filiform. Flowers axillary, small, one or more. Corolla red. Capsules four-cornered ||. Found by Sonnerat in the isle of Java.

6. Annual. Calyx angular. Petals pale purple. Filaments shorter than the calyx, and inserted at the bottom of it. Anthers ovate, yellow. Capsule ovate, two-celled. Native of the East-Indies. Introduced in 1778, by Sir Joseph Banks, Baronet. It flowers in July and August ¶.

7. Native of Jamaica and Domingo **. PROPAGATION AND CULTURE.

1—3. They must be raised from seeds on a hot-bed in the spring, and afterwards removed to another hot-bed to bring them forward. When the plants have acquired strength, they should be transplanted into pots filled with rich light earth, and placed under a frame, observing to shade them till they have taken fresh root; then they should be placed in a glass case or stove to ripen their seeds, for the plants are too tender to thrive in the open air in this country, unless the summer should prove very warm.

The second sort, however, will perfect its seeds in the open air, if the plants be raised on a hot-bed in the spring, and planted in a warm border.

The other species (4—7) are stove plants.

AMMI. ("Ammi. Gr. Diosc. from *αμμος*, sand.)

Lin. gen. n. 334. Reich. 365. Schreb. 467.

Gertn. t. 22. Tournef. 159. Juss. 224.

Class. 5. 2. Pentandria Digynia.

Nat. order of Umbellatæ or Umbelliferae.

GENERIC CHARACTER.

CAL. Universal umbel manifold, frequently of fifty rays: partial short, crowded. Universal involucre

of many linear, pinnatifid, acute leaflets, scarcely the length of the umbel: partial many-leaved; leaflets linear, acute, simple, shorter than its umbellet. Proper perianth scarcely apparent.

COR. universal uniform, all the floscules fertile: proper of five inflex, heart-shaped petals, of unequal size in the ray: almost in the middle of the disk.

STAM. Filaments capillary: anthers roundish.

PIST. Germ inferior: styles reflex: stigmas obtuse.

PER. none. Fruit roundish, smooth, small, streaked, bipartite.

SEEDS two, convex and streaked on one side: flat on the other.

OBS. In *A. copticum*: the fruit is muricate.

ESSENTIAL CHARACTER.

Invol. pinnatifid. Cor. radiate: all hermaphrodite. Fruit smooth.

SPECIES.

1. *Ammi majus*. Common Bishops-weed.

Lin. spec. 349. Reich. 670. Gertn. fruct. 1. 98.

Villars dauph. 2. 591. Mill. fig. 25. Plenck.

ic. t. 181. Blackw. t. 447. Raii hist. 455. 1.

Ger. 881. f. 1. emac. 1036. 1. Park. theat.

912. 1. Dod. pempt. 415. Riv. pent. t. 85.

(Ammioselinon.)

Lower leaves pinnate, lanceolate, serrate; upper ones multifid, linear.

[2. *Ammi copticum*.

Lin. mant. 56. Juss. 277. Reich. 670. Jacq. hort. 2. t. 196.

Leaves super-decompound, linear; seeds muricate.]

3. *Ammi glaucifolium*. Perennial Bishops-weed.

Lin. spec. 349. Reich. 670. Villars dauph. 2.

592. Mor. hist. 3. 295. 2.

Daucus petraeus glaucifolius. Baub. hist. 3. 58.

Subdivisions of all the leaves lanceolate.

DESCRIPTIONS, &c.

1. The first sort is annual [and grows in vineyards and fields in the southern parts of Europe, and in the east. It was cultivated by Gerard in 1597*.] Of this there is a variety, which is mentioned by Bauhin as a distinct species, under the title of *Ammi majus foliis plurimum incis, et nonnihil crispis*: but I have frequently had this variety arise from the seeds of the former.

[2. Stature of Dill; green. Stem smooth, streaked. Leaves tripinnate, oblong, smooth, linear. Umbels with ten rays, not large. Involucre five-leaved, linear, and the length of the rays; partial involucre seven-leaved, acute, linear, undivided; the four interior shorter; the rest the length of the rays. Corollas white, equal, quinquangular. Fruit ovate, muricate on every side. Seeds streaked with five swellings, rather gibbous than broad: aromatic †. Found in Egypt by Forskahl. Annual. Introduced in 1773, by John Earl of Bute ‡.

3. This has the appearance of being only a variety of the first species. It is annual, as that is. The stem is from one to two feet high, hard, smooth, scarcely grooved, with several upright branches at top, each supported by a small sessile leaf. The lower leaves are glaucous, as in the common sort, but tripinnate, or rather triternate; the leaflets oblong and linear, with only one deep tooth or incision on the middle of each side, but this is sometimes wanting: the stem with its divisions, the involucres and umbels differ little from the first, the plant is only more glaucous, the last divisions of the leaves finer and more distinct, and the white point which terminates them more apparent and sharper. It is a native of the south of France. Probably the same with a species described by Guettard (Stamp. 2. 433.) But it does not seem to be the plant of John Bauhin and Morison §. As to Miller, he describes it as] a perennial plant, which is preserved in botanic gardens for variety; but having little beauty, is rarely admitted into other gardens.

PROPAGATION AND CULTURE.

1. This plant is propagated by seeds, which should be sown in autumn in the place where they

* Linneus. † Hort. kew. ‡ Linneus. § Ibid.
|| Linneus. ¶ Hort. kew. ** Swartz.

are to remain : and in the spring, the ground should be hoed to cut up the weeds, and also to thin the plants in the same manner as is practised for Carrots, leaving them four or five inches asunder : or if the ground is good where they grow, they must be left at least six inches, for they will grow large and cover the ground : after this they will require no farther care, but to keep them clean from weeds. In June they will flower, and their seeds will ripen in August, which should be gathered as they ripen, otherwise they will soon scatter. These seeds are used in medicine, and may be had in plenty with this management ; for this plant will grow in any situation that is open, but thrives best on light sandy land. When the seeds are sown in the spring, they seldom come up the same year ; and if they should, those plants will be weak, and produce few seeds.

3. It will grow in any open situation, is very hardy, and thrives best on a moist soil.

AMMI. See *Bunium*. *Cicuta*. *Seseli*. *Sison* and *Sium*.

AMMOIDES. See *Seseli*.

AMOMUM. (*Amomum* Gr. from the Arabic.)

Lin. gen. n. 2. Reich. 2. Schreb. 3. Mus. cliff. §. 2. 5. Swartz obs. 1. Juss. 63. Zinziber Gærtn. t. 12.

Nat. order of *Scitamineæ*. *Cannæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* one-leaved, cylindraccous, unequally trifid.

COR. monopetalous, funnel-shaped : tube cylindraccous ; border three-parted, parts oblong, spreading.

Nectary two-leaved or two-lipped : lower lip inserted under the upper segment of the corolla, spreading, almost erect, entire or three-lobed.

STAM. *Filament* none, except the upper lip of the nectary, smaller than the lower and opposite to it, acuminate or three-lobed at the tip ; along the middle or at the end of which grows longitudinally a large oblong *anther*, geminate, or divided by a longitudinal furrow into two, which are one-valved.

PIST. *Germ* inferior, oblong. *Style* filiform, drawn through the future of the anther. *Stigma* turbinate, obtuse, ciliate.

PER. *Capsule* fleshy, ovate, three-cornered, three-celled, three-valved.

SEEDS several, covered with a sort of berried aril.

OBS. *The inflorescence is in a spike on a distinct scape.*

ESSENTIAL CHARACTER.

CAL. trifid, unequal, cylindric. COR. three-parted, unequal, spreading. *Nect.* two-lipped, almost erect.

SPECIES.

1. *Amomum Zinziber*. *Narrow-leaved Ginger*.

Lin. spec. 1. syst. 50. Reich. 2. hort. cliff. 3. upf. 1. fl. zeyl. 3. mat. med. 1. Swartz obs. 2. Lour. coch. 2. Jacq. hort. 1. t. 75. Plenck. ic. t. 1. Rumph. amb. 5. t. 66. f. 1. Rheed. mal. 11. t. 12.

Scape middle-sized, *spike* ovate, *leaves* linear-lanceolate.

2. *Amomum Zerumbet*. *Broad-leaved Ginger, or Zerumbet*.

Lin. spec. 1. syst. 50. Reich. 3. Lour. coch. 2. Mill. fig. t. 26. Ebrt. pict. t. 14. f. 1. Murray in comm. gott. 1775. t. 2. Jacq. hort. 3. t. 54. Plenck. ic. t. 2. Herm. lugdb. t. 637. Rumph. amb. 5. t. 64. f. 1. Rheed. mal. 11. t. 13.

Scape naked ; *spike* oblong, obtuse.

[3. *Amomum sylvestre*. *Great wild Ginger*.

Swartz prodr. 11. Sloan. jam. 1. 165. t. 105. f. 2. Brown. jam. 113. 2.

Scape naked, *spike* elongate with oblong *ventricose* bracts, *leaves* broad-lanceolate.

4. *Amomum Mioga*. *Japanese Ginger*.

Thunb. jap. 14. Kämpf. amæn. 5. 826. ic. select. t. 1.

Scape very short, *capsule* ovate, *leaves* ensiform acute.]

5. *Amomum Cardamomum*. *Cardamom*.

Lin. spec. 2. Reich. 3. mat. med. 2. fl. zeyl. 4. Sonn. ind. 2. 240. t. 136. Blackw. t. 385.

f. 1, 2, 3. and t. 584, 585. Rumph. amb. 5. t. 65. f. 1. Rheed. mal. 11. t. 6. Woodv. 356. t. 131. Plenck. ic. t. 3.

Scape very simple and short, *bracts* alternate, loose.

[6. *Amomum villosum*.

Loureiro cochinch. 4.

Globba crispa. Rumph. amb. l. 11. c. 30. t. 61.

Scape short reclining, *bracts* linear, *fruit* villose.

7. *Amomum medium*.

Lour. cochinch. 4.

Spike cauline, branched ; *fruit* oblong, streaked, valveless.

8. *Amomum globosum*.

Lour. cochinch. 4.

Spike cauline, branched ; *fruit* globose, with an even surface.

9. *Amomum hirsutum*.

Lour. cochinch. 5.

Spike cauline, simple, reclining ; *fruit* roundish, hirsute.

10. *Amomum Granum Paradisi*. *Grains of Paradise*.

Lin. spec. 2. syst. 50. Reich. 1. 3. mat. med. 3.

Blackw. herb. t. 385. f. 4. Plenck. ic. t. 112.

Rheed. mal. 11. t. 6. (Elettari.)

Scape branching, very short.]

11. *Amomum Galanga*. *Galangale*.

Lour. coch. 5.

Maranta Galanga. Lin. spec. 3. Reich. 1. 4. mat. med. 35. Mill. dict. n. 2.

Galanga. Rumph. amb. 5. 143. t. 63.

Spike cauline, erect ; *spathe* subtriflorous ; *capsule* three-cornered-ovate, smooth.

[12. *Amomum arboreum*.

Lour. coch. 7.

Stem arboreous, *fruit* calycine.

DESCRIPTIONS, &c.

1. *Ginger*. Root creeping by palmate, compressed, fleshy tubers, with age becoming fibrose. Culm annual, two feet high, quite single, solid, upright. Leaves half a foot in length, smooth, alternate, on short, embracing petioles. Scape separate, eight inches high, thick, round, straight, scaly, usually without leaves. Spike upright, composed of large, ovate, subacuminate, coloured scales, half closing the flowers. Calyx a small, double spathe. Corolla yellowish green, with a long, slender tube ; the segments of the border conical, and nearly equal. Nectary reddish brown, ovate, quite entire, petal-shaped, winged on each side at the base, somewhat shorter than the corolla, fastened to it below the anterior fissure of the segments. Filament (upper lip of the nectary) filiform, placed on the corolla, and shorter than it. Anther ovate, large, cloven longitudinally, embracing the filiform style ; stigma cylindraccous, ciliate at the tip. Capsule smooth, with many oblong seeds in it *.]

It is a native of the East-Indies, and other countries of Asia ; and is largely cultivated both there and in the West-Indies. The dried roots furnish a considerable export from our West-India islands. These roots, it is well known, are of great use both in the kitchen and in medicine ; and preserved green as a sweetmeat, are preferable to every other sort. [It flowers with us in September ; and was cultivated in 1731, by Mr. Miller †.

The root of Ginger appears to be much less liable to heat the constitution, than might be expected from the penetrating warmth and pungency of its taste. It gives out the whole of its virtue to rectified spirit, and great part of it to water. The spirituous tincture inspissated, yields a fiery extract, smelling moderately of the ginger. A syrup made from an infusion of three or four ounces of the root in three pints of boiling water, is kept in the shops. The cases in which ginger is more immediately serviceable, are flatulent cholics, debility and laxity of the system, and in torpid and phlegmatic constitutions, to excite a brisker action of the vessels.

* Loureiro.

† Hort. kew.

The manner of preparing it for use, in the West Indies, is as follows. When the stalks are wholly withered, the roots are fit to take up; which is generally done in January and February. Being picked and cleared, they are gradually scalded, in boiling water: after this they are spread, and exposed to the sun till the whole is sufficiently cured; they are then divided into parcels of about one hundred weight each, and put into bags for the market; this is called black ginger. The white ginger is never scalded, but every root is picked, washed, and scraped separately, and then dried in the sun and air.

To preserve this root in syrup, it is dug when the shoots do not exceed five or six inches in height. Being picked and washed, they are scalded till tender: then put into cold water, and scraped and peeled gradually: this operation may last three or four days, during which time the roots are constantly kept in water, frequently shifted. They are then put into jars, and covered with a thin syrup, which after two or three days is shifted, and a richer put on; this is sometimes again removed; and even a fourth put on; but it seldom requires more than three syrups. The shifted syrups are diluted, and fermented into a small pleasant liquor, called cool drink*.

2. *Zerumbet* or *broad-leaved Ginger* has the tubers of the root much larger, round, twisted, thick, branched, horizontal, pale-coloured, with but little smell, and a bitterish, not an ardent flavour like true Ginger. Culm four feet high, perennial, straight, quite simple, round and solid like the foregoing species. Leaves lanceolate, large, smooth, petioled, embracing, ascending obliquely. Scape a foot high, distinct, thick, scaly, red. Spike large, with rounded, close, one-flowered, red scales. Calyx a single acute spathe. Corolla pale, with a long tube; the upper segment of the border acute, the two lower ones subovate. Nectary of the same colour, petal-shaped, very blunt, bifid, fastened to the throat of the corolla. Filament flat, subulate, bent in, adhering to the hinder segment of the corolla, and nearly equal to it. Anther oblong, fastened to the middle of the filament†.

Native of the East Indies, Cochinchina, &c. Also in Otaheite and the other Society isles.]

With us it flowers from September to November; when the stalks perish in the same manner as the true Ginger.

[It was cultivated in 1690, in the royal garden at Hampton Court‡.

This is used externally in the east, in cataplasms and fomentations; but not as spice or medicine internally; though Garcias affirms that it makes a better preserve with sugar than the other.

3. This differs in nothing from the preceding, only the stalk rises eight or nine feet high, having much larger leaves, and instead of the flowers and fruits being on the end of the same stalk, they are on another about three feet high, immediately springing from the root, like our *Arums* or *Orobanches*, being jointed, and having each internode covered with a dry purplish membrane, coming from the under joint, and on its top, a spike of flowers four inches long, exactly like the former, only larger§.

Native of Jamaica, where it is frequent enough in the woods. Browne says, that its common height is five or six feet, and that the flower-stalks seldom rise above one or two feet from the ground.

The root is warm, and stimulates very gently; it may be properly administered as a stomachic and alexipharmic||.

4. Root fusiform, fibrose, aromatic. Stem weak, the whole covered with long decurrent sheaths of leaves, a foot high and more. Leaves alternate, sharp but not cusped, smooth, many nerved, spreading, a span long. Scape distinct, very short. Flowers sessile, in bundles, rolled up in imbricate scales; alternately embracing the stalk, oblong, acute,

streaked, concave, smooth, white, an inch in length, the inner ones smaller. Perianth none, but the scales on the spathe. Border of the corolla four-parted; the three outer parts regular, equal, oblong, acute, concave, white: the inmost, unlike the others, ovate, very concave, obtuse, with two ears at bottom, yellow, surround the parts of fructification, a little shorter than the rest. Nectary none, except the inner segment of the corolla. Filament single, fastened longitudinally to the tube of the corolla, erect, extended beyond the anthers, greenish white, the length of the corolla. Anthers two, fastened to the filament longitudinally, oblong, twin, yellow. Style rising through a fissure between the anthers, the length of the filament. Stigma thickened, cylindrical, white; the mouth with a hole punched in it, and lacerated. Capsule subovate, obtuse. Seeds very many, minute, annexed to the middle pyramid. Within the tube of the corolla, at the base of the stamen, are two little whitish points, thickened at the base, hollow, and very short.—It approaches very near to *A. Cardamomum* of Java, in having the spike of flowers distinct from the leaves, and ovate capsules: but it differs in having the scape more fascicled and shorter, not oblong and imbricate; the leaves ensiform, and merely acute, whereas in that they are obovate-elliptic, with a long bristle at the tip; they are also much shorter, only about a span in length, but in the other they are frequently four feet long.—In the leaves it bears a great resemblance to *A. Zinziber* and *Zerumbet*; but the spike of flowers is radical, with scarcely any scape.—It is a native of Japan, where it flowers in September*.]

5. The Cardamom has thick fleshy roots, resembling those of the large Flag Iris; in the spring these send forth many green reed-like stalks, which rise to the height of seven or eight feet, garnished with very long narrow leaves, set alternately, closely embracing them at their base. The stalks decay entirely in autumn, and new ones arise from the roots in the spring, but it has not produced any flowers as yet in England, though the roots thrive and increase greatly where they are properly managed. [Cardamom is an object of considerable commerce in Malabar. The Indians themselves make great use of it, they mix the seeds with their Betel, thinking that it facilitates digestion.

The lesser Cardamom, which in all probability will prove to be a different species from this, affords an elegant and useful aromatic; very warm, yet not fiery, or subject, like pepper, to produce immoderate heat. The seeds which are the part used in medicine, give out their warmth to watery as well as to spirituous menstrea, but much more powerfully to the latter. The tincture of Cardamoms is occasionally made use of as a pleasant, warm cordial, as well as for flavouring other medicines.

6. Root horizontal, somewhat woody, creeping; with very long, thick, strong smelling fibres. Culm perennial, quite simple, weak but upright, round, six feet high. Leaves lanceolate, nerveless, smooth, petioled, stem-clasping, reflex. Scape four inches high, slender. Spike subovate, with linear, imbricate bractes. Corolla pale, with a petal-shaped, short, blunt nectary. Pericarp subglobose, half an inch long, rufous, three-celled but valveless, with many thick, villose hairs on the outside. Seeds angular, brown, fastened by interjacent little membranes. The smell of the whole plant is aromatic, mild, with a small degree of sharpness. Taste of the fruit, when fresh, sweetish and pleasant. Native of the mountains of Cochinchina. The seeds are in great request among the Chinese merchants; being much used in medicine in China†.

7. Culm perennial, straight, single, eight feet high, thick and round. Leaves large, oblong, sharpish, smooth, with embracing petioles. Spike long, terminating. Pericarp obtuse, subcolumnar, thick, coriaceous, juiceless. Seeds angular, separated by little

* Browne. † Loureiro. ‡ Hort. kew. § Sloane.
|| Browne.

* Thunberg.

† Loureiro.

membranes, brown, strong-scented, biting to the taste. Native of China, in the province *Yunnan*, to the west of Canton. The seeds are used in agues; for culinary purposes; and to increase the strength of any odours whatever ‡.

Loureiro suspects this to be the plant described and figured by Bontius (Jav. l. 6. c. 37. p. 127.) under the name of *Cardamomum majus*: and affirms that the form of the fruit agrees with *Card. medium*, in Matthioli, l. 1. c. 5. p. 28.

8. Root tubercled, creeping, short. *Culm* perennial, quite single, round, erect, four feet in height. *Leaves* lanceolate, large, smooth, nerveless, petioled, stem-clasping, erect. *Spike* ovate-oblong, erect, with oblique branches; and partial spathes, containing about four flowers. *Perianth* tubulose, three or four-toothed. *Corolla* reddish white; the segments oblong-ovate, nearly equal. *Nectary* waved, rounded at the tip, emarginate, petal-shaped, standing on the corolla. *Filament* flattish, long. *Anther* oblong-ovate, with a vertical notch embracing the style; which is filiform, and longer than the anther. *Stigma* concave, ciliate. *Pericarp* white, valveless; the cover thin and brittle. *Seeds* angular, brown, strong-smelling, and somewhat biting to the taste.—Native of the mountains of China and CochinChina; and used medicinally in both countries, in disorders of the bowels, &c. §.

9. Root horizontal, branched, creeping. *Culm* perennial, quite single, erect, round, hirsute, six feet high. *Leaves* lanceolate, large, erect, with embracing petioles. *Spike* linear; with two-flowered peduncles and spathes. *Perianth* inferior, tubulose, four-cleft; with equal, rounded clefts. Segments of the corolla blunt, nearly equal. *Nectary* petal-shaped, very broad, obtuse, curved inwards, four-cleft, with the two lateral segments shorter, rounded. *Fruit* roundish-three-cornered, very hirsute, valveless. *Seeds* angular. The corolla is variegated with white, red, and yellow. The smell and taste are very weak. Native of CochinChina, in woods ||.

10. As yet we know very little about this plant. It is a native of Guinea, and of the islands of Ceylon, and Madagascar. It was introduced in 1785 by Lee and Kennedy ¶.

A. Granum Paradisi is used for the same purpose as Cardamom, and in the same manner: it is however not so agreeable, and more nearly approaches to the fiery pungency of pepper.

11. *Galangale* has a horizontal, creeping root, composed of roundish, thick, twisted, knotty tubers. *Culm* perennial, entirely simple, upright, smooth, six feet high. *Leaves* ovate-lanceolate, nerveless, smooth, upright, large, on embracing petioles. *Spike* oblong. *Perianth* inferior, tubulose, bluntly trifid. *Corolla* superior, yellowish white; segments oblong-ovate, concave, nearly equal. *Nectary* petal-shaped, roundish, emarginate, nearly equal to the segments of the corolla. *Filament* linear, thick, grooved longitudinally, longer than the corolla. *Anther* oblong, bifid, embracing a style longer than itself. *Stigma* thickish, emarginate. *Seeds* roundish. The smell of the whole plant is aromatic; and it has a biting taste.

Linneus has made the *Galangale* a species of *Marrubium*; but the corolla is not ringent, nor five-cleft, nor has it two segments spreading, but all the segments, which are three in number, are nearly the same in size and figure. Rumphius indeed says that the flower has four petals; but what he calls the upright petal like a standard, is the petal-shaped nectary, which however is not so much attenuated towards the base as it is represented in Rumphius's figure: *Galangale* therefore is a species of *Amomum*, as Bergius also has acknowledged it to be. It is a native of China and CochinChina, and is cultivated in both countries. The root and seeds are both used there medicinally*. The root, as imported to us, has no very grateful smell, and an unpleasant, bitterish, hot taste. It was formerly in common use

as a warm stomachic bitter, and generally made an ingredient in bitter infusions; but is now almost wholly laid aside, on account of its unpleasant flavour. The spirituous extract is excessively fiery; and the watery extract is very hot and pungent. The essential oil has little smell, and no great pungency. The pungent matter therefore seems to be of the same nature with that of pepper; residing, not in the volatile oil, but in a more fixed matter †. In the east, they use the fresh root in preserving fish and meat, and to flavour the spirit which they draw from rice and sugar. For this purpose, they bruise it grossly, and make it up into balls with an equal quantity of rice. These balls are hung up for a long time in a chimney, that they may imbibe the foot. A quantity of this substance is broken into the liquor prepared by boiling for making spirit, and is left in it all night; the next day the liquor is found in a state of fermentation, and is put into the still; and they procure a spirit from this mixture, not inferior to that which is drawn from the Coco Palm, and probably much more wholesome.

The same root is usually given in the shops for *Galangale* and for *Zedoary* ‡.

12. This is a tree about ten feet in height, with many twisted, spreading branches. *Leaves* ovate-oblong, acuminate, quite entire, small, tomentose beneath, all turned towards one side, on sheathing petioles. *Flower* pale red, sessile, supported by a conical, concave scale, keeled underneath at the tip. *Spike* ovate, flowering on all sides. Tube of the perianth large, ovate-three-cornered; the three segments sharp and upright. *Corolla* superior; the segments lanceolate, and nearly equal. *Nectary* petal-shaped, broad-ovate, nearly equal to the corolla, fastened to the tube of it on the inside. *Filament* lanceolate, coloured, connected both with the tube of the corolla and the nectary. *Anther* linear, coalescing with the filament longitudinally. *Germ* calycine, three-cornered. *Style* filiform, inclosed within the notch of the anther, and longer than it. *Stigma* vertically flat, truncate. *Pericarp* ovate-three-cornered, when it is ripe opening at the corners into three valves from the tube of the calyx. *Seeds* longish, angular. It has scarcely any taste or smell, and its use is unknown. The wood is very light, and not even fit for the fire. Native of the island of Sumatra, in a wood, on the eastern coast §.]

PROPAGATION AND CULTURE.

All these sorts are tender, and require a warm stove to preserve them in this country. They are easily propagated by parting their roots; the best time for doing this is in the spring, before they put out new shoots; for they should not be transplanted in summer when they are in full vigour, nor do they succeed so well when they are removed in autumn, because they remain long after in an inactive state; and during that time, if wet comes to the roots, it often causes them to rot. When the roots are parted, they should not be divided into small pieces, especially if they are designed to have flowers; for until the roots have spread to the side of the pots, they rarely put out flower-stems, for which reason they should not be planted in very large pots.

These plants thrive best in a light rich earth, such as may be found in the kitchen-garden; with this the pots should be filled within two inches of the top, then the roots should be placed in the middle of the pots, observing that their crowns are upwards, and the pots filled up with the same rich earth; after this the pots should be plunged into a hot-bed of tanner's bark, and must be sparingly watered, until their stalks appear above ground, when they will require a greater share of moisture, especially during the warm summer months; but in autumn the waterings must not be often, nor in great plenty; and during the winter season, when the roots are inactive, very little water should be given them. The pots with these roots should constantly remain plunged in the tan-bed, for if they are taken out

‡ Loureiro. § Ibid. || Ibid. ¶ Hort. kew. * Loureiro.

† Lewis mat. med.

‡ Loureiro.

§ Ibid.

and placed on shelves in the stove, their fibres frequently shrink, which occasions their roots to decay.

With this management these plants have multiplied greatly, and the common Ginger has produced roots, weighing five or six ounces; but the others have been near a pound weight.

[In the West Indies the Ginger thrives best in a rich cool soil; in a more clayey soil the root shrinks less in scalding. The land laid out for the culture of it, is first well cleared and hoed, then slightly trenched, and planted in march or april; it flowers about september; when the stalks are wholly withered, the roots are fit to take up, which is generally done in january and february*.

AMOMUM. See *Alpinia*, *Costus*, and *Sison*.

AMOMUM CURCUMA. See *Curcuma*.

AMOMUM PLINII } See *Solanum*.]

AMORIS POMUM. }

AMORPHA. (from α , priv. and $\mu\omicron\rho\phi\eta$, forma,)

Lin. gen. n. 861. Reich. 933. Schreb. 1170.

Juss. 357. Gært. t. 144.

Class. 17. 3. Diadelphia decandria.

Nat. order of *Papilionaceæ* or *Leguminosææ*.

GENERIC CHARACTER.

CAL. Perianth one-leafed, tubulous, cylindrical, turbinate; mouth erect, five-toothed, obtuse, the two upper teeth larger than the others: permanent.

COR. of one, ovate, concave petal, scarcely larger than the calyx, erect, inserted into the calyx, between the two larger and upper teeth, and placed at the upper side of it.

STAM. Filaments very slightly united at the base, erect, unequal in length, longer than the corolla: anthers simple.

PIST. Germ roundish; style subulate, the length of the stamens: stigma simple.

PER. Legume lunulate, reflex, larger than the calyx, compressed, more reflex at the tip, one-celled, tubercled.

SEEDS two, oblong-kidney-shaped.

ESSENTIAL CHARACTER.

Standard of the Corolla ovate, concave; Wings none; Keel none.

SPECIES.

1. *Amorpha fruticosa*. Bastard Indigo.

Lin. spec. 1003. Reich. 3. 418. hort. cliff. t. 19.

Gært. fruct. 2. 305. Mill. fig. 27. Hort.

angl. 11. t. 4. Duham. arb. 1. p. 46. t. 16.

DESCRIPTION.

1. It rises with many irregular stems, to the height of twelve or fourteen feet, with very long winged leaves, in shape like those of the common *Acacia*. At the extremity of the same year's shoots, the flowers are produced in long slender spikes, they are small and of a deep purple colour; make their appearance the beginning of july; and the seeds do not ripen in England. This shrub grows naturally in Carolina, where formerly the inhabitants made a coarse sort of Indigo from the young shoots, which occasioned their giving it the name of *Bastard Indigo*. The seeds were sent to England, by Mr. Mark Catesby, in 1724, from which many plants were raised in the gardens near London; these were of quick growth, and many of them produced flowers in three years. It is become very common in all gardens and nurseries. [Thunberg observed it in the great island of Nipon belonging to Japan.]

PROPAGATION AND CULTURE.

It is generally propagated by seeds, which are annually sent to England from different parts of America; for it is found in many of the northern colonies there; they usually arrive in february, and should be sown as soon as possible, in a light soil. It may also be propagated by laying down the young branches, which in one year will make good roots, and may then be taken off, and planted either in the nursery, or the places where they are designed to remain. If they are put into a nursery, they should not remain there more than one year: for as the

* Browne.

plants make large shoots, they do not remove well when they have remained long in a place: they must have a sheltered situation, otherwise their branches will be broken by the winds. As these shoots are large and soft, their upper parts are generally killed by frost in winter, but they put out shoots again in plenty below the dead part, the spring following.

[AMPANA. See *Borassus*.

AMPELOPRASUM. See *Allium*.

AMSONIA. See *Tabernemontana*.

AMYGDALIS SIMILIS. See *Theobroma*.]

AMYGDALUS. (from *Ἀμυγδαλέα*, by contraction *Ἀμυγδαλή*. The fruit *Ἀμυγδαλή* and *Ἀμυγδαλον*: from the lines or furrows on the stone, which the Greeks call *ἀμυχᾶς*, from *ἀμύσσω*, *rado*.)

Lin. gen. n. 619. Reich. 674. Schreb. 848.

Tournef. 402. Juss. 341. Gært. t. 93.

Perfeca. Tournef. 400.

Class. 12. 1. Icosandria Monogynia.

Nat. order of *Pomaceæ*. *Rosaceæ* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leafed, tubulous, inferior, quinquefid, deciduous; divisions spreading, obtuse.

COR. of five petals, oblong-ovate, obtuse, concave, inserted into the calyx.

STAM. Filaments about thirty, filiform, erect, shorter by half than the corolla, inserted into the calyx: anthers simple.

PIST. Germ roundish, villose: style simple, length of the stamens: stigma headed.

PER. A Drupe, roundish, villose, large, with a longitudinal furrow.

SEED. A Nut, ovate, compressed, acute, with prominent sutures on each side, reticulated with furrows, and dotted with small holes.

OBS. The nut of the Almond is covered with a dry skin; that of the Peach with a soft pulp.—The only difference between this genus and *Prunus* is the pubescence of the skin, for the pores of the shell are not constant. G. Neither is the pubescence constant.

ESSENTIAL CHARACTER.

Cal. quinquefid, inferior. Pet. five. Drupe having a shell perforated with pores: skin pubescent. G.

SPECIES.

1. *Amygdalus Perfeca*.

Lin. spec. 676. Reich. 2. 481. hort. cliff. 189.

upf. 123. Thunb. jap. 199. Blackw. t. 101.

Plenck, ic. 386. Raii hist. 1515. Duham.

t. 1—32. vol. 2. p. 64.

α. The Peach-tree. With downy fruit.

β. Nectarine. With smooth fruit.

Raii hist. 1516.

All the serratures of the leaves acute, the flowers sessile and solitary.

2. *Amygdalus communis*. The Almond Tree.

Lin. spec. 677. syst. 462. Reich. 2. 482. hort.

cliff. 186. upf. 123. Loureiro cochinch. 316.

Hall. belv. n. 1078. Plenck, ic. t. 385.

α. A. Sylvetris. The common or wild Almond.

β. A. fativa. Sweet or Jordan Almond. Mill. fig.

t. 28. f. 1. Duham. arb. 5.

γ. A. amara. Bitter Almond. Blackw. t. 105.

Duham. arb. 7.

The lower serratures of the leaves glandulous; the flowers sessile and in couplets.

3. *Amygdalus pumila*. Double-flowered Dwarf-Almond.

Lin. mant. 74. 514. Reich. 2. 482. Syst. 462.

Perfeca africana nana, &c. Herm. lugdb. t. 489.

A. Perfeca nana, &c. Pluk. phyt. t. 11. f. 4.

Perfeca Amygdalus. Mill. dict.

Leaves veined-wrinkled.

4. *Amygdalus nana*. Common Dwarf Almond.

Lin. spec. 677. Reich. 2. 482. hort. cliff. 186.

upf. 124. mant. 396. Gært. fruct. 2. 75.

Pallas, Ross. p. 12. t. 6. Gmel. fib. 3. p. 171.

n. 2. Mill. fig. t. 28. f. 2. Pluk. phyt. t. 11.

f. 3. Duham. arb. 1. t. 3. Curt. magaz.

t. 161.

Armeniaca. Amm. ruth. 273. t. 30.

Leaves attenuated at the base.

E c

[5. *Amygdalus*

- [5. *Amygdalus incana*. Hoary Dwarf Almond.
Pallas ruff. 13. t. 7.
Leaves lanceolate ferrate wrinkled subsessile, white-tomentose beneath.]
6. *Amygdalus orientalis*. Silvery-leaved Almond.
Mill. dist. n. 4. Ait. hort. kew. 2. 162. Dubam. arb. 48.
Leaves lanceolate quite entire silvery perennial, petiole shorter.
- [7. *Amygdalus cochinchinensis*.
Loureiro cochinch. 316.
Leaves ovate quite entire, racemes small subterminal.

DESCRIPTIONS, &c.

1. The Peach, in its natural state of growth, is a small tree, with spreading branches. The leaves larger than those of the Almond, lanceolate, alternate, smooth and ferrate; the ferratures short, sharp and regular. The flowers are sessile, and solitary; the calyxes reddish, the corollas bell-shaped, with a spreading border, of a fine light purple, or pale rose-colour, but with very little scent. The fruit is a roundish drupe, commonly pointed opposite to the peduncle, and with one longitudinal groove: the pulp is large, fleshy and succulent, white or yellowish, sometimes reddish, abounding with a grateful sweet-acid juice; the outside is of a pale greenish colour, with a blush or tawny redness frequently towards the sun, and the skin is lanuginose or woolly; the stone is very thick and hard, full of deep irregular furrows, and incloses a bitter kernel. The wood of this tree is of a reddish brown colour, darker towards the middle, and is fit for the use of the turner. It is of quick growth, and not of very long duration.

The original country of its nativity is not known. The Latin name of *Malus Persica* indicates no more than that it came to the Romans from Persia. It has been cultivated time immemorial in most parts of Asia, has been adopted by almost every nation of Europe, and now flourishes abundantly in America, wherever it has been introduced by the Europeans. We have no exact tradition concerning the time of its first introduction into Greece or Italy; but no mention of it is made by Theophrastus, for what he says of the *Persea* by no means agrees with this tree.

Before we proceed to the varieties of the fruit, for which the Peach-tree is principally cultivated, it may be proper to observe, that there are few trees more ornamental in plantations, shrubberies, and wilderness quarters, particularly within view of the house, and in sheltered situations, where they will display their beautiful blossoms early in the spring, about the beginning of april; when flowers, especially on trees, are particularly valuable.

The variety with double flowers is highly ornamental for the same purpose, and is certainly one of the most beautiful flowering trees that will admit of cultivation in our climate, in the open air. It will produce some fruit, notwithstanding the flowers are double, but it is of no value, unless the trees be trained against walls. The blossoms appear about three weeks later than the common Peach.

We are enabled to ascertain nearly the introduction of the double-blossomed Peach among us, from Parkinson. For in his *Paradisus terrestris*, published in 1629, he says, "it hath not been seen or knowne, long before the writing hereof."

This author mentions twenty-one sorts of Peach cultivated in his time for the fruit, the names of which are these. 1. The great white. 2. The small white. 3. Carnation. 4. Grand Carnation. 5. Red. 6. Ruffet. 7. Island. 8. Newington. 9. Yellow. 10. St. James's. 11. Melocotone. 12. Peach du Troas. 13. Queen's. 14. Roman. 15. Durasme or Spanish. 16. Black. 17. Alberza. 18. Almond Peach. 19. Man Peach. 20. Cherry Peach. 21. Nutmeg Peach.

Mr. Ray, sixty years after Parkinson, gives a list of eighteen different sorts of Peaches then in most esteem, the names of which are as follows.—

1. The White Nutmeg. 2. The Red Nutmeg. 3. The Troy Peach, so called from Troyes in Champagne. 4. The Isabella. 5. The Savoy. 6. The Bourdeaux. 7. The early Newington. 8. The old Newington. 9. Violet Muscate, 10. Perficum. 11. Modanese. 12. Morello. 13. Rumbulliam. 14. Bellice. 15. Scarlet. 16. Royal. 17. Ricket. 18. Bloody Monsieur.]

Mr. Miller enumerates thirty-one sorts as the principal known in his time in England; and which in his opinion are sufficient for any gentleman to have a collection continuing through the whole season of fruit.

1. The white Nutmeg (called by the French, L'Avant Pêche Blanche; Duh. n. 1. t. 2.) the fruit is small and white; it is a little musky and sugary, but it is only esteemed for its being the first sort ripe. It is in eating pretty early in july, and soon becomes meally.

2. The red Nutmeg (L'Avant Pêche de Troyes: Duh. n. 2. t. 3.) the fruit is larger and rounder than the white Nutmeg, and is of a bright vermilion colour; the flesh is white, but very red at the stone; it has a rich musky flavour, and parts from the stone. This Peach is well esteemed, and ripens towards the end of july.

3. The early or small Mignon (Double de Troyes, or Mignonette: Duh. n. 3. t. 4.) the fruit is of a middling size, and round; it is very red on the side next the sun; the flesh is white, and separates from the stone, where it is red; the juice is vinous and rich. It is ripe the end of july, or beginning of august.

4. The yellow Alberge: (Duh. n. 5. t. 5.) the fruit is of a middling size, somewhat long; the flesh is yellow and dry; it is seldom well flavoured, but should be perfectly ripe before it is gathered, otherwise it is good for little. It is ripe early in august.

5. The white Magdalen: (Duh. n. 8. t. 6.) the fruit is round, of a middling size; the flesh is white to the stone, from which it separates; the juice is seldom high flavoured; the stone is very small. This ripens early in august.

6. The early purple, La Pourprée hâtive: (Duh. n. 12. t. 8.) the fruit is large, round, and of a fine red colour; the flesh is white, but very red at the stone; is very full of juice, which has a rich vinous flavour, and is by all good judges esteemed an excellent Peach. This is ripe before the middle of august.

7. The large or French Mignon: (Grosse Mignonne Duh. n. 14. t. 10.) the fruit is a little oblong, and generally swelling on one side; it is of a fine colour; the juice is very sugary, and of a high flavour; the flesh is white, but very red at the stone, which is small. This is ripe in the middle of august, and is justly esteemed one of the best Peaches; it separates from the stone. This sort of Peach is tender, and will not thrive on a common stock, so is generally budded upon some vigorous shooting Peach, or an Apricot, by the nurserymen, which enhances the price of the trees. But the best method is to bud this Peach into some old healthy Apricot, which is planted to a south or south-east aspect, and to cut away the Apricot when the buds have taken, and made shoots: upon some trees which I have seen thus managed, there has been a much greater quantity of fairer, and better flavoured fruit than I have ever observed elsewhere, and the trees have been much more healthy.

8. The Chevreuse, or Belle Chevreuse: Duh. n. 18.) the fruit is of a middling size, a little oblong, of a fine red colour; the flesh is white, but very red at the stone, from which it separates; it is very full of a rich sugary juice, and ripens towards the end of august. This is a very good bearer, and may be ranged with the good Peaches.

9. The red Magdalen: Madeleine de Courfon: (Duh. n. 10. t. 7.) the fruit is large and round, of a fine red colour; the flesh is white, but very red at the stone, from which it separates; the juice is very

fugary, and of an exquisite flavour. The fruit is ripe the end of august.

10. The early Newington, or Smith's Newington: (very like, if not the same, with what the French call *Le Pavie blanc*. Duh. n. 9.) the fruit is of a middling size, is of a fine red on the side next the sun; the flesh is firm and white, but very red at the stone, to which it closely adheres. It has a sugary juice, and is ripe the end of august.

11. The Montauban: the fruit is of a middling size, of a deep red, inclining to purple next the sun, but of a pale colour toward the wall; the flesh is melting and white to the stone, from which it separates; the juice is rich, and the tree is a good bearer. It ripens the middle of august.

12. The Malta: (which is very like, if not the same, with the Italian Peach: Duh. n. 11.) the fruit is of a middling size, of a fine red next the sun: the flesh is white and melting, but red at the stone, from which it separates; the stone is flat and pointed: the tree is a good bearer. This ripens the end of august.

13. The Noblesse: the fruit is large, of a bright red next the sun; the flesh is white and melting, and separates from the stone, where it is of a faint red colour; the juice is very rich in a good season. It ripens the end of august, or beginning of september.

14. the Chancellor: (Duh. n. 19.) the fruit is shaped somewhat like the *Belle Chevreuse*, but is rounder; the flesh is white and melting, and separates from the stone, where it is of a fine red colour; the skin is thin, and the juice is very rich. It ripens about the end of august. This tree is very tender, and will not succeed on common stocks, so is budded twice, as the *Mignon*; and if budded on *Apricots*, as was directed for that sort, will thrive much better than in any other method.

15. The Bellegarde (Gallande; Duh. n. 28. t. 20.) the fruit is very large and round, of a deep purple colour on the side to the sun; the flesh is white, melting, and separates from the stone, where it is of a deep red colour; the juice is very rich. This ripens the beginning of september.

16. The Lifle (*La petite Violette hâtive*: Duh. n. 22. t. 16. f. 2.) the fruit is of a middling size, of a fine Violet colour toward the sun; the flesh is of a pale yellow and melting; it adheres to the stone, where it is very red; the juice is very vinous. This ripens the beginning of september.

17. The Bourdine: (Duh. n. 16. t. 12.) the fruit is large, round, and of a fine red colour next the sun; the flesh is white, melting, and separates from the stone, where it is of a fine red colour; the juice is vinous and rich; this ripens the beginning of september. The tree bears plentifully, and will produce fruit in standards very well.

18. The Rossanna: (Duh. n. 6.) the fruit is large, a little longer than the *Alberge*; the flesh is yellow and separates from the stone, where it is red; the juice is rich and vinous. This ripens the beginning of september. This is the same with what some call the purple, and others the red *Alberge*, it being of a fine purple colour on the side next the sun.

19. The Admirable: (Duham. n. 29. t. 21.) the fruit is large, round, and red on the side next the sun; the flesh is white, melting, and separates from the stone, where it is of a deep red colour; the juice is sugary and rich: it ripens the beginning of september. This is by some called the early *Admirable*, but is certainly what the French call *L'Admirable*, and they have no other of this name which ripens later.

20. The old Newington: the fruit is fair and large, of a beautiful red colour next the sun; the flesh is white, melting, and closely adheres to the stone, where it is of a deep red colour; the juice is very rich and vinous. It ripens about the middle of september.

21. The Rambouillet (commonly called *Rum-bullion*;) the fruit is of a middling size, rather

round than long, deeply divided by a furrow in the middle; it is of a fine red colour next the sun, but of a light yellow next the wall; the flesh is melting, of a bright yellow colour, and separates from the stone, where it is of a deep red colour; the juice is rich, and of a vinous flavour. This ripens the middle of september, and is a good bearer.

22. The Bellis (which I believe to be what the French call *La Belle de Vitry*: Duham. n. 34. t. 25.) the fruit is of a middle size, round, and of a pale red next the sun; the flesh is white and adheres to the stone, where it is red; the juice is vinous and rich. This ripens the middle of september.

23. The Portugal: the fruit is large, and of a beautiful red colour towards the sun, the skin generally spotted; the flesh is firm, white, and closely adheres to the stone, where it is of a faint red colour; the stone is small, but full of deep furrows; the juice is rich and vinous. This ripens the middle of september.

24. *La Teton de Venus*: (Duham. n. 32. t. 23.) the fruit is of a middling size resembling the *Admirable*, of a pale red colour next the sun; the flesh is melting, white, and separates from the stone, where it is red; the juice is sugary and rich. This ripens late in september.

25. *La Pourprée* (*Pourprée tardive*, Duham. n. 13. t. 9.) the fruit is large, round, and of a fine purple colour; the flesh is white, melting, and separates from the stone, where it is red; the juice is sugary and rich. This ripens late in september.

26. The Nivette: (Duham. n. 37. t. 28.) the fruit is large, oblong, of a bright red colour next the sun, and of a pale yellow on the other side; the flesh is melting, and full of rich juice, and is very red at the stone, from which it separates: it ripens in the middle of september.

27. The Royal or Royal George (*La Royale*: Duham. n. 33. t. 24.) the fruit is large, round, and of a deep red on the side next the sun, and of a paler colour on the other side; the flesh is white, melting, and full of a rich juice; it parts from the stone, where it is of a deep red colour. This ripens the middle of september, and, when the autumn is good, is an excellent Peach.

28. The Perfique: (Duham. n. 38. t. 29.) the fruit is large, oblong, and of a fine red colour next the sun; the flesh is melting, and full of a rich juice; it separates from the stone, where it is of a deep red colour. The stalk has a small knot upon it; this makes a fine tree, and is a good bearer; it ripens the end of september. Many gardeners call this the *Nivette*.

29. The monstrous Pavy of Pomponne (*La Pavie rouge de Pomponne*: Duham. n. 35. t. 26.) the fruit is very large and round, many times fourteen inches in circumference; the flesh is white, melting, and closely adheres to the stone, where it is of a deep red colour; the outside is a beautiful red next the sun, and of a pale flesh colour on the other side. This ripens the end of october, and when the autumn is warm, is an excellent Peach.

30. The Catharine: the fruit is large, round, and of a dark red colour next the sun, the flesh is white, melting, and full of a rich juice. It closely adheres to the stone, where it is of a deep red colour; it ripens the beginning of october, and in very good seasons is an excellent Peach, but being so very late ripe, there are not many situations where it ripens well.

31. The Bloody Peach (*La Sanguinole*: Duham. n. 41.) this Peach is of a middling size, of a deep red next the sun; the flesh is of a deep red quite to the stone, and from thence is by some gardeners called the *Mulberry Peach*. This fruit rarely ripens in England, therefore is not often planted, but it bakes and preserves excellently; for which, as also the curiosity, one or two trees may be planted, where there is extent of walling.

[To this ample list of Miller the addition has been very small by succeeding cultivators.

Mawe,

Mawe, in his dictionary adds the following.

32. The Anne. A small round yellowish white fruit, faintly tinged with red on the sunny side: ripe early in august.

33. The Violet. A middle-sized roundish oval violet-coloured fruit: ripe towards the middle of september.

34. The Cambray. A middle-sized longish pale-coloured fruit: ripe in october.

35. The Narbonne. A very large fruit, almost wholly of a greenish colour: ripe in october.]

There are some other sorts of Peaches which are kept in some of the nurseries, but those which are here enumerated, are the sorts most worth planting, and in the list, the choicest only should be planted; but I shall just mention the names of those sorts omitted, for the satisfaction of the curious.

The Sion; the Bourdeaux; the Swalch or Dutch; the Carlisle; the Eaton; the Pêche de Pau; (Duham. n. 39.) yellow Admirable; (Duham. n. 30. t. 22.) and the double Flowering. This last sort is generally planted more for the beauty of the flowers, as was before observed, than for the goodness of the fruit, of which some years the standard trees produce great plenty; but they are late ripe, and have a cold, watery, insipid juice. The Dwarf Peach is also preserved in some places as a curiosity. This is a tender tree, making weak shoots, which are very full of flower-buds. The fruit is not so large as a Nutmeg, and not good, nor will the tree last any time, it is not therefore worth cultivating.

And indeed, from these thirty-one above-named, there are not above ten of them which I would advise to be planted; because, when a person can be furnished with those which are good, or has the best of the season, it is not worth while to plant any which are middling or indifferent, for the sake of variety; therefore the sorts which I should prefer, are these.

The early purple; the Groffe Mignon; Belle Chevreuse; red Magdalen; Chancellor; Bellegarde; Bourdine; Rossanna; Rambouillet, and Nivette.

[With these, other authors recommend the Small Mignon; Early Newington; Nobleffe; Admirable; Royal; Monstrous Pavy; Swalch; &c.]

These are the sorts best worth planting; but where there is room, and the situation very warm, one or two trees of the Catharine Peach should have place, for in very warm seasons it is an excellent fruit.

These follow each other in their time of ripening, therefore they will be sufficient to furnish any family during the season of this fruit: but as in some seasons there will be some sorts of Peaches very good, which in other seasons often prove but indifferent; therefore when there is a sufficient extent of good walls, I would recommend the planting three or four other sorts, which some years are excellent, though in general not so good as those before-mentioned. These are the Montaubon, the Lisle, the old Newington, La Teton de Venus, and the Persique.

The French distinguish those we call Peaches into two sorts, viz. Pavies and Peaches; those are called Peaches which quit the stone, and those, whose flesh closely adheres to the stone, are called Pavies. These are much more esteemed in France than the Peaches, though in England the latter are preferred to the former by many persons.

A good Peach ought to have a firm flesh; the skin should be thin, of a deep or bright red colour next the sun, and of a yellowish cast next the wall. The flesh should be of a yellowish colour, full of juice, which should be high-flavoured, the stone small, and the pulp or flesh very thick. When a Peach has all these qualities, it may be esteemed a valuable fruit.

[I. β. The NECTARINE is deemed by botanists to be a variety only of the Peach-tree. It is certainly not easy for a common eye to distinguish these trees, when they are not in a state of fructi-

fication, nor are their differences such as to warrant our considering them as specifically separate.

The Nectarine is commonly a smaller tree than the Peach; the trunk and larger branches covered with a lighter bark; the smaller branches or twigs more tender and inclining to red; the flowers are less than those of the Peach, and of a darker red colour. These differences however are frequently trifling, and by no means constant. The principal distinction certainly is in the fruit, which is smaller and rounder, without any lateral cleft; the flesh or pulp firmer than in the Peach, and the skin or rind perfectly smooth.

This tree has its name *Nuciperfica*, from the similitude of the fruit in smoothness, colour, size, and form to the Walnut (*Nux*), covered with its outer green shell. The English name of *Nectarine* is deservedly given it, from the rich, racy, nectareous flavour of the fruit; which in its highest perfection is superior to any other European fruit, and perhaps to many boasted fruits of hotter climates.

Parkinson gives six varieties of the Nectarine; or, according to his orthography, the Nectorin. 1. The Muske. 2. The Roman Red. 3. The bastard Red. 4. The Yellow. 5. The Green. 6. The White.

To these Ray adds—7. The Murrey. 8. The Tawney. 9. The Yellow; which he probably supposed to be different from Parkinson's fourth; otherwise it is a repetition. 10. The Ruffet. 11. The Painted or Variegated. 12. The Algiers.

Mr. Miller has only ten varieties, as follows.]

1. Fairchild's early Nectarine. This is one of the earliest Nectarines we have; it is a small round fruit, about the size of the Nutmeg Peach, of a beautiful red colour, and well flavoured; it ripens the end of july, or beginning of august.

2. Elruge Nectarine: it is a middle-sized fruit, of a dark-red or purple colour next the sun, but of a pale yellow or greenish colour towards the wall; it parts from the stone, and has a soft melting juice: this ripens the beginning or middle of august.

3. Newington Nectarine: it is a fair large fruit, (when planted on a good soil) of a beautiful red colour next the sun, but of a bright yellow towards the wall; it has an excellent rich juice; the pulp adheres closely to the stone, where it is of a deep red colour: this ripens the latter end of august, or beginning of september, and is the best flavoured of all the sorts, or perhaps of any known fruit in the world.

4. Scarlet Nectarine is somewhat less than the last, of a fine red or scarlet colour next the sun, but loses itself in paler red towards the wall: this ripens the end of august, or beginning of september.

5. Brugnion or Italian Nectarine, is a fair large fruit, of a deep red colour next the sun, but of a soft yellow towards the wall; the pulp is firm, of a rich flavour, and closely adheres to the stone, where it is very red: this ripens the end of august, or beginning of september.

6. Roman Red Nectarine, is a large fair fruit, of a deep red or purple colour towards the sun, but has a yellowish cast next the wall; the flesh is firm, of an excellent flavour, closely adhering to the stone, where it is very red: this ripens in september.

7. Murry Nectarine is a middle sized fruit, of a dirty red colour on the side next the sun, but of a yellowish green towards the wall, the pulp is tolerably well flavoured: this ripens the beginning of september.

8. Golden Nectarine is a fair handsome fruit, of a soft red colour next the sun, but of a bright yellow next the wall; the pulp is very yellow, of a rich flavour, and closely adheres to the stone, where it is of a faint red colour: this ripens the middle of september.

9. Temple's Nectarine is a middle-sized fruit, of a soft red colour next the sun, of a yellowish green toward the wall: the pulp is melting, of a white colour towards the stone, from which it parts, and

has a fine poignant flavour; this ripens the end of september.

10. Peterborough, or late green Nectarine, is a middle sized fruit, of a pale green colour on the outside next the sun, but of a whitish green towards the wall; the flesh is firm, and, in a good season, tolerably well flavoured; this ripens the middle of october.

[The best of these are the first, second, third, sixth and ninth; particularly the Newington and Roman. Some of the old Nectarines, not mentioned by Mr. Miller, are still in cultivation; as the White (n. 6.) which is ripe in august and september; the Tawny (n. 8.) which ripens in september, is a middle-sized fruit, and adheres to the stone; and some others.]

There are some persons who pretend to have more varieties than are here enumerated, but I much doubt whether they are different, there being so near a resemblance between the fruits of this kind, that it requires a very close attention to distinguish them well, especially if the trees grow in different soils and aspects, which many times alter the same fruit so much, as hardly to be distinguished by persons who are very conversant with them.

[2. The *Common Almond* will grow to the height of near twenty feet, with spreading branches. The leaves resemble those of the Peach very much, but the lower serratures are glandular; they proceed from buds both above and below the flowers, whereas in the Peach they proceed from the ends of the shoots above and not below the flowers. The form of the flowers is not very different, but they come out usually in pairs, and vary more in their colour from the fine blush of the Apple-blossom to a snowy whiteness. The chief obvious distinction is in the fruit, which is flatter, with a coriaceous covering, instead of the rich pulp of the Peach and Nectarine, opening spontaneously when the kernel is ripe. The shell is never so hard as in the first species, and is sometimes even tender and exceedingly brittle; it is flatter, smoother, and the furrows or holes are more superficial.

This tree is scarcely worth considering in England, for the sake of the fruit which it produces. It is a great object in some parts of Italy, and in the south of France, where there are vast plantations of Almonds in Provence and Dauphiné. It is common in China and most of the Eastern countries; and in Barbary, where it is a native. It seems not to have been cultivated in Italy in the time of Cato, who calls the fruit *Nuces Græcæ*, or Greek nuts. With us however it is very valuable as an ornamental tree in clumps, shrubberies, &c. within view of the mansion: for it displays its delicate red-purple bloom in the month of march, when few other trees have either leaves or flowers. An Almond-tree covered with its beautiful blossoms is one of the most elegant objects in nature.]

In a forward spring they often appear in february, but in this case, frost generally destroys them, and they bear little or no fruit; whereas when the trees do not flower till march, they seldom fail to bear plenty of fruit, many of which will be very sweet and fit for the table when green, but they will not keep long.

Mr. Miller makes three species of the Almond: 1. *Amygdalus communis*, or *common Almond*, which is cultivated more for the beauty of its flowers, than for its fruit. There are two varieties of this, one with sweet, the other with bitter kernels, which often arise from the fruit of the same tree.

2. *A. dulcis*, or *Jordan Almond*, the nuts of which are frequently brought to England; they have a tender shell, and a large sweet kernel. The leaves are broader, shorter, and grow much closer than those of the common sort, and their edges are crenate. The flowers are very small and of a pale colour, inclining to white. I have several times raised these trees from the Almonds which came from abroad, and always found the plants to maintain their difference from the Common Almond.

3. *A. sativa*: which has narrow sharp-pointed leaves; the flowers are much smaller than those of the Common Almond, and are white: the shoots of this tree are smaller, and the joints closer than those of the common sort, nor is the tree so hardy, therefore it should have the advantage of a warm situation, otherwise it will not thrive. This sort flowers early in the spring, and rarely produces fruit in England. But from an old tree which grew against a wall having a south aspect, I have some years had the fruits ripe, which were well flavoured, but their kernels were small.

[Duhamel gives seven species and varieties of the Almond.

1. Common Almond, with a small fruit.

2. Sweet Almond, with a tender shell. *Amandier des Dames*. t. 1.

3. Bitter Almond, with a tender shell; only a variety of the foregoing.

4. Almond with a small fruit, and tender kernel. *Amande-Sultane*.—And, with a still smaller fruit, *Amande-Pistache*.

5. Sweet Almond, with a large fruit. t. 2.

6. Bitter Almond, with a large fruit; only a variety of the foregoing.

7. Bitter Almond. Probably a variety of n. 1.

He has also another which he calls *Amandier-Pêcher*, (t. 4.); and supposes to have been produced from the impregnation of the Almond by the farina of the Peach.

Sweet Almonds used in food are difficult of digestion, and afford very little nourishment, unless extremely well comminuted. As medicines, they contribute, on account of their soft unctuous quality, to blunt acrimonious humours in the first passages, and thus, sometimes, give present relief in heart-burns.

On expression, they yield near half their weight of oil, which is more agreeable than most of the common expressed oils, and is therefore employed medicinally for obtunding acrid juices, softening and relaxing the solids, in tickling coughs, hoarseness, costiveness, nephritic pains, &c.

On triturating the Almond with water, it unites with the fluid, into an emulsion or milky liquor, which is prescribed for the same purposes as the oil itself; particularly in heat of urine and stranguries; as a diluent in acute diseases; and for supplying, in some degree, the place of animal milk, with which it has a great analogy.

An ounce of Almonds forms an emulsion of a due consistence with a quart of water. Gum arabic is an useful addition in most cases. The pure oil triturated with a thick mucilage of Gum arabic forms a more permanent emulsion: one part of gum, with an equal quantity of water, is sufficient for four parts of the oil.

They are also an useful medicine for uniting substances with water, which of themselves are not miscible with it. Camphor, and the purgative and other resins, triturated with about six times their quantity of almonds, dissolve in water into a milky liquor, and are thus fitted for being taken in a liquid form.

The oil of bitter almonds is not distinguishable from the other; and therefore the colleges of London and Edinburgh allow them to be used indiscriminately. The matter which remains after the expression of the oil, retains all the bitterness.

Bitter almonds, and emulsions made from them, have been recommended as aperients, resolvents, diuretics, and anthelmintics. The almonds in substance taken freely occasion sickness and vomiting: to dogs, and some other animals they are poisonous. A simple water, strongly impregnated with their volatile parts by distillation, has been found also poisonous to brutes, and there are instances of cordial spirits flavoured by them being poisonous to man.

It is probable, that the noxious matter is that in which its bitterness and flavour reside; and that the activity of this matter is increased, by its separation from the gross oil and farinaceous substance

by which it was enveloped in the kernel itself. The kernels of other fruits, that have any bitterness or particular flavour, appear to be impregnated with a substance of a similar nature to this poisonous principle of bitter almonds *.

3. Branches smooth, two or three feet high, dark purple. Leaves lanceolate, petiolate, veined, wrinkled, ferrulate. Flowers generally two to a bud, sessile: calyx reddish: petals emarginate, red, longer than the tube of the calyx: filaments paler: germ and style pubescent at bottom. Stipules linear, very deeply ferrate. It varies with double flowers. Its native country is Africa †. Reichard observes that the petals are not emarginate, but acuminate.]

These shrubs make a very agreeable variety amongst low-flowering trees; in small wilderness quarters. The single sort flowers the beginning of april, and the double is commonly three weeks later.—[It was cultivated by Mr. Miller, in 1731 ‡.

4. Leaves scattered, subpetioled, lanceolate but more attenuated towards the base, somewhat rigid, smooth, the serratures very sharp and even somewhat spinose. Stipules linear, long, ferrate-toothed, deciduous. Flowers very abundant on the twigs, appearing with the first leaves from all the buds, either solitary or two together. Calyx subsessile, reddish: segments acute, green, very finely ferrulate. Petals of a fine rose-colour. Stamens about twenty, the inner ones gradually shorter; the filaments bowed a little and converging at the end. Pistil the length of the calyx, extremely villose. Fruit usually solitary, sessile, ovate somewhat compressed, pointed by the shrivelled style, extremely hirsute with a harsh yellowish wool, the size of a hazel-nut. The coriaceous covering splits and falls off when the kernel is ripe; the nut is of a sharp ovate form, compressed, of a yellowish gray-colour, grooved at the sutures; the kernel is like that of the Peach in colour and taste. The wood of this little tree is hard, of a yellowish chestnut colour, and veined; but the trunk is seldom an inch in thickness. It varies very much in size; the vast plains on the banks of the Volga, being annually set on fire, it never rises to any height, but is low and shrubby, creeps very much at the root, and impedes the plough. In Cherson it scarcely attains a span in height; whereas in the Ukraine it grows a fathom high, as it does in gardens, where the leaves are somewhat broader; these are sometimes five inches in length §. It blooms in april, at which time all the young shoots are covered with flowers, which are of a peach-blossom colour, and make a fine appearance when intermixed with shrubs of the same growth. [It is a native of the northern parts of Asia, particularly abundant in Calmuc Tartary, and very frequent on the banks of the Volga. Cultivated 1683, by Mr. James Sutherland ||.]

5. Bark brown-ash coloured, rough. Leaves scattered, frequent, sessile, lanceolate, narrowing towards the base, frequently and sharply ferrate, edge a little bent in, furrowed or wrinkled above along the veins, which are very prominent underneath. Stipules bristly, sometimes toothed, permanent. Flowers less than in the dwarf sort, solitary or twin; sessile at the branches among the leaves, and breaking out with them. Segments of the calyx much less than in the *nana*. Petals pale rose-colour. Stamens about twelve, scarcely longer than the tube of the calyx **. It may be doubted whether this be any thing more than a variety of *Amygdalus nana*.]

6. The leaves of the *Eastern* or *Silver-leaved Almond* are silvery, and very like those of the Sea Purslane. These continue most of the year. The flowers are very small, and have not been succeeded by fruit yet in England. It was found growing near Aleppo, from whence the fruit was sent to the Duke D'Ayen in France, who raised several of the plants in his curious garden at St. Germain's, and

was so good as to send me a share of them (in 1759) which endured the open air in the Chelsea garden, for some years against a wall, without any covering.

[It is a native of the Levant.

7. This is a large tree, with spreading branches. Leaves acuminate, waved, shining, alternate. Corolla white. Drupe about half an inch diameter, ovate-ventricose, sharp at the tip, brown. Kernel like the common Almond in form and smell. Native of the vast woods of Cochinchina †.]

PROPAGATION AND CULTURE.

Peach and Nectarine.

By Seed.

All the different sorts of Peaches have been originally obtained from the stones; so that where persons have garden enough to allow room for propagating these fruits from seeds, there is no doubt but many good sorts may be obtained, which will be better adapted to our climate, than such as are brought from warmer countries; there will be many of them good for nothing, but if we can obtain only two or three valuable sorts, it is sufficient to make amends for the trouble of raising them; but great regard should be had to the sorts; and if the fruits were permitted to remain upon the trees until they dropped off, the kernels would be fitter for planting, and more likely to grow. The best sorts for sowing are those whose flesh is firm, and cleaves to the stone; and from amongst these you should chuse such as ripen pretty early, and have a rich vi-
cious juice.

These stones should be planted in autumn, on a bed of light dry earth, about three inches deep, and four inches asunder; and in the winter the beds should be covered to protect them from the frost, which, if permitted to enter deep into the ground, will destroy them. In the spring, when the plants come up, they should be carefully cleared from the weeds, which should also be observed throughout the summer: and if the spring should prove very dry, if you refresh them now and then with a little water, it will greatly promote their growth. In this bed they should remain until the following spring, when they should be carefully taken up, so as not to break their tender roots, and transplanted into a nursery in rows three feet asunder, and one foot distant plant from plant in the rows, observing to lay a little mulch upon the surface of the ground about their roots, to prevent its drying too fast; and if the spring should prove very dry, you should give them a little water once a week, until they have taken root; after which they should be constantly kept clear from weeds, and the ground between the rows carefully dug up every spring to loosen it, so as that the tender fibres may strike out on every side.

In this nursery they may continue one or two years, according to the progress they make; after which they should be transplanted where they are to remain, to produce fruit.

In removing these trees, you should observe to prune their downright roots, if they have any, pretty short, and to cut off all bruised parts of the roots. as also all the small fibres, which generally dry, and when left upon the roots after planting again, grow mouldy and decay, so that they are injurious to the new fibres which are shot out from the roots, and very often prevent the growth of the trees; but you should by no means prune their heads, for the plants which are produced from stones, are generally of a more spongy texture; and so more liable to decay when cut, than those which are budded upon other stocks. Besides, as these trees are designed for standards (for it is not proper to plant them against walls, until you see the produce of the fruit, to shew which of them deserves to be cultivated,) they will never require any other pruning, but only to cut out decayed branches, or such as shoot out very irregular

* Lewis. † Linneus. ‡ Hort. kew. § Pallas ross.
|| Hort. kew. ** Pallas ross.

† Lourciero.

from the sides, for more than this is generally very injurious to them.

In planting these trees, it will be the better way to dispose them singly in the quarters of the kitchen-garden, where they will thrive, and produce fruit much better than if they are planted near each other in rows; and as they are thus singly disposed, they will not do much injury to the crops which grow under them.

When they have produced fruit, you will soon be a judge of their goodness, and such of them as you dislike may be destroyed; but those which are good, may be propagated by inoculating them upon other stocks, which is the common method now practised to propagate these fruits, therefore I shall now proceed to treat of that more particularly; in the doing of which, I shall set down the method now commonly practised by the nursery-gardeners, and then propose some few things of my own as an improvement thereon, for such persons who are very curious to have good fruit. But first,

By Inoculation.

You should be provided with stocks of the Musclee and white Pear Plums, which are generally esteemed the two best sorts of Plums for stocks to inoculate Peaches and Nectarines upon; as also some Almond and Apricot stocks, for some tender sorts of Peaches which will not grow upon Plum stocks. These should be all produced from the stone (as is directed in the article NURSERY,) and not from suckers, for the reasons there laid down. These stocks should be transplanted, when they have had one year's growth in the seed-bed, for the younger they are transplanted, the better they will succeed, and hereby they will be prevented from sending tap-roots deep in the ground; for by shortening those roots which seem so disposed, it will cause them to put out horizontal roots. These stocks should be planted in rows three feet asunder, and one foot apart in the rows. This is wider than most nurserymen plant them, but I shall give my reasons hereafter for this.

When these stocks have grown in the nursery two years, they will be strong enough to bud; the season for which is commonly about midsummer, or any time in July, when the rind will easily separate from the wood, when you should make choice of some good cuttings of the sorts of fruit you intend to propagate, always observing to take them from healthy trees, and such as generally produce a good quantity of well-tasted fruit; for it is very certain, that any sort of fruit may be so far degenerated where this care is wanting, as not to be like the same kind. Besides, whenever a tree is unhealthy, the buds taken from that tree will always retain the distemper, in a greater or less degree, according as it has imbibed a greater or less quantity of the distempered juice. Thus, for instance, where a Peach or Nectarine-tree has been greatly blighted, so as that the shoots have grown burred, and the leaves curled up to a great degree, that distemper is seldom recovered again by the greatest art, or at least not under several years management; for let the seasons prove ever so favourable, yet these trees will continually shew the same distemper, which many persons are so weak as to suppose a fresh blight, whereas in reality it is no other but the remains of the former sickness, which are spread and intermixed with all the juices of the tree; so that whatever buds are taken from such trees, will always retain a part of the distemper.

Upon the care which is taken in the choice of the buds, the whole success depends; in general no more is regarded by those nurserymen who are the most careful in propagating the several sorts of fruit-trees, than their taking their buds or grafts from the true kinds of fruit-trees; but there is still more care required to have sound healthy trees, especially in Peaches and Nectarines; for if the buds are taken from young plants in the nursery which have not produced fruit, the shoots of which are generally very strong and vigorous, these buds will have so

vicious a habit, as rarely to be corrected and brought into good order; for they will shoot more like the Willow than the Peach, the joints being extended to a great distance from each other, the shoots very gross, and the wood pithy; therefore where the practice of taking the buds from nursery-trees is long continued, there can be little hopes of the trees so raised. I would therefore recommend it to every curious person, to procure their buds from such trees as have been long growing, whose fruit is well flavoured, and the trees perfectly sound; as also never to make choice of the strongest or most luxuriant shoots of these trees, but such shoots as are well conditioned, and whose buds grow pretty close together. And although these do not make so strong shoots the following years, as those which are taken from luxuriant branches, yet they will be better disposed to bear fruit, and will make much better trees.

The cuttings with which you are thus to be provided, should always be taken from the trees either in a morning or evening, or else in a cloudy day; for if they are cut off when the sun is very hot, the shoots will perspire so freely, as to leave the buds destitute of moisture, which is often the cause of their miscarrying; and the sooner they are put into the stocks when cut from the trees, the better they will take. The manner of this operation being fully explained under the article of INOCULATION, I shall not repeat it in this place. The management of these trees, during their remaining time in the nursery, is likewise fully set down under that article. I shall therefore proceed to give some directions for the choice of these trees, when they are to be procured from a nursery.

Choice of trees.

The first care should be to find out a person of character to deal with, on whose integrity you may depend, not only for having the trees of those kinds which you propose, but also for their buds being taken from bearing trees; and either see them taken up, or let some person you can confide in do it for you; because, as most of the nurserymen have dealings with each other, if the person applied to has not the sort of fruit desired in his own nursery, he procures them from another; and if the gardener from whom he gets them, is not as honest and careful as himself, it is a great chance if the trees prove to be of the right kinds.

The trees should also be chosen in the autumn, before others have drawn out the best; for those who go first to the nurseries, if they have skill, will always draw the finest plants. In the choice of the trees, you should observe the stocks upon which they have been budded, that they are of the right sort, whether Plum or Apricot; that they are sound and young, not such as had been budded the preceding year and failed, nor those which have been cut down. If the size of the stock is near that of a man's finger, it will be better than if they are larger; these should be clear of moss or canker. The buds should be of one year's growth only, and not such as have been cut down in the spring, and made a second shoot; nor should those trees be chosen whose shoots are very strong and luxuriant, but such as have clean shoots, of a moderate size, whose joints are not too far asunder; and those trees which stand on the outside rows, or near the ends of the rows, where they have most air, are generally such; for, where they stand close in the nursery, their shoots are drawn up in length, their joints are much farther asunder, and their buds or eyes are flat; for which reason, I have before advised the planting of the stocks at a greater distance than the nurserymen generally allow them; and, if a careful discreet nurseryman would be at the trouble and expence in the raising of his Peach-trees according to this method, he would better deserve three shillings per tree, than one in the manner they are usually raised; for every person who is at the expence of building walls for fruit, should not think of saving a few shillings in the purchase of their trees; because, if they are bad, or not of the right kinds, there is a great

great loss of time and expence to no purpose, and the disappointment will be so great, after waiting three or four years, as to discourage many from making farther trials, thinking themselves liable to the same ill success.

When the trees are chosen in the nursery, the next care must be to have them carefully taken up out of the ground, so as not to break or tear their roots, nor injure their bark; for as these trees are very apt to gum in those places where they are wounded, there cannot be too much care taken of this. If the trees are to be transported to a distant place, their roots should be closely wrapped either with haybands, straw, or peas-haulm, and mats sewed over these, to prevent the air from drying their roots and branches. If the leaves of the trees are not fallen when they are taken up, they should be carefully stripped off, before the trees are packed up; for when there are many of these left, they are very apt to heat, if they are long in their passage, and often occasion a mouldiness very hurtful to the branches.

Soil.

We come next to the preparing of the ground to receive the trees. The best earth for Peach-trees is such as is taken from a pasture-ground, that is neither too stiff and moist, nor over dry, but of a middling nature, such as is termed hazel loam. This should be dug from the surface of the ground about ten inches deep, taking the turf with it, and should be laid in heaps eight or ten months at least; but that which is prepared one year or more before it be used, is still better, that it may have the winter's frost, and summer's heat to mellow it; during which time it should be often turned, to rot the turf and break the clods, whereby it will be rendered very light and easy to work; and about the beginning of september you should carry it into the garden, and make the borders, which must be raised in height proportionable to the moisture of the garden; but if the ground be very wet, it will be advisable to lay some rubbish in the bottom of the border to drain off the moisture, also to prevent the roots of the trees from running downward; and in this case it will be proper to make some under-ground drains at the bottom of the border, to convey off the superfluous moisture; which, if detained about the roots of the trees, will greatly prejudice them; then raise a border of earth at least a foot, or in very wet land two feet above the level of the ground, so that the roots of the trees may always remain dry; but if the ground be pretty dry, the borders should not be raised above six or eight inches higher than the surface, which will be sufficient to allow for their sinking.

As to the breadth of these borders, that cannot be too great; but should never be less than six or eight feet, where fruit-trees are planted, for when the borders are made very narrow, the roots of the trees will be so confined in four or five years time, that they will seldom thrive well afterwards. The depth of these borders should not be greater than two feet and a half; for when they are prepared to a great depth, it only entices the roots of the trees downward, which may be the cause of their future barrenness; for their roots being got down below the influences of the sun and showers, imbibe a great quantity of crude juices, which only add to the luxuriant growth of the trees, and destroy their fruitfulness; besides, whatever fruit are produced from such trees, are not near so well tasted as those are which grow upon trees whose roots lie near the surface, and enjoy the kindly benefit of the sun's heat, to correct and digest whatever crudities there may be in the earth.

Where the natural soil of the garden is shallow, and either chalk, clay, or gravel lies near the surface, these should not be dug out to make pits to receive the earth for the border, as is by some practised, for this will be no better than planting the trees in tubs or cases, for their roots will be confined to these pits; so that when they are extended to the sides, and can get no farther, the trees will

blight and decay; and if it is clay on the sides, the wet will be detained as in a basin, and the earth of the border will be like mud in very wet seasons, unfit therefore for the roots of these trees. Whenever then it so happens that the ground is of either of the sorts before-mentioned, it will be the best way to raise the borders of a proper thickness of good earth over these, rather than to sink down into them; for when the roots of the trees lie near the surface of the ground, they will extend to a great distance in search of nourishment; but if they get below the staple of the land, they can find nothing but four crude pasture very unfit for vegetation.

Your borders being thus prepared, should lie about three weeks or a month to settle, by which time the season for planting will be come, which should be performed as soon as the leaves begin to decay, that the trees may put out new roots, before the frost comes on to prevent them. Your ground being ready, and the trees brought carefully to the place, the next work is to prepare them for planting, which is to be performed in the following manner: you must shorten all the roots, cut off smooth broken or bruised roots, and take off all the small fibres; where any of the roots cross each other, the worst of them must be cut out, that they may not injure the others.

Distance.

Having thus prepared your trees, you should measure out their distance, which ought never to be less than twelve feet; but where the ground is very good, they should be planted fourteen feet asunder. This I doubt not, will be thought too great a distance by many persons, especially since it is contrary to the general practice at this time; but I am satisfied whoever shall try the experiment, will find it no more than is sufficient for these trees where they are rightly managed; for if they take kindly to the soil, their branches may be so trained as to furnish all the lower part of the wall in a few years, which is what should be principally regarded, and not, as is too often the practice, run up the shoots in height, and leave all the lower part of the tree destitute of bearing wood, so that in a few years there will not be any fruit but upon the upper part of the trees; which also must be the case where they are planted too close, because there being no room to extend the branches on either side, they are obliged to lead them upright, which produces the before-mentioned ill effect.

There may be also some persons, who think this distance too small for these trees, because Plums, Cherries, and most other sorts of fruit-trees require much more room; but Peach and Nectarine-trees produce their fruit only upon the former year's wood, and not upon spurs, as Cherries, Plums, and Pears do, so that the shoots of these trees must be annually shortened in every part of them to obtain bearing wood; the trees therefore may be kept in much less compass than those of any other sort of fruit; and thereby every part of the wall may be constantly supplied with bearing branches; for when the trees are planted at a great distance, the branches are often extended to such lengths as to leave the middle of the trees naked, for there are never any good shoots produced from the old branches of these trees.

And here I cannot help taking notice of another very great error in planting wall-fruit, which is the placing standard or half standard trees between the others, to cover the upper part of the wall, and to produce fruit, until the trees underneath are grown up sufficient to furnish the walls, when the standards are to be taken away. This is done, without considering that the greater the number of trees which are planted in a small compass, the less nourishment they can receive, and consequently they must be the weaker, for the same space of ground cannot nourish twenty trees equally as well as it could ten; so that whatever strength the standard-trees may have, the dwarfs will be proportionably weaker; and it is a common observation, that most trees extend their

roots as far under ground, as their branches spread above ground; so that there should always be the same allowance given to the wall-trees, if we would have them strong and vigorous; therefore the building very high walls for fruit, unless for Pears, is to no purpose, for a ten or twelve feet wall will be sufficient for most sorts of fruit. I have seen gardens planted with fruit-trees by persons of great esteem for their skill in this art, where Peach and Nectarine-trees have been placed against walls exposed to the east and west, but could never see any of the fruit on those trees come to perfection; for which reason I would caution every person never to follow such examples, because it is well known, that the best aspected walls barely ripen many of the latter Peaches some years; therefore the only aspect to which these trees should be exposed, is south, or with a point or two to the east, and some sorts may do well if they are a point or two to the west.

In the disposition of the trees, it will not be amiss to plant those sorts of Peaches near each other, which ripen about the same time; for by so doing, the fruit may be the better guarded from men and insects, and this will save a great deal of trouble in gathering the fruit; for if a person is obliged to go from one part of the garden to the other, or perhaps to look over all the walls of the garden every time the fruit is gathered, it is a great loss of time, which may be avoided by this first care in planting the trees.

Planting.

After you have marked out the places where each tree is to stand, you must with your spade make a hole wide enough to receive the roots of the tree; then you should place it down, observing to turn the bud outwards, that the wounded part of the stock may be hid from sight; and let the stem of the tree be placed about four or five inches from the wall, with its head inclining thereto; then fill in the earth with your hands, observing to break the clods, that the earth may fall in between the roots, so as no void spaces may be left about them. You should also gently shake the tree with your hands, to settle the earth down the better between the roots; then with your foot gently press down the earth about the stem, but do not tread it down too hard, which is many times a very great fault; for when the ground is inclinable to bind, the treading it close often renders the ground so hard, as that the tender fibres of the roots cannot strike into it, whereby the tree remains at a stand for some time; and if the earth be not loosened in time, it frequently dies; so that whenever you observe the earth of your borders to be bound, either by great rains, or from any other cause, you should dig or fork it, to loosen it again, observing always to do it in dry weather, if in winter or spring; but in summer it should be done in a moist season.

Although I have here given directions for the choice of trees from the nursery, after the usual method of planting these trees, which is that of taking such as have made one year's shoot, yet I would prefer those which were budded the preceding summer, and have made no shoot; for if the bud is found and plump, and the bark of the stock well closed where the bud is inserted, there will be no danger of its growing; and when the bud has made a shoot the following spring the length of five or six inches, if it is stopped by pinching off the top, it will put out lateral branches, which may be trained to the wall, and this will prevent any cutting off the head, as must be done to those trees which have had one year's growth in the nursery; for these trees do not care for those large amputations, especially some of the more tender sorts; so by this method of planting these trees in bud, no time will be lost, when it is considered that the trees which have shot must be cut down, and there is a hazard of their shooting again; therefore I am convinced from experience, that it is the best method.

After you have thus planted your trees, which have made their shoots in the nursery, you should fasten

their heads to the wall, to prevent their being shaken by the wind, which would disturb their roots, and break off the tender fibres soon after they were produced, to the no small prejudice of the trees; you should also lay some mulch upon the surface of the ground about their roots, before the frost sets in, to prevent it from penetrating the ground, which would injure, if not destroy, the small fibres; but this mulch should not be laid upon the ground too early, lest it prevent the autumnal rains from penetrating to the roots.

These things being duly observed, they will require no farther care till the beginning or middle of march, according as the season is earlier or later; when you must cut off the heads of the new planted trees, leaving only four or five eyes above the bud; in doing of which, you must be very careful not to disturb their roots; to prevent which, you should place your foot down close to the stem of the tree, and take fast hold of that part of the stock below the bud with one hand, to hold it steady, while with the other hand you gently slope off the head of the tree with a sharp knife at the intended place, which should always be just above a bud; this should always be done in dry weather, for if there should be much rain soon after it is done, there will be some danger that the wet will enter the wounded part, and damage the tree; nor should it be done in frosty weather for the same reason, for that would enter the wounded part and prevent its healing over. After you have headed the trees, you should gently loosen the earth of the borders, to admit the fibres of the roots; but you must be very careful in doing this, not to cut or bruise their new roots, which would also damage them; and if the mulch which was laid about their roots in autumn be rotten, you may dig it into the border at some distance from the roots of the trees; and when the dry weather comes on, you should pare off some turf from a pasture ground, which should be laid upon the surface of the border about the roots of the trees, turning the grass downward, which will preserve a gentle moisture in the earth, better than any sort of mulch; and this will not harbour insects, as most sorts of dung and litter do, to the no small detriment of the trees.

Those trees which are planted in bud, and have not made any shoots, should have their stocks cut down at this season just above the bud, for the buds will rarely shoot unless this is performed; and the nearer they are cut to the bud, the sooner will the head of the stock be covered by the buds; for although it may be necessary to leave a part of the stock above the bud, in those trees which are in the nursery, to which the shoots made by the buds may be fastened, to prevent their being broken by the wind; yet as these are placed against the wall, to which the shoots may be fastened, there will be no want of any part of the stock.

In watering these new planted trees, which should not be done unless the spring proves very dry, you should observe to do it with a nosel upon the watering-pot, so as to let it out in drops; for when it is hastily poured down, it causes the ground to bind; and if you water over the head of the tree, it will be of great service to it. Your waterings should not be repeated too often, nor should they be given in great quantity, both being very injurious to new planted trees.

Training.

In the middle or latter end of may, when these trees will have several shoots six or eight inches in length, you should nail them to the wall, observing to train them horizontally, rubbing off all fore-right shoots, or such as are weak, whereby those which are preserved will be much stronger; but if there are not more than two shoots produced, and those very strong, you should at the same time nip off their tops, which will cause each of them to push out two or more shoots, whereby the wall will be better supplied with branches; you must also continue to refresh them with water in dry weather, during the whole season, otherwise they will be apt to suffer; for their

roots having but little hold of the ground the first year after transplanting, if the season should prove very dry, it will greatly retard their growth, if due care be not taken to water them.

In the beginning of october, when you observe the trees have done shooting, you should prune them; in doing of which, you must shorten the branches in proportion to the strength of the tree; which, if strong, may be left eight inches long; but if weak, should be shortened to four or five, then you should train them horizontally to the wall (as was before directed,) so that the middle of the trees may be void of branches, for that part of the tree will be easily furnished with wood afterwards; whereas, if the shoots are trained perpendicularly to the wall, those which are the strongest, will draw the greatest share of the sap from the roots, and mount upwards; so that the side branches will be deprived of their nourishment and grow weaker, until they many times decay; and this is the reason that we see so many Peach-trees with one or two upright shoots in the middle, and the two sides wholly unfurnished with branches, whereby the middle of each tree cannot produce any fruit, that being filled with large wood, which never produces any bearing shoots. Nor can the two sides of the trees be regularly filled with fruitful branches, when this defect happens to them; therefore this method should be carefully observed in the training up young trees, for when they are permitted to run into disorder at first, it will be impossible to reduce them into a regular healthful state afterwards, the wood of these trees being too soft and pithy to admit of being cut down (as may be practised on many other hardy fruit trees, which will shoot out vigorously again;) whereas these will gum at the places where they are wounded, and in a few years entirely decay.

The summer following, when the trees begin to shoot, you should carefully look over them, to rub off all fore-right buds, or such as are ill placed, and train those which are designed to remain horizontally to the wall, in their due order as they are produced, for this is the principal season when you can best order the trees as you would have them; whereas, if they are neglected until Midsummer, as is the common practice, a great part of the nourishment will be exhausted by fore-right shoots, and other useless branches, which must afterwards be cut off; and hereby the remaining shoots will be rendered very weak, and perhaps some part of the wall be entirely unfurnished with branches; which might have been easily supplied in may, by stopping some of the stronger shoots in such parts of the tree where there is a necessity for more branches, which would cause each of them to shoot out two or more side branches below the ends of the shoots, which may be guided into the vacant parts of the tree as they are produced, so as that every part may be regularly furnished with proper wood, which is the greatest beauty and excellency of wall-trees; but you should always forbear stopping the shoots in summer, where there is not a necessity for branches to fill the wall; for there cannot be a greater fault committed, than that of multiplying the number of shoots, so as to cause a confusion, whereby the branches will be too weak to produce good fruit; besides, when they are too close laid in against the wall, the air is excluded from the shoots by the great number of leaves, so that the fruit is never duly ripened; and cannot be so well tasted, as that which is produced upon such trees where the shoots receive all the advantages of the sun and air to bring it to maturity.

Pruning.

In the pruning of Peach and Nectarine-trees, (which require the same management) the two following rules should be strictly observed, *viz.* first, That every part of the tree be equally furnished with bearing wood; and, secondly, That the branches be not laid in too close to each other. As to the first, it must be observed, that Peach and Nectarine-trees produce their fruit upon the young wood,

either of the preceding year, or at most, the two years shoots, after which age they do not bear; therefore the branches should be shortened, so as to cause them to produce new shoots annually in every part of the tree; which cannot be done in the ordinary method of pruning, where persons neglect their trees at the proper season when they are most capable of management, which is in april, may, and june; at which time the luxuriant growth of branches may be checked by pinching, and new shoots produced where they are wanting, by stopping the neighbouring branches; which shoots, being produced at that season, will have time enough to ripen and gain strength before the autumn comes on; whereas all those shoots which are produced after the middle of june, will be crude and pithy; and though they may sometimes produce a few blossoms, yet those rarely bring fruit; nor are the future branches good which are produced from such wood, the vessels being too large to strain the juices, so that they easily admit of great quantities of crude nourishment to pass through them. Therefore those persons who only regard their wall-trees at two different seasons, *viz.* the winter and midsummer pruning, cannot possibly have them in good order; for when all the branches which were produced in the spring, are permitted to remain until the middle or latter end of june (as is the common practice) some of the most vigorous will draw the greatest part of the nourishment from the weaker branches, which, when the strong ones are taken off, will be too weak to produce fair fruit; and hereby the strength of the tree is exhausted, to nourish the useless branches which are annually cut off; and thus are too many trees managed, and at the same time complaints made of their luxuriance; because two or three shoots, by drawing away the greatest share of the nourishment grow very strong and woody, (whereas, if the nourishment had been equally distributed to a regular quantity of branches, there would be no sign of their too great strength) until by often cutting off these vigorous branches, the trees are either entirely destroyed, or at least rendered so weak as not to be able to produce fruit; for although by thus weakening the branches, it is often the means to produce a good number of blossoms (as may many times be observed also upon autumnal shoots;) yet the utmost of their strength is spent in expanding the flowers, so that they rarely produce fruit; and very often the greatest part of the branches die soon after, which is supposed to be occasioned by a blight, when in reality it is nothing less than the fault of those who have the management of the trees. It is therefore of the greatest consequence to wall-trees, especially of these sorts, to go over them two or three times in the months of april, may, and june, to rub off all irregular shoots, and to train in the branches, that are left in due order, to the wall, that each shoot may have an equal advantage of sun and air, both of which are absolutely necessary to ripen and prepare the wood for the next year's bearing; therefore the oftener the trees are looked over, to divest them of the useless branches, from the time they first begin to shoot in the spring till the autumn, the better will the wood be ripened for the succeeding year. And by duly observing this in summer, there will not be occasion for so much cutting as is often practised on Peach-trees, to their great injury; for their wood branches are generally soft, tender, and pithy, which, when greatly wounded, are not healed over again so soon as in many other sorts of trees; and the wet insinuating into the wounded parts, often causes the branches to canker and die; which may be entirely avoided by the gentle easy method of pinching and rubbing off the buds in the manner here directed, which makes no wound on the tree; and hereby a vast deal of labour is saved, for one person who is ready at this business will go over a greater quantity of walling in one day, than three or four can when suffered to grow rude; so that if the trees are permitted

mitted to grow rude all the spring, they will require six times the labour to reduce them into order. Besides, it is a great disadvantage to the fruit, in permitting the branches of the trees to extend from the wall and shade them; and when they have grown under the shelter of these branches and leaves all the spring, until midsummer, then by pruning off and shortening most of these shoots, and nailing the others close to the wall, the fruit are suddenly exposed to the sun and air, whereby they receive a very great check, and are not only retarded in their growth, but often rendered ill-tasted, and have tough skins.

The distance which the branches of these trees should be allowed against the wall, must be proportioned to the size of the fruit or the length of the leaves; for if we observe how the branches of the trees are naturally disposed to grow, we shall always find them placed at a greater or less distance, as their leaves are larger or smaller. And there is no surer guide to a curious artist than nature, from whence a gardener should always be directed in every part of his profession, since his business is to aid and assist nature, where she is not capable of bringing her productions to maturity; or where there is room, to make considerable improvements by art; which cannot be any otherwise effected, than by gently assisting her in her own way.

But to return to pruning these trees: the branches being carefully trained in, as before directed, in the spring and summer seasons, we come now to treat of the winter pruning, which is commonly performed in february or march. But the best season for this work is in october, when their leaves begin to fall, which will be early enough for their wounds to heal before the frost comes on, so that there will be no danger of their being hurt hereby; and the branches of the trees being proportioned to the strength of the roots at that season, all the ascending sap in the spring will be employed to nourish only those useful parts of the branches which are left; whereas, if they are left unpruned till february, the sap in the branches being then in motion, as may be observed by the swelling of the buds, the greatest part of it will be drawn up to the extreme parts of the branches, to nourish such blossoms as must be afterwards cut off; and this may be easily known by observing the strongest shoots at that season; when you will find the extreme buds to swell faster than most of the lower ones; for there being no leaves then upon the branches to detain the sap to nourish the lower buds, the upper ones will always draw from those below.

But it is a constant practice amongst gardeners, founded upon long experience, to prune weak trees early in the winter, and luxuriant trees late in the spring, in order to check their luxuriance. Now it is evident, that this check does not proceed from any considerable loss of sap at the wounds of the pruned tree (excepting a few of the bleeding trees, when cut at that season) but must arise from some other cause; for by several experiments made by the Rev. Dr. Hales, in fixing mercurial gages to the stems of fresh cut trees, he found those wounds were constantly in an imbibing state, except the Vine in the bleeding season.

Therefore when a weak tree is pruned early in the beginning of winter, the orifices of the sap-vessels are closed up long before the spring; and consequently, when in the spring and summer, the warm weather advancing, the attracting force of the perspiring leaves is not then weakened by many inlets from fresh wounds, but is wholly exerted in drawing sap from the root; whereas, on the other hand, when a luxuriant tree is pruned late in the spring, the force of its leaves to attract sap from the root, will be much spent and lost at the several fresh cut inlets.

Besides, if it were no advantage to the trees to prune them at this season (which I think no one will have reason to doubt after making the trial) but that it only succeeds as well as the spring pruning;

yet there is a great advantage in doing it at Michaelmas, for that being a much more leisure season with gardeners than the spring, they will have more time to perform it carefully; and then they will not have too many things come together, which may require to be immediately executed; for the spring being the principal season for cropping their kitchen-gardens and attending their hot-beds, if they are disengaged from the business of pruning at that time, it will be of great advantage, especially where there is a great quantity of walling. And here is also another benefit in pruning at this season, which is, the having the borders at liberty to dig and make clean before the spring, so that the garden may not appear in a litter at that season.

Having said thus much concerning the time of pruning, I shall now proceed to give some general directions how it is to be performed on Peach and Nectarine-trees; which require a very different management from most other sorts of fruits.

In pruning these trees, you should always observe where branches are shortened, to cut them behind a wood-bud, which may be easily distinguished from the blossom-buds, which are shorter, rounder, and more turgid than the wood-buds; for if the shoot have not a leading bud where it is cut, it is very apt to die down to the next leading bud; so that what fruit may be produced above that, will come to nothing, there being always a necessity of a leading bud to attract the nourishment; for it is not sufficient to have a leaf-bud, as some have imagined, since that will attract but a small quantity of nourishment, the great use of the leaves being to perspire away such crude juices as are unfit to enter the fruit. The length you should leave these branches, should be proportioned to the strength of the tree, which, in a healthy strong tree, may be left ten or twelve inches, or more; but in a weak one, they should not be more than six inches; however, in this you must be guided by the position of a leading bud; for it is better to leave a shoot three or four inches longer, or to cut it two or three inches shorter than might be proper to do, provided there be one of these buds, it being absolutely necessary for the future welfare of the tree; you should also cut out entirely all weak shoots, though they may have many blossom-buds upon them; for these have not strength enough to nourish the fruit, but they will weaken the other parts of the tree.

In nailing the shoots to the wall, you must be careful to place them at as equal distances as possible, that their leaves, when come out, may have room to grow without shading the branches too much; and you should never nail them upright if it can be avoided; for when they are thus trained, they are very subject to shoot from the uppermost eyes, and the lower part of the shoots will thereby become naked.

Blights and their cure.

There is not any thing in the business of gardening, which has more exercised the thoughts of the curious, than how to preserve their tender sorts of fruit from being blighted in the spring of the year, and yet there has been little written upon this subject which is worth notice: some have proposed mattresses of straw or reeds to be placed before the fruit-trees against walls, to prevent their being blasted; others have directed the fixing horizontal shelters in their walls, to prevent the perpendicular dew or rain from falling upon the blossoms of the fruit-trees, which they supposed to be the chief cause of their blighting; but both these contrivances have been far from answering the expectations of those persons who have put them in practice, therefore it may not be improper to repeat some things in this place, which I have elsewhere mentioned in relation to this matter. And

First, I have said, that the blights which are so often complained of, do not so much proceed from any external cause, or inclemency in the season, as from a distemper or weakness in the trees; for if we observe the trees at that season, where they

are the most subject to what is called a blight, we shall find the branches very small, weak, and not half ripened, as also trained in very close to each other; these branches are, for the most part, full of blossom-buds, which is chiefly occasioned by their want of strength. These buds do indeed open, and to persons not skilled in fruit-trees, shew a great prospect of a plentiful crop of fruit; whereas the whole strength of the branches is spent in nourishing the flowers, and being unable to do any more, the blossoms fall off, and the small efforts of the leaf-buds are checked, so that many times great part of the branches die away, and this is called a great blight; whereas, at the same time, it may be often observed, that some trees of a different sort, nay, even some of the same sort, were stronger and in health, though placed in the same soil, exposed to the same aspect, and subject to the same inclemency of air, have escaped very well, when the weak trees have appeared to be almost dead; which is a plain indication, that it proceeds from some cause within the tree, and not from any external blight. All this will therefore be remedied, by observing the foregoing directions in the pruning and management of the trees, so as never to over-burden them with branches, nor to suffer any particular part of the trees to exhaust the whole nourishment from the root, which will cause the other parts to be very weak; but to distribute the nourishment equally to every shoot, that there may be none too vigorous, at the same time that others are too weak; and by continually rubbing off useless or fore-right shoots as they are produced, the strength of the trees will not be spent, to nourish such branches as must be afterwards cut out, which is too often seen in the management of these trees. And,

Secondly, It sometimes happens, that the roots of these trees are buried too deep in the ground, which, in a cold or moist soil, is one of the greatest disadvantages that can attend these tender fruits; for the sap which is contained in the branches, being by the warmth of the sun, put strongly into motion early in the spring, is exhausted in nourishing the blossoms; and a part of it is perspired through the wood-branches, so that its strength is lost before the warmth can reach to their roots, to put them into an equal motion in search of fresh nourishment, to supply the expence of the branches; for want of which, the blossoms fall off and decay, and the shoots seem to be at a stand, until the farther advance of the warmth penetrates to the roots, and sets them in motion; when suddenly after, the trees, which before looked weak and decaying, make prodigious progress in their shoots; and before the summer is spent, are furnished with much stronger branches than those trees which have the full advantage of sun and showers, and are more fruitful and healthy; which must certainly be owing to the cause here mentioned, as also to their drawing in a great quantity of crude moisture, which, though productive of wood, is yet unkindly for fruit: if therefore this be the case, there is no way of helping it, but by raising up the trees, if they are young; or if they are too old to remove, it is the better way to root them out and make new borders of fresh earth, and plant down young trees; for it is a great vexation to be at the trouble and expence of pruning and managing these trees, without having the pleasure of reaping any advantage from them, which will always be the case where the trees are thus injudiciously planted. Or,

Thirdly, This may proceed from the trees wanting nourishment, which is many times the case, where they are planted in a hard gravelly soil, in which it is the common practice to dig borders three or four feet wide, and three feet deep into the rock of gravel, which is filled with good fresh earth, into which the trees are planted, where they will thrive pretty well for two years, until their roots reach the gravel, where they are confined as if planted in a pot; and for want of proper nourishment, the branches continually decay every year. This can-

not be helped where the trees have been growing some years, without taking them entirely up, or by digging away the gravel from their roots, and adding a large quantity of fresh earth, that may afford them a supply of nourishment a few years longer; but trees so planted, cannot by any art be continued long in health.

But if the unfruitfulness of the trees does not proceed from any of the before-mentioned causes, and is the effect of unkindly seasons, then the best method yet known is, in dry weather, when little dew falls, to sprinkle the branches of the trees gently with water soon after the blossoming season, and while the young-set fruit is tender, which should always be done before noon, that the moisture may evaporate before the night comes on; and if in the night you carefully cover the trees with mats, canvas, or some such light covering, it will be of great service to them: however, where the trees are strong and vigorous, they are not so liable to suffer by a small inclemency, as are those which are weak, so that there will be few seasons in which there may not be hopes of a moderate quantity of fruit from them, though there should be no covering used; for where these coverings are used, if it is not performed with great care and diligence, it is much better to have none, but to trust to the clemency of the season; for if the coverings are kept too close, or continued too long, the trees will receive more injury hereby, than from being constantly exposed; or, if after having been covered for some time, they be incautiously removed, so as to expose the trees too suddenly to the open air, they will suffer more thereby than if they had not been covered. However, I must repeat in this place, a management generally attended with success, which is, the putting up two feather-edge deal boards joined together over the top of the trees, so as to form a pent-house to cast off perpendicular wet. These should be fixed up when the trees begin to blossom, and should remain till the fruit is well set, when they should be taken down to admit the dew and rain to the leaves and branches of the trees; and where the wall is long, and exposed to currents of wind, if at the distance of forty feet from each other, some cross reed-hedges be fixed, to project about ten feet from the wall, these will break the force of the wind, and prevent its destroying the blossoms; and these may be removed as soon as the danger is over. These things have been practised with great success; and as there will be little trouble in covering and uncovering by this method, after they are fixed up, there is less danger of neglect, than where the trouble is great, or to be often repeated.

Thinning.

When your fruit is set, and grown to the bigness of a small nut, you should look over the trees and thin them, leaving the fruit at least five or six inches asunder; the sooner this is done, the better it will be for the remaining fruit; and if it should sometimes happen, that a part of those left should be destroyed, yet the remaining ones will be much the larger and better tasted for it, and the trees will gain more strength; the fruit when but few, will be much larger, better tasted, and the trees in a condition to bear well the succeeding year; whereas when they are overcharged with fruit, it is always small, ill tasted, and the trees are generally so much weakened, as not to be in a condition for bearing well for two or three years after. The quantity of fruit to be left on large full-grown trees, should never be greater than five dozen upon each; but on middling trees, three or four dozen will be enough.

Watering.

If the season should prove hot and dry, it will be proper to draw up the earth round the stem of each tree, to form a hollow basin of about six feet diameter, and cover the surface of the ground in this basin with mulch; and once in a week or fortnight, according to the heat and drought of the season, pour down eight or ten gallons of water to the root

of each tree ; or where there is an engine which will disperse the water in gentle easy drops like rain, if the same, or a larger quantity of water be sprinkled all over the branches of the trees ; this, soaking down to the roots, will keep the fruit constantly growing, which will prevent its falling off the trees, as it generally does where this method is not practised ; and the fruit being thus constantly nourished, will be much better tasted, and hereby the trees will be maintained in vigour ; so that it is what I can from long experience recommend, as one of the most necessary things to be practised by all lovers of good fruit. But this should not be continued longer than while the fruit is growing, for afterward it will be hurtful to the trees and fruit, for a dry autumn ripens both wood and fruit better than a moist later season.

When the Peach-trees are carefully managed in the spring of the year, according to the rules before laid down, all the nourishment which the roots can supply will be usefully employed in the support of such shoots only as are to be continued, as also the quantity of fruit which is proper for each tree, therefore both must of consequence be rendered better ; for where there is not this care, the trees soon grow ragged, and are not furnished properly with branches ; and those shoots which are produced, are some of them very weak, and others very luxuriant, whereby the trees are rendered very unsightly, as also unhealthy, and never continue many years fruitful ; and by thus training the branches to the wall as they are produced, the fruit will be always exposed to the sun and air ; which in the common method of managing these trees, by letting their branches grow rude all the spring, they are deprived of, and by the timely rubbing off useless and luxuriant shoots, it will save much trouble, and prevent the use of the knife in summer, which is very hurtful to these trees, for there will be no need to shorten any of the shoots in summer.

When these rules are duly executed, there will be no occasion to pull off the leaves of the trees, to admit the sun to the fruit, which is often practised ; for if we consider, that the leaves are absolutely necessary to cherish the blossom-buds, which are always formed at the foot-stalks of the leaves, the pulling them off before they have performed the office assigned them by nature, is doing great injury to the trees, therefore I caution every one against that practice.

It is a common opinion which has for some years prevailed, even amongst persons of good understanding, that Peach-trees are not long lived, therefore should be renewed every twenty years ; but this is a great mistake, for I have eaten some of the finest Peaches of various kinds, which grew on trees which had been planted above fifty years : and I am convinced by experience, that when the trees are budded upon proper stocks, and carefully planted and managed, they may be continued fruitful and healthy sixty years and upward ; and the fruit produced on these old trees will be much better flavoured, than any of those upon young trees ; but I suppose the foundation of the above opinion was taken from the French, who generally bud their Peaches upon Almond stocks, which are of short duration, these seldom lasting good more than twenty years ; but this seldom being practised in England, the case is widely different.

It is a notion among some persons, that laying dung upon borders where fruit trees are growing, will render the fruit ill-tasted. But from long experience I can say, that where the best fruit grew that I have yet tasted, the ground was constantly dunged every other year ; therefore it is what I must recommend to the practice of every curious person, with this caution, always to use such dung as is well rotted, and to dig it into the borders in november, that the rain may wash down the salts before the spring comes on ; and where the ground is very loose or sandy, it will be the best way to make use of neat's dung,

which is cooler than that of horses, but for cold strong land the latter is to be preferred.

If the ground be well trenched every year about the roots, it will be of great service to them ; and where the soil is subject to bind very close, if it is forked two or three times in a year to loosen the surface, it will greatly help the trees. The borders should not be crowded with any large growing plants, which will draw away the nourishment from the trees ; therefore when any sort of kitchen herbs are planted on these borders, they should be only such as are of small growth, and which may be taken off early in the spring ; and if this be carefully observed, the cultivating small things on these borders can do no harm, because the ground will be stirred the oftener, on account of these small crops, than perhaps it would have been, when no use was to be made of the borders. These rules which are here laid down, if properly observed, will direct any curious person how to have plenty of good fruit, as also to preserve the trees in vigour a great number of years.

The culture of the NECTARINE differs in nothing from that of the Peach. Only the buds should be taken from bearing trees, and not from young nursery trees, as is too often practised.

2, 3, 4, &c. The common and dwarf Almonds are propagated, by inoculating a bud of these trees into a plum, almond or peach stock, in the month of july (see INOCULATION.) The next spring, when the buds shoot, you may train them up either for standards, or suffer them to grow for half standards, according to your own fancy ; though the usual method is to bud them to the height the stems are intended to be ; and the second year after budding, they may be removed to the places where they are to remain.

[This is the only method by which the sort can be continued with certainty : but if a variety of fruit be wanted, or stocks for budding, they must be raised from the fruit. In order to which, having procured a quantity of well-ripened Almonds, either sow them in october or november, or preserve them in sand till february or march. The seminary should be in a good light soil, and the stones should be put in two inches deep, in rows a foot distant from each other. When they are two years old, plant them out in the nursery, in rows three feet wide, and eighteen inches asunder in the rows. Train them with single stems, from five to eight feet in height, by pruning off all the side shoots ; then top them with your knife at the proper height, to force out a set of branches in order to give the head its first regular form, letting them afterwards branch out in their own way : but if they be intended as stocks for budding, they must not be headed, but trained straight up till after the budding is performed.]

The best season for transplanting these trees, if for dry ground, is in october, as soon as the leaves begin to decay ; but for a wet soil, february is much preferable ; and observe always to bud upon plum stocks for wet ground, and upon those of almonds and peaches for dry.

The third sort may be budded upon almond stocks, or propagated by layers ; it will also take upon plum stocks, but these are very apt to canker after they have stood four or five years, especially that with double flowers, which is more tender than the other ; and this sends out suckers from the roots, whereby it may be propagated in great plenty.

The fourth sort is common in the nurseries about London, being cultivated with other flowering shrubs. The roots are very apt to put out suckers, by which it may be increased in plenty ; but if these be not annually taken away, they will starve the old plants. These suckers being very apt to creep at the root, and put out other suckers, plants which are propagated by layers are much preferable.

This is frequently confounded with the third, but whoever compares the leaves, shoots or flowers, will soon be convinced of their difference.

AMYGDALUS ÆTHIOPICA. See *Brabeium*.
 AMYGDALUS INDICA. See *Terminalia*.
 [AMYRIS. (From *α* intensive, and *μυρον*, ointment or balm.)
 Brown. *Lin. gen. n.* 473. *Reich.* 516. *Sehrb.* 650. *Jacqu. amer.* 107. *Juss.* 371.
 Class. 8. 1. Octandria Monogynia.
 Nat. order of *Terebintaceæ* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leafed, four-toothed, acute, erect, small, permanent.
 COR. of four, oblong, concave, spreading *Petals*.
 STAM. Filaments awl-shaped, erect. Anthers oblong, erect, the length of the corolla.
 PIST. Germ superior, ovate; style thickish, the length of the stamens; stigma four-cornered.
 PER. a drupaceous, roundish berry.
 SEED a round, shining nut.
 OBS. A. Protium differs in some parts.

ESSENTIAL CHARACTER.

Cal. four-toothed. Pet. four, oblong. Stigma four-cornered. Berry drupaceous.

SPECIES.

1. Amyris elemifera. Gum Elemi tree.
Lin. spec. 495. *syft.* 361. *Reich.* 2. 158. *hort. cliff.* 486. 1. *mat. med.* 101. *Plenck. ic. t.* 297.
Cornus. Plum. ic. 100.
Icicariba. Marcgr. bras. 98. f. 2.
Frutex trifolius, &c. Catesby car. 2. t. 33. f. 3.
Leaves ternate, and pinnate with five lobes, downy underneath.
2. Amyris sylvatica.
Lin. syft. 361. *Reich.* 2. 158. *Jacqu. amer.* 107. & *amer. pict. p.* 55. t. 108.
Leaves ternate, crenate, acute.
3. Amyris maritima. Small shrubby Sweet-wood.
Lin. spec. 496. *syft.* 361. *Reich.* 2. 158. *Swartz obs.* 148. *Jacqu. amer.* 107. *pict. p.* 55. *Brown. jam.* 209. *Sloan. jam.* 2. 101. *Raii hist. suppl.* 60.
Leaves ternate, crenulate, obtuse.
4. Amyris gileadensis. Balsam of Gilead tree.
Lin. spec. 361. *mant.* 65. *Reich.* 2. 158. *Amæn. acad.* 7. p. 68. *Forsk. ægypt. p.* 78. *Woodv.* 522. t. 192. *Bruce's trav. app.* p. 16.
Leaves ternate, quite entire; peduncles one-flowered, lateral.
5. Amyris Opobalsamum. Balsam of Mecca tree.
Lin. syft. 361. *Reich.* 2. 159. *mat. med.* 101. *mant.* 65. *amæn. acad.* 7. p. 55, &c. *Forsk. ægypt.* 79.
Balsamum. Bellon. itin. 110. *Alp. ægypt. edit.* 1. 20. t. 24. *edit.* 2. 48. t. 60. *edit.* 3. 26. t. 14.
Opobalsamum, f. Balsamum judaicum. Geoffr. mat. 2. p. 473.
Leaves pinnate, leaflets sessile.
6. Amyris toxifera. Poison Ash.
Lin. spec. 496. *Reich.* 2. 159.
Elemifera. Lin. hort. cliff. 486. 2.
Toxicodendron. Catesb. car. 1. t. 40. *Mill. dict. n.* 4.
Leaves pinnate; leaflets petiolate, plane.
7. Amyris Protium.
Lin. syft. 361. *Reich.* 2. 159. *mant.* 65.
Protium javanicum. Burm. ind. 88.
Tingulong. Rumph. amb. 7. p. 54. t. 23. f. 1.
Leaves pinnate, leaflets petiolate, waved.
8. Amyris ambrosiaca.
Lin. syft. 361. *suppl. p.* 216. *Lour. cochinch.* 230?
Icica heptaphylla. Aubl. guian. 1. 337. t. 130.
Leaves pinnate, petiolate, panicles crowded, axillary.
9. Amyris balsamifera. Sweet Amyris. White Candle wood or Rose wood.
Lin. spec. 496. *Reich.* 2. 159. *Brown. jam.* 208.
Lacinium. Pluk. alm. t. 201. f. 3.
Leaves two-paired.

DESCRIPTIONS, &c.

1. Height about six feet. Leaflets pointed, stiff and shining; leaves opposite on peduncles two inches long. At the ends of the branches grow four or five slender stalks set with many very small white

flowers^a; in a little corymb. Petals inflex at the tip^b.

Marcgraaff describes it as a lofty tree, with a small trunk, covered with a smooth gray bark; growing almost in the manner of a beech-tree. Leaves sometimes ternate, sometimes pinnate with two pairs and a terminating leaflet, and sometimes with two terminating leaflets; these resemble the leaves of the pear-tree, are three inches long, stiff like parchment, bright green, shining, acuminate, having one nerve running longitudinally, and several veins disposed obliquely. The flowers come out very close together at the axils of the leaves. The fruit is the size and figure of an olive, and the colour of a pomegranate, having an odoriferous pulp within it.

Gummi Elemi is a resin from this tree, brought over in oblong roundish cakes, generally wrapped up in flag leaves. The best sort is softish, somewhat transparent, of a pale whitish yellow colour, inclining a little to greenish. This resin is only used as an ingredient in a digestive ointment called *Unguentum Elemi*, which is made from one pound of Gum Elemi, ten ounces of Turpentine, two pounds of prepared Mutton Suet, and two ounces of Oil of Olives^c. Native of Carolina and Brazil.

2. A Shrub erect, leafy, branching but little, from two to fifteen feet high, according to the soil and situation. The whole abounds in turpentine of a strong disagreeable smell. The small branches are round, leafy to the ends: the leaflets shining, finely notched, two inches long, of different shapes, ovate, lanceolate, cordate-ovate, or rhombed. Racemes panicled, erect, terminal and axillary, sustaining many small flowers with snow-white petals. The drupe is the size of a pea, red with red juice: it is permanent, and becomes leathery in drying. Gum Elemi has erroneously been supposed to be yielded by this plant. Found plentifully about Carthage, in woods near the sea. Flowering in august^d.

3. A Dwarf Shrub, branching, with a juice like that of the former, but pleasanter, and smelling like Rue. Leaflets shining, ovate, finely notched, scarce an inch long. Racemes as in the former. Fruits twice as big, black, with a purple juice. Whether a variety of soil can have occasioned these differences I know not, but it is always found about the Havannah, on rocks by the sea-side^e.

It is thus described by Swartz. Stem branched, scabrous, ash-coloured. Leaves petioled, ternate: leaflets petioled, roundish-elliptic, with a short point, sometimes obtuse, crenate, spreading, nerved, smooth on both sides, perforated with pellucid dots. Petioles and petiolules round. Racemes compound, in cymes, with opposite, many-flowered branchlets. Flowers crowded, white, very sweet. Petals ovate, entire, with short claws. Berry the size of black Pepper, black when ripe; inclosing a globular brittle nut, in which is a white kernel.

Swartz doubts whether the foregoing be a distinct species from this, which differs according to the soil and situation in the size of all the parts.

It grows in very barren coppices, in a calcareous rocky soil, both near the sea, and on the interior mountains of Jamaica, Hispaniola and Cuba; flowering from June to September^f.

4. The Balsam of Gilead tree is a shrub with purplish branches, striated a little, having protuberant buds loaded with balsamic resin. Leaves crowded, petioled, ternate, smooth; leaflets sessile, quite entire, lanceolate, somewhat acute, that at the end larger than the others, wedge-lanceolate. Flowers from the same buds, by threes. Proper peduncles one-flowered, shorter than the leaf, sheathed at bottom. Bracte extremely minute, slightly bifid. This therefore is different from the first and third species, which have crenate leaves, whereas in this they are quite entire^g. But whether it be distinct from the next species, or *A. Opobalsamum*, may be doubted;

^a Catesby.

^b Lin. cliff.

^c Lewis and Pharm. Lond.

^d Jacquin.

^e Ibid.

^f Swartz obs.

^g Lin. amæn.

for the number of leaflets varies much in the first species; as it does also in Alpinus's figure, which Linneus refers to the *Opobalsamum*; and in that of Mr. Bruce.

5. The true *Opobalsamum*, according to Prosper Alpinus, is at first turbid and white, of a very strong pungent smell, like that of turpentine; but much sweeter and more fragrant, like Mint, varying according to its goodness^h, and of a bitter, acrid, astringent taste: on being kept it becomes thin, limpid, light, of a greenish hue, and then of a gold colour; after which, it grows thick, like turpentine, and loses much of its fragrance. A curious balsam is sometimes met with, smelling like a mixture of rosemary and sage flowers, exceedingly fragrant, limpid and thin: dropt on water, it spreads itself all over the surface, imparting to the liquor a considerable share of its taste and smell: the grosser part, that remains on the top of the water, is so tenacious, as to be easily taken up at once with the point of a needle, which is reckoned a characteristic of the true balsamⁱ. This seems to be the same with that which Bergius says he has had from England, under the name of Balsam of Gilead.

Gerlach (as quoted by Bergius) relates, that the trees which produce the *Opobalsamum* or balsam of Mecca, grow near Bederhunin, a village between Mecca and Medina, in a sandy rocky soil, confined to a small tract, about a mile in length. In the beginning of april, the trees drop their juice from gashes which are made in the smaller branches, into vessels set under them to receive it. A gash does not yield above three or four drops in a day, weighing about a drachm; nor will even the best trees yield more upon the whole in a season than from ten to fifteen drachms. The inhabitants use it as a sudorific, particularly in the rheumatism: but it is adulterated upon the spot.

Lady Mary Wortley Montague informs us, that the balm of Mecca, of the best quality, is not easy to be got, even at Constantinople: that applying some of it to her face, it became swelled and red during three days, but that her complexion was much mended by the operation: and that the ladies all use it at Constantinople, and have the loveliest bloom in the world^k.

Its great scarcity has prevented its coming into use among us: nor are its virtues, probably, superior to those of some of the resinous juices more common in the shops; all these substances being in their general qualities alike, though differing in the degree of their gratefulness, pungency and warmth^l.

An inferior sort of Balsam is prepared from boiling the young twigs and leaves gently, in a large quantity of water; the balsamic matter rises to the surface, which is skimmed off. After they have thus procured all they can, it is said that they push the fire, and a large quantity of thicker balsam like turpentine rises, which is preserved by itself, and is that principally which we have in Europe. The other can only be obtained by presents; and that which distils naturally from the trees, scarcely supplying the seraglio and great officers, there is none of it sent out of the country.

Hasselquist describes the true Balsam of Mecca, as being yellow and pellucid, with a most fragrant resinous balsamic smell; as being very tenacious, and drawing out into long threads: that it is taken to three grains to strengthen a weak stomach, and that it is a most excellent remedy for wounds. To know whether it be adulterated, they drop some into a glass of water; if it remain still on the surface, it is of little value; but if it instantly extend itself over the whole surface, and may be taken off the water with a hair, silk or thread, it is then of the best kind. The drugs used to adulterate this balsam, are oil of Sefamum, Cyprus turpentine, and Ostrich fat.

^h Bergius.ⁱ Lewis.^k Letters 2. 37.^l Lewis.

Mr. Bruce has given two figures of the Balsam tree; one of the whole tree, the other a single branch with the dissection of the fruit. These he says may be depended on, as being carefully drawn, after an exact examination, from two very fine trees brought from Beder Huncin. One of these was five feet two inches high from where the red root begins, or which was buried in the earth, to where it divides itself first into branches. The trunk at thickest was about five inches diameter, the wood light and open, and incapable of being polished, covered with a smooth bark of bluish white, like a standard cherry-tree in good health, which has not above half that diameter; indeed a part of the bark is a reddish brown; it flattens at top like trees that are exposed to snow blasts or sea air, which gives it a stunted appearance. It is remarkable for a penury of leaves. The flowers are like those of the Acacia tree, white and round, only that three hang upon three filaments or stalks, where the Acacia has but one. Two of these flowers fall off and leave a single fruit; the branches that bear this are the shoots of the present year; they are of a reddish colour, and tougher than the old wood; it is these that are cut off and put into little faggots, and sent to Venice for the Theriaca, when bruised or drawn by fire, and formerly these made the *Xylobalsamum*.

The great value set upon this drug in the east remounts to very early ages. We know from scripture, that the Ishmaelites, or Arabian carriers and merchants, trafficking with Indian commodities to Egypt, brought with them balm as part of the cargo.

Strabo alone of all the ancients, has given us a true account of the place of its origin. "Near to this, says he, is the most happy land of the Sabaeans, and they are a very great people. Among these frankincense, myrrh and cinnamon grow, and in the coast that is about Saba, the Balsam also." Among the myrrh trees behind Azab, all along the coast to the straits of Babelmandeb is its native country. It grows to a tree above fourteen feet high, spontaneously and without culture, like the myrrh, the coffee and frankincense tree; they are all equally the wood of the country, and are occasionally cut down and used for fuel. We need not doubt but that it was early transplanted into Arabia, that is, into the south part of Arabia Felix, immediately fronting Azab: the high country of Arabia was too cold for it, being all mountainous, and water freezing there. The first plantation that succeeded seems to have been at Petra; the ancient metropolis of Arabia, now called Beder or Beder Huncin.

Afterwards being transplanted into Palestine, it obtained the name of *Balsamum Judaicum*, and Balm of Gilead, and became an article of commerce there.

Prosper Alpinus says, that Messoner a eunuch, governor of Cairo in 1519, caused to be brought from Arabia forty plants, which he placed in the garden of Mattareah. Bellonius relates, that in his time there were ten plants at Mattareah. There were none existing when Mr. Bruce visited Cairo, but some of the Christians then living there, remembered one plant in that garden.

There were three productions from this tree very much esteemed among the ancients. The first was called *Opobalsamum* or juice of the Balsam, which was the finest kind, composed of that greenish liquor found in the kernel of the fruit: the next was *Car-pobalsamum*, made by the expression of the fruit when in maturity: the third was *Xylobalsamum*, the worst of all; it was an expression or decoction of the small new twigs of a reddish colour. But the principal quantity of balsam in all times was produced by incision, as at this day. The wound is made by an ax, when the juice is in its strongest circulation in july, august, and the beginning of september. It is then received into a small earthen bottle, and every day's produce is poured into a larger, which is kept closely corked. The Arabs Harb, a noble family of Beni Koreish, are the proprietors of it, and of Beder, where it grows. It is a station of the Emir

Emir Hâdjé, or pilgrims going to Mecca, half way between that city and Medina.

Some books speak of a white fort, brought by the caravans from Mecca; and others of a balsam of Judea, but these are counterfeits and adulterations. The balsam of Judea was lost long ago, but as late as Galen's time it was growing in many places of Palestine besides Jericho.

When Sultan Selim conquered Egypt and Arabia in 1516, three pounds was then the tribute ordered to be sent to Constantinople yearly, and this is still kept up. The remainder is sold or farmed out to some merchants; who, to increase the quantity, adulterate it with oil of olives and wax, and several other mixtures, consulting only the agreement of colour; formerly, we are told, it was done with art, but nothing is easier detected than this fraud now.

It does not appear that the ancients had ever seen this plant, they describe it so variously; and Prosper Alpinus corroborates the errors of the ancients, by saying it is a kind of vine (*viticosus*). The figure he has given is a very bad one.

The juice, when first received into the bottle from the wound, is of a light yellow colour, apparently turbid, in which there is a whitish cast, which I apprehend arises from the globules of air that pervade the whole in its first state of fermentation; it then appears very light upon shaking. As it settles and cools, it turns clear, and loses that milkiness. It then has the colour of honey, and appears more fixed and heavy than at first. After being kept some years, it becomes of a much deeper yellow, and of the colour of gold, but continues perfectly fluid, and loses very little of taste, smell, or weight. The smell at first is violent and strongly pungent, like that of volatile salts. In its pure and fresh state it dissolves easily in water. If dropt on a woollen cloth, it will wash out easily, and leaves no stain. It is of an acrid, rough, pungent taste, is used by the Arabs in all complaints of the stomach and bowels, is reckoned a powerful antiseptic, and of use in preventing any infection of the plague. These qualities it enjoys probably in common with balsam of Tolu, Peru, &c. which we have received from America. It is always used and particularly esteemed by the ladies, as a cosmetic; as such it has kept up its reputation in the east to this day. The manner of applying it is this: you first go into the tepid bath till the pores are sufficiently opened, you then anoint yourself with a small quantity, and as much as the vessels will absorb; never-fading youth and beauty are said to be the consequences^m.

6. Leaves pinnate; petioles long, five-leaved. Leaflets ovate-oblong, evergreen, quite entire, opposite with a terminating one, all pedicelled. Racemes several, axillary, filiform, with scattered flowersⁿ. This is therefore very distinct from the foregoing species, which has the leaflets sessile, and small in comparison with these; the flowers in panicles, not in long racemes, hanging down, as in this species^o.

Catesby describes his *Poison-wood* as a small tree, with a light-coloured smooth bark. The mid-rib of the leaf as seven or eight inches long, and the pedicels as an inch in length. The fruit as hanging in bunches, shaped like a pear, of a purple colour, covering an oblong hard stone. From the trunk a liquor distils as black as ink, which the inhabitants say is poison. Birds feed on the fruit. Native of America.

7. Leaves opposite pinnate; folioles five, or seven, smooth, petiolate, like those of the Laurel. Panicle manifold, calyx sub-quadridentate, obtuse, permanent: petals four, sessile, ovate, acuminate. Nectary from a margined receptacle, surrounding the germ, within the stamens. Anthers oblong, seeming four, connate: filaments eight, awl-shaped, shorter than the petals: germ ovate; style cylindric,

the length of the stamens: stigma simple. Native of the East-Indies. Perennial^p.

8. A tree with a trunk thirty feet high, branching at the top; branchlets leafy and flowery. Leaves alternate, unequally-pinnate, with two, or three opposite, ovate leaflets on each side, ending in long points, smooth, quite entire, on short petioles which are gibbeous at the base. Flowers yellowish-white, axillary, corymbed. Perianth very small, four-toothed. Petals lanceolate, spreading at the tip. Filaments filiform, half the length of the calyx, inserted into the tube. Germ superior, subglobose; style cylindrical. Stigma capitated, depressed, four-cornered. Fruit ovate, oblique, four-celled, resembling that of the Laurel. The nucleus involved in a brittle covering; four-celled, or four stones wrapped up in a viscid red pulp, which has a balsamic smell and taste, hardens into a grey resin, and is used to burn as a perfume. The whole tree is extremely sweet-scented, and pours out a very odorous balsam from the wounded trunk or branches, which is used in the dysentery; the dose is one drachm in red wine: this is also used in houses and churches to burn as a perfume. It grows in the woods of Guiana and by the sea-shore, flowering and fruiting in september. The Caribbee name is *Arouaou*, the French, *Arbre de l'Encens*^q.

9. It grows to a considerable size, and is one of the most valuable timber trees in the island of Jamaica, but not common. The wood is white, and of a curled grain when young, but grows of a dirty clouded ash-colour with age: it bears a fine polish, and has a pleasant smell. It is heavy, and in great repute among cabinet-makers. All the parts of this tree are full of warm, aromatic particles, and may be used in baths and fomentations. The berries are oblong, and have much of the taste of the balsam *Copaiba*^r. An infusion of the leaves has a very pleasant flavour, is highly cephalic, strengthens the nerves, and is particularly restorative to weak eyes. There are several species of *Amyris* in Jamaica, the leaves and bark of which are impregnated with a fine balsamic juice; and if the body was tapped at the proper season, might be found to transude a thick liquor resembling that of the Gilead balsam, to which the taste of this bark, and wood of the smaller branches, bears a very exact relation^s.

AMYRIS. See *Ximenia*.]

[ANABASIS. (*Αναβασις*, from *αναβαινω*, to ascend or climb.)

Lin. gen. n. 312. Reich. 340. Schreb. 438. Gærtn. 77. Juss. 84.

Class. 5. 2. Pentandria Digynia.

Nat. order of *Holoraceae*. *Atriplices* Juss.

GENERIC CHARACTER.

CAL. Perianth three-leaved: leaflets roundish, concave, obtuse, spreading.

COR. five-petalled: petals ovate, equal, less than the calyx, permanent.

STAM. Filaments filiform, longer than the corolla: anthers roundish.

PIST. Germ roundish, acuminate, ending in two styles: stigmas obtuse.

PER. a berry: roundish, surrounded by the calyx, dilated.

SEED single, screw-shaped.

ESSENTIAL CHARACTER.

Cal. three-leaved. Cor. five-petalled. Berry one-seeded, surrounded by the calyx.

SPECIES.

1. *Anabasis aphylla*. *Leafless Anabasis*.

Lin. spec. 325. syst. 264. Reich. 628. *amæn. acad.* 2. 347. Gærtn. fruct. 1. 375.

Salsola baccifera. Gmel. sib. 3. t. 18.

Kali bacciferum. Buxb. cent. 1. t. 18.

Without leaves; the joints emarginate.

2. *Anabasis foliosa*. *Leafy Anabasis*.

Lin. spec. 325. syst. 264. Reich. 628.

^p Lin. mant.

^q Brown.

^r Aublet guian. and Lin. suppl.

^s Long. jam. 751.

S. foliis

^m Travels to Abyss. vol. 5. p. 16, &c.

ⁿ Lin. amæn. acad. 7. p. 69.

^o Lin. cliff.

S. foliis incrassatis, &c. Gmel. fib. 3. p. 99. Pallas it. 2. p. 286.

K. bacc. fol. clavatis. Buxb. cent. 1. 12. t. 19. f. 1. Leaves sub-clavate.

3. *Anabasis tamariscifolia. Tamarisk-leaved Anabasis. Lin. spec. 324. Reich. 628.*

Leaves awl-shaped; pericarps juiceless.

4. *Anabasis spinosissima. Thorny Anabasis.*

Lin. syst. 264. suppl. p. 173.

Shrubby: branches without leaves, but full of spines.

DESCRIPTIONS.

1. Stems short, roundish, brachiate: branches opposite, subdivided, jointed: flowers opposite, sessile*. Corolla very small. Berry also very small, covered by the calyx, which is coriaceous, and becomes very large in a state of maturity; it is red, the pulp is watery, and dyes a yellow colour. The seed is ovate, compressed, lens-shaped, green, and fixed to the base of the pericarp, without any receptacle*. It is a perennial plant, and has been found wild on the shores of the Caspian.

2. Seldom more than half a foot in height; more or less branched. Leaves sometimes alternate, sometimes three together, the two lateral ones smaller than the other. These are surrounded with from six or seven to ten little flowers*. Annual. Found wild on the shores of the Caspian.

3. A shrub with white branches, very smooth. Leaves three-cornered, resembling those of the Tamarisk. Flowers subspike, solitary, axillary. Calyx large. Germ conical, ending in an awl-shaped style, with three stigmas*. Native of Spain.

4. A Shrub. Stem smooth, very branching: branches naked at the ends: with scales from three to five, very small and imbricate. Flowers about the spine, many, sessile, close, adhering tenaciously. Calyx with three, sharp, flatted, unequal, permanent, keeled scales. Petals five or six, lanceolate, hyaline, scarcely longer than the calyx, erect. Hardly any filaments. Anthers adhering to the disk of the petals. Germ globose. Style filiform. Stigma submarginate. Seed surrounded by a pellucid bladder*. Its native place of growth is unknown.]

ANACAMPSEROS. See *Claytonia, Portulaca; Sedum.*

ANACARDIUM. (*Avæ sine, and καρδια cor*; without heart: because the pulp of the fruit, instead of having the seed inclosed, as is usually the case, has the nut growing out at the end of it.)

Lin. gen. n. 520. Reich. 546. Schreb. 1582.

Rottboell. coll. 2. 252. Juss. 368.

Acajou Tournef. 435. Acajuba Gært. 40.

Class. 23. 1. Polygamia Monoecia.

Nat. order of Holoraceæ. Terebintaceæ Juss.

GENERIC CHARACTER.

* *Hermaphrodite flower.*

CAL. *Perianth* five-leaved; leaflets ovate, concave, coloured, erect, deciduous.

COR. *Petals* five, lanceolate, acute, three times as long as the calyx, upright at bottom, reflex at the end.

STAM. *Filaments* ten, united at the base, upright; nine of them capillary, shorter than the calyx; one thicker, double the length of the others, lying on the germ in front. *Anthers* roundish; in the longer filament large and fertile; in the rest small.

PIST. *Germ* kidney-shaped, obliquely emarginate in front. *Style* subulate, bent in, the length of the corolla. *Stigma* small, roundish, depressed, concave.

PER. none. *Receptacle* fleshy, very large, obovate.

SEED. *Nut* kidney-shaped, large, at the top of the receptacle; with a thick shell, cellular within and abounding in oil.

* *Male flowers, either mixed with the Hermaphrodites, or on a distinct tree.*

CAL. COR. STAM. as in the hermaphrodites.

PIST. *Germ* none or abortive.

OBS. *This tree was originally placed in the tenth class; it was removed by Linneus to the ninth; and*

^a Amæn. acad.

^d Linneus.

^b Gærtner.

^c Lin. suppl.

^e Gmelin.

is now placed in the twenty-third from the observations of Rottboell.

ESSENTIAL CHARACTER.

Cal. five-leaved. *Pet.* five, reflex. *Anth.* ten, one only fertile. *Nut* kidney-shaped; on the top of a fleshy receptacle.

SPECIES.

1. *Anacardium occidentale. Cashew-nut, Cassu, or Acajou.*

Lin. spec. 548. syst. 384. Reich. 2. 229. hort.

cliff. 161. upf. 102. fl. zeyl. n. 165. Jacqu.

amer. t. 181. f. 35. pict. t. 121. Plenck, ic.

t. 319. Blackw. t. 369. Brown. jam. 226.

Catesb. car. 3. t. 9. Lour. coch. 248.

Acajuba occidentalis. Gært. fruct. 1. 192.

Acajou. Pis. bras. 58. mant. 193.

Acajaiba. Marcgr. bras. 95.

Cassuvium. Rumph. amb. 1. t. 69.

Caschou. Merian surin. t. 16.

Kapa-mava. Rheed. mal. 3. t. 54.

DESCRIPTION, &c.

[The *Cashew* is an elegant tree, twenty feet high. According to Browne, not more than twelve or sixteen feet in height, spreading much as it rises, and beginning to branch at the distance of five feet from the ground. Long, on the contrary, affirms, that in good soils it spreads to the size of a walnut-tree, which it much resembles in the shape and smell of the leaves. The trunk seldom exceeds half a foot in diameter. Leaves coriaceous, subovate, shining, quite entire, petioled, scattered alternately. Panicles corymbed, diffused and terminating, containing numerous small, sweet-smelling flowers, sitting on an oblong receptacle, hardly to be distinguished from the peduncle. Corolla red: it has commonly ten stamens, one of which has no anther; but it has frequently eight, or only seven, all fertile; and sometimes there are female flowers entirely destitute of stamens*.

The fruit or apple has an agreeable sub-acid flavour, with some degree of restringency*. Some of these are of a yellow, and others of a red colour, owing probably to some difference in the soil or culture*. The juice expressed from the fruit, and fermented, yields a pleasant wine; and distilled, a spirit is drawn from it, far exceeding arrack or rum; making an admirable punch, and powerfully promoting urine. Some planters in the West-Indies roast the ripe fruit, or slice one or two into a bowl of punch, to give it a pleasant flavour. The restringency of the juice has recommended it as a very signal remedy in dropical habits.

The nut springs from one end of the apple*. It is of the size and shape of a hare's kidney, but is much larger at the end next the fruit, than at the other. The outer shell is of an ash colour, and very smooth, under this is another which covers the kernel, between these there is a thick inflammable oil, which is very caustic; this will raise blisters on the skin, and has often been very troublesome to those who have incautiously put the nuts into their mouths to break the shell. [This oil has been used with great success in eating off ring-worms, cancerous ulcers and corns; but it ought to be applied with caution. The kernel when fresh, has a most delicious taste, and abounds with a sweet milky juice. It is an ingredient in puddings, &c. When older it is generally roasted; and in this state is not so proper for costive habits. Ground with Cacao it makes an excellent chocolate. When kept too long, it becomes shrivelled, and loses its flavour and best qualities. The thick oil of the shell tinges linen of a rusty iron colour, which can hardly be got out; and if any wood be smeared with the oil, it prevents the wood from decaying. It would therefore be an excellent preservative to house-timbers, and ship's bottoms*.]

From the body of the tree is procured by tapping, or incision, a milky juice, which will stain linen of a deep black, that cannot be washed out again.

^f Jacqu. amer.

^g Long.

^h Browne.

ⁱ Long.

^k Ibid.

[This tree also annually transudes from five to ten or twelve pounds weight, of a fine semitransparent gum, similar to gum arabic, and not inferior to it in virtue or quality, except that it has a slight astringency, which perhaps renders it, in some respects, more valuable^a.

It is native of both Indies, and was cultivated in 1699, by the Dutchess of Beaufort^b.

PROPAGATION AND CULTURE.

The Cashew-tree is easily raised in its native country from the nut. It is there of very quick growth, bearing fruit in two years after it is planted.]

But in England the plants are with great difficulty preserved; though by their first shoot from the seeds, they appear so strong and vigorous, as to promise a much greater progress than they are ever seen to make.

They are easily raised from the nuts, which are annually brought from America in great plenty; each of these should be planted in a small pot filled with light sandy earth, and plunged into a good hot-bed of tanner's bark, being careful to prevent their having wet, till the plants come up, for the nuts frequently rot with moisture. The reason of my advising the nuts to be each put into a separate pot, is, because the plants seldom live when they are transplanted. If the nuts are fresh, the plants will come up in about a month after planting, and in two months more they will be four or five inches high, with large leaves; from this quick growth, many persons have been deceived by supposing them hardy, and that they would continue the like progress, whereas they seldom advance much farther the same year.

The plants must be constantly kept in the stove, for they are too tender to live abroad in England, in the warmest season of the year, nor will they thrive in a common green-house in summer. As these plants abound with a milky acrid juice, they should have but little water, even in summer; and in winter, if they are sparingly watered once in a fortnight, it will be sufficient, for their roots are tender and soon perish with moisture.

When these plants are transplanted, it will be the best method to break the pots, for the roots do not put out many fibres to hold the earth about them, so that in shaking them out of the pots, most of the earth will fall away from their roots, and when this happens the plants seldom survive it, therefore in breaking the pots, the same caution must be had not to disturb the earth more than can be avoided; then the plant, with the ball of earth to its roots, should be put into a pot one size larger than that in which it had before grown, filling up the pot with light sandy earth, and plunge the pots again into the hot-bed. These plants should not be removed oftener than once a year, nor should they be put into large pots; for unless their roots are confined, they will not thrive. With this management I have kept these plants several years, but they are of slow growth after the first season, so that I have not raised any of them more than two feet and half high, and it is very rare to see them in England more than half that height, though I have seen two of them in flower; one in the late Sir Charles Wager's garden at Parson's-green, and the other in Chelsea garden.

ANACARDIUM. See *Avicennia*.

officinarum. See *Semecarpus*.

ANACYCLUS. (From *ἄνακυκλος*, to encircle.)

Lin. gen. n. 969. Reich. 1051. Schreb. 1311.

Juss. 185. Gertn. t. 165.

Santolinoides. Vaillant. mem. acad. 1719. Mich. gen. 31.

Cotula. Tournef. 282.

Class. 19. 2. Syngenesia Polygamia superflua.

Nat. order of *Compositæ Discoidææ*. *Corymbifera* Juss.

GENERIC CHARACTER.

CAL. common, hemispherical, imbricate: with many ovate, flat, sharp scales.

^a Long's jam. 3. 725, &c.

^b Hort. kew.

COR. compound, radiate: with numerous hermaphrodite corolllets in the disk; from five to ten females in the ray, scarcely higher than the disk. *Hermaphrodites* funnel-shaped, with a quinquefid, spreading border. *Females* with a flattened tube, and an ovate, entire border.

STAM. in the hermaphrodites: *filaments* five, capillary, very short; *anther* cylindric.

PIST. *Germ* flattened, *stigma* bifid, in the hermaphrodites: with a membrane on each side; *style* filiform, the length of the corolllet; and two slender reflex *stigmas* in the floscules.

PER. none; calyx unchanged.

SEED in the *hermaphrodites*, solitary, oblong, compressed, naked, or without down—in the *females* with a very broad membranaceous wing on each side, and emarginate at top, but without down.

REC. chaffy. *Chaffs* obtuse, with a point.

ESSENTIAL CHARACTER.

Recept. chaffy. *Down* emarginate. *Seeds* in the ray membranaceous.

SPECIES.

1. *Anacyclus creticus*. *Trailing Anacyclus*.

Lin. spec. 1258. Reich. 3. 858.

Cotula cretica, &c. Tourn. cor. 37.

Santolinoides annua, &c. Vaillant. art. 372.

Leaves decomposed, linear; divisions subdivided, flat.

2. *Anacyclus orientalis*. *Eastern Anacyclus*.

Lin. spec. 1258. Juss. 775. Reich. 3. 858.

Chamæmelum orientale, &c. Tournef. cor. 37.

Boerh. lugdb. 1. t. 110.

Leaves compound, bristly, acute, straight.

[3. *Anacyclus aureus*. *Golden-flowered Anacyclus*.

Lin. mant. 287. Juss. 775. Reich. 3. 858.

Chamæmelum luteum capite aphylo. Baub. pin. 135.

C. aureum, &c. Baub. hist. 3. p. 119.

Anthemis Chrysanthemum. Lob. ic. 771.

Leaves bipinnate, roundish, hoary, hollow-dotted.]

4. *Anacyclus valentinus*. *Fine-leaved Anacyclus*.

Lin. spec. 1258. Juss. 775. Reich. 3. 859. hort.

cliff. 417. Allion. ped. n. 604. Gertn. fruct. 2. 397.

Chrysanthemum valentinum. Clus. hist. 1. 332.

Bupthalmum lanuginosum, foliis millefolii. Baub. pin. 3. 125.

B. tenuifolium simile. Baub. hist. 3. 125.

Chamæmelum tenuifolium, flore bullato aureo.

Barr. ic. 1095.

Leaves decomposed, linear; divisions subdivided, roundish, acute: flowers flosculose.

DESCRIPTIONS, &c.

1, 2. The two first sorts grow naturally in the islands of the Archipelago, from whence Tournefort sent their seeds to the royal garden at Paris. I have received the seeds of both these plants from Portugal, so that they may also grow naturally there, as do many of those plants, which were discovered by Tournefort in the Levant. These are low plants, whose branches trail on the ground. The first sort has fine-cut leaves, like those of Chamomile; the flowers are small, white, and grow single, with their heads declining; these are like those of the common May-weed. The second has leaves like those of the Ox-eye; the flowers are white, and like those of Chamomile.

[3. Stems many, seven inches high, nearly erect, substriated, obsoletely hoary with villose hairs. Leaves bipinnate, roundish, linear, subcanescent, with decumbent hairs; pinnules spreading, pointed, hollow-dotted; the lowest embrace the stem: the upper leaf simply pinnate. Peduncles terminal, solitary, length of the stem, one-flowered, leafless, subpubescent. Calyx hemispherical, pubescent, imbricate with scales, scarious and darker at the tip. Disk of the corolla semi-ovate; florets of the disk quinquefid. Many female florets in the ray, small, without a border. (In *Santolina anthemoides*, which resembles this, there are no female florets.) Receptacle conical, with lanceolate, concave, yellow chaffs.

chaffs*. Native of the south of Europe, and the Levant. Cultivated here in 1570. The synonyms of *Colutea aurea*, perhaps belong rather to this plant^b.]

4. Grows a foot and a half high, sending out many side branches; the leaves are finely divided like those of Chamomile, and are hairy: the flowers grow single at the extremity of the branches, and are of a bright yellow colour, with a silvery scaly calyx. These are as large as those of the Ox-eye. A native of Spain [and Italy. Cultivated in 1656, by Tradescant. It flowers in June and July^c.]

PROPAGATION AND CULTURE.

All these plants are annual: the seeds should be sown early in the spring in a border of light earth, where they are designed to remain, and require no other care but to keep them clean from weeds, and to thin the plants where they are too close. As they have no great beauty, a few plants only may be left for the sake of variety. They flower in July and August; and their seeds ripen in September.

ANAGALLIDASTRUM. See *Centunculus*.

ANAGALLIS. (*Αναγallis*, Dioscor. from *αναγελαιω*, to laugh: because by curing the Spleen, it disposes persons to be chearful.)

Eng. Pimpernel. Fr. Mouron.

Lin. gen. n. 206. Reich. 220. Schreb. 270. Juss. 95.

Gärtn. t. 50.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Rotaceæ*. *Lyfimachia* Juss.

GENERIC CHARACTER.

CAL. Perianth five-parted, sharp, permanent: divisions keeled.

COR. wheel-shaped, border five-parted; divisions ovate-orbiculate, with the claws connected.

STAM. Filaments erect, shorter than the corolla, shaggy below: anthers simple.

PIST. Germ globose: style filiform, slightly bending: stigma capitate.

PER. a globose, one-celled capsule, opening transversely.

SEEDS very many, angular.

REC. globose, very large. (fungose, alveolate, free. G.)

ESSENTIAL CHARACTER.

Cor. rotate. Caps. opening horizontally.

SPECIES.

1. *Anagallis arvensis*. Common Pimpernel.

Lin. spec. 211. Reich. 422. Sæc. n. 178. Gärtn.

fruct. 1. 230. Thunb. jap. 83. Hudf. angl. 87.

Relb. cantab. 85. With. 210. Curtis lond. 1.

12. Oeder. dan. t. 88. Berg. phyt. 115. Blackw.

t. 43. Plenck. ic. t. 82. Mor. hist. f. 5. t. 26.

row. 2. f. 5. Pollich. palat. n. 203. Scop.

carn. n. 217. Hall. belv. n. 625. Ger. 494. 1.

emac. 617. 1. Park. theat. 558. 1.

β. flore cœruleo. Blue-flowered Pimpernel.

Hall. belv. n. 626. Allion. ped. n. 317. Hudf.

and With. d. Blackw. 274. Ger. emac. 617. 2.

A. foemina. Mill. dict. n. 2.

Leaves undivided; stem procumbent. Corolla finely notched.

2. *Anagallis monelli*. Upright Pimpernel.

Lin. spec. 211. Reich. 423. hort. cliff. 52. upf.

38. Clus. app. alt.

Leaves undivided: stem erect.

3. *Anagallis latifolia*. Broad-leaved Pimpernel.

Lin. spec. 212. Reich. 423. Tournef. inst. 143.

Barr. ic. 584?

Leaves heart-shaped, stem-clasping; stem compressed.

4. *Anagallis linifolia*. Flax-leaved Pimpernel.

Lin. spec. 212. Reich. 424. Tournef. inst. 143.

Leaves linear; stem erect.

5. *Anagallis tenella*. Bog Pimpernel, Purple Loose-

strife, or Money-wort.

Lin. syst. 196. Reich. 424. With. 211. Relb. 86.

Curtis lond. 3. 15.

Lyfimachia tenella. Lin. spec. 211. Hudf. ang. 87.

Mill. dict.

Nummularia minor, &c. Baub. pin. 310. prodr.

139. Mor. hist. 2. f. 5. t. 26. f. 2. Ger. emac.

630. 3. Park. theat. 554. 2.

Leaves ovate, sharpish; stem creeping.

* Linn.

^b ibid.

^c Hort. kew.

[6. *Anagallis verticillata*. Verticilled Pimpernel.

Allion. pedem. n. 318. t. 85. f. 4. Grisl. vir. luf. 2.

Barr. ic. 584?

Stem-leaves verticilled: stem erect.

7. *Anagallis pumila*. Dwarf Pimpernel.

Swartz prodr. 40.

Stem erect, leaves roundish acute sessile.

DESCRIPTIONS, &c.

1. Stem quadrangular. Leaves opposite, sessile, smooth, underneath dotted with brown. Peduncles opposite, axillary, one-flowered, bending downwards after flowering. Corollas scarlet, purple at bottom, the edges slightly notched and hairy. Hairs of the filaments jointed. Stigma placed without the circle of the stamens^a. Capsule smooth, with five coloured lines. Seeds about thirty, three-cornered, ovate, somewhat acuminate at each end, scabrous with dots, ferruginous brown. Gærtner observes; that he could never see the hemispherical hollow seeds which Haller describes^b.

Dr. Withering observes, that the leaves, when magnified, appear frosted over with very minute shining glands.

It is an annual plant, and flowers from May to August, in ploughed grounds and gardens, particularly in sandy soils. The blossoms open about 8 a. m.; and close in the afternoon: hence its name of *shepherd's* or *poor man's weather-glass*. But if rain fall, or there be much moisture in the air; the flowers either do not open, or close up again. Small birds are very fond of the seeds. Schreber says that sheep eat it readily; by the experiments in *Amen. acad.* it appears, that kine and goats feed on it, but that sheep refuse it.

It was formerly celebrated for its medical qualities, and given in maniacal cases, and even in the hydrophobia, but is now fallen into disuse. It appears however, says Lewis, that it has some claim to the resolvent and detergent virtues, ascribed to it by some writers.

Plukenet mentions a variety with larger leaves, four together placed crosswise; and Ray (syn. 282.) says he has found it among corn in England. Bobart found it with a white flower in Cowley field.] There is another variety with a flesh-coloured flower; but none of these are constant. There is also another with a worn-out purple flower, which has several years continued the same in the Chelsea garden; but there is little difference in the leaves of this and the common sort.

β. Is supposed to be only a variety; but from thirty years cultivating it, I can affirm it never alters; and the plants before they show their flowers are so different, as to be easily distinguished. There is a variety of this with the flower of a deeper blue, the seeds of which I received from Nice; and this has retained its colour for several years, during which time I have sown it in the Chelsea garden.

[Ray, Linneus, and others take the Blue Pimpernel to be only a variety of the red. Haller, following Blair and Boehmer, and followed by Allioni, inclines to think it a distinct species; and says, that it is a taller plant, with smaller leaves, and larger flowers; that the capsule is more ovate; but especially that the divisions of the calyx are narrower, and the petals serrate about the edge. In the wild plants which I have seen, the flowers were rather smaller than in the common sort; and the petals of this are finely notched about the edge, as well as of that.—Haller mentions finding the blue sort with three and four leaves together.

Blue Pimpernel grows wild in Sweden, Germany, and Switzerland: with us between Stockwell and Camberwell, and near Mitcham in Surry; near Histon in Cambridgeshire; and Bredon-hill in Worcestershire.]

2. A very beautiful, small plant, producing great numbers of fine blue flowers in April and May. [Native of Verona. Cultivated 1648 in the Oxford garden^c.

^a Curtis.

^b Fruct. 1. 231.

^c Hort. kew.

3. Stem from erect spreading, brachiate, branching, quadrangular: one pair of opposite angles thrice as broad as the other pair, which have an acute edge on each side. Leaves have the base turned downward, rather obtuse at the end, nerved, smooth, with pale dots underneath. Peduncles axillary, solitary, one-flowered, naked, round. Corolla blue, with a purplish base. Filaments purple: anthers oblong, yellow.—Very nearly allied to the first species; but distinguished by its large, broad leaves, and compressed stem^d.

This was sent Mr. Miller from Spain (1759) by M. Hortega, intendant of the royal gardens at Madrid. It is a trailing annual plant.

[4. Stem four-cornered, erect, three or four inches high, stiffish; with alternate erect branches. Leaves opposite, sessile, sharpish, polished, longer than the internodes. Peduncles filiform, twice as long as the leaves. Capsules nodding, shorter than the calyx.—Wild in Spain and Portugal^e.

5. Root perennial. Stems numerous from two to four inches long; round, smooth, creeping, branched; the joints purple. Leaves opposite, small, nearly round, entire, smooth, on very short petioles. Peduncles axillary, in pairs, or single, to an inch in length, upright, but after flowering hanging down, one-flowered. Calyx dotted with red. Corolla large, pale red with deeper veins. Capsule the size of a coriander seed. The hairs of the filaments are jointed as in the common sort. Not uncommon on bogs, flowering from June to August^f.

6. Stem a foot high, quadrangular, branching. Leaves in fours or fives; on the branches only in pairs: sessile, ovate-lanceolate, smooth, generally reflex, underneath finely dotted with brown. Branches suberect, three or four from a verticil. Flowers proceeding from the verticils with the branches, and also upon the branches, both axillary and terminal: they are erect, but the capsules hang down. Corolla bright blue, twice as large as the calyx.—It approaches to Barrelier's plant, which is given as a synonym of the third species; but this is branching, and has the leaves not so acute. In the fourth species, the leaves are long, narrow, and not verticilled^g.

7. Native of Jamaica. Annual^h.]

PROPAGATION AND CULTURE.

The four first sorts, being annual, are propagated from seeds, which should be sown soon after they are ripe. The first, though a beautiful little plant, being a common weed, is never cultivated, except in botanic gardens. The second, third, and fourth, require to be sheltered from extreme cold. The fifth being a bog plant, cannot be cultivated in gardens, without a situation proper for it; though it will flourish well enough in pots of bog earth plunged in water. The sixth, if it be a distinct species, has not yet been cultivated with us.

ANAGALLIS. See *Centunculus*, *Evolvulus*, *Lyfimachia*, *Pæderota*.

—aquatica. See *Gratiola*, *Montia*, *Peplis*, *Samolus*, *Veronica*.

—coerulea. See *Gratiola*.

ANAGYRIS. (*Plin. Anagyris*, *Dioscor. from the name of a town in Attica*.

Lin. gen. n. 509. Reich. 552. Schreb. 695. Tournef. 647. Juss. 352.

Class. 10. 1. Decandria Monogynia.

Nat. order of *Papilionaceæ* or *Leguminosæ*.

GENERIC CHARACTER.

CAL. Perianth bell-shaped; mouth five-toothed, the upper pair of teeth more deeply divided.

COR. papilionaceous. Standard obcordate, straight, emarginate, broader than the other petals, twice as long as the calyx; wings ovate-oblong, flat, longer than the standard; keel straight, very long.

STAM. Filaments parallel, distinct, rising: anthers simple.

PIST. Germ oblong: style simple, rising: stigma villose.

^d Linneus. ^e Ibid. ^f Curtis. ^g Allioni. ^h Swartz.

PER. an oblong, large, roundish, obtuse *Legume*, a little reflex.

SEEDS six or more, kidney-form.

OBS. The essential character consists in the very short, straight standard, and in the great length of the keel.

ESSENTIAL CHARACTER.

Standard and wings shorter than the keel in a papilionaceous corolla. Fruit a legume.

SPECIES.

1. *Anagyris foetida*. Stinking Bean trefoil.

Lin. spec. 534. Reich. 2. 244. Lour. cochinch.

260. *Hasslq. itin. 466. Clus. hist. 1. p. 93.*

Baub. pin. 391. Raii hist. 1722.

Leaves ovate, flowers axillary.

2. *Anagyris cretica*.

Mill. dist. n. 2. Raii hist. 1722. n. 5.

Leaves oblong, racemes longer.

[3. *Anagyris inodora*.

Lour. cochinch. 260.

Leaves pinnate; calyxes inflated, coloured; legumes compressed, straight; racemes terminating, oblong.

DESCRIPTIONS, &c.

These are hardy deciduous flowering shrubs.]

1. The first sort grows wild in the south of France, in Spain, Italy, and Sicily: also about Smyrna. It is a shrub which usually rises to the height of eight or ten feet, and produces its flowers in April and May, which are of a bright yellow colour, growing in spikes, somewhat like those of the Laburnum: the seeds are never perfected in this country, which is the reason of its present scarcity in England. [Cultivated in 1570, by Mr. Hugh Morgan^a.]

2. Is a native of Candia, and some of the islands of the Archipelago, and is at present very rare in the English gardens. This sort has longer leaves than the former, and flowers later in the summer, so that it never produces seeds. [It is probably only a variety.]

3. This is an upright shrub, equal to a middle-sized tree: branches hanging down, frequently scandent. Leaves unequally pinnate; leaflets oblong, acuminate, smooth, without smell. Flower white. Native of the woods of Cochinchina^b.

It is doubtful whether Loureiro's *Anagyris foetida*, found wild near Canton in China, be the same with our European one.]

PROPAGATION AND CULTURE.

These may be propagated by laying down their tender branches in the spring, observing to tongue them in the same manner as the layers of Carnations, being careful in dry weather to supply them with water; which if duly performed, the layers will have taken root by the following spring, when they should be cut off from the old plants, a little time before they begin to put out their leaves, and planted in a warm situation; for if they are too much exposed to cold winds, they will be in danger of being destroyed in a hard winter. This method of propagating these plants, is to supply their defect in not producing ripe seeds in this country; for the plants which are produced from seeds, will be much handsomer, and will rise to a much greater height.

If you propagate these plants from seeds, you should sow them on a moderate hot-bed the beginning of March. [Or in a border of good rich earth, in a well-sheltered place, sifting over them about half an inch of fine mould, and covering them with a common frame, to protect them in case of severe weather.] If the seeds are good, the plants will appear in a month after the seeds are sown; when they should be inured by degrees to the open air, into which they should be removed towards the end of May, placing them in a sheltered situation; for this purpose the seeds may be sown in pots, and plunged into a hot-bed, because the plants do not bear transplanting well till the spring following: and as they are impatient of cold while young, the two first winters it will be proper to shelter them under a common frame, where the glasses may be drawn

^a Hort. kew.

^b Loureiro.

off every day in mild weather, that the plants may enjoy the open air, which will prepare them for planting abroad when they have acquired proper strength: it will be very proper to keep these plants in pots three years, in which time they will have advanced to be in proper condition for planting them into the places where they are intended to remain; the best time for this is about the beginning of april, just before the plants begin to put out new leaves: at which time they should be turned out of the pots, preserving good balls of earth to their roots, planting some of them against warm aspected walls, where they will not be in danger of suffering by frost; and the others may be planted in warm situations, where, if they are protected in severe winters by covering the surface of the ground about their roots with tanner's bark, and screening their heads with mats, they may be preserved several years. The fourth year from sowing, these plants will begin to produce their flowers, will continue flowering every year after, and will be very proper to intermix with other flowering shrubs of the same growth in warm situations.

ANAGYRIS. See *Cytisus Laburnum*.

ANANAS. See *Bromelia*.

ANANDRIA. See *Tussilago*.

ANANTHOCYCLUS. See *Cotula*.

ANAPODOPHYLLUM. See *Podophyllum*.

ANASCHOUADI. See *Elephantopus*.

ANASSA. See *Bromelia*.

ANASTATICA. (*Αναστατικός, exsuscitativus*; from its quality of reviving in water.)

Lin. gen. n. 798. Reich. 862. Schreb. 1074.

Gärtn. t. 141.

Class. 15. 1. Tetrastylia Siliculosa.

Nat. order of *Siliquosæ* or *Cruciformes*. *Cruciferae* Juss.

GENERIC CHARACTER.

CAL. Perianth four-leaved, deciduous; leaflets ovate-oblong, concave, erect, deciduous.

COR. tetrapetalous, cruciform: petals roundish, flat, spreading; with claws nearly the length of the calyx, but more spreading.

STAM. Filaments fix, subulate, the length of the calyx, from erect spreading: anthers roundish.

PIST. Germ bifid, very small: style subulate, the length of the stamens, permanent: stigma capitate.

PER. a very short silicle: partition ending in a subulate point, oblique, and longer than the silicle itself; the valves parallel, making a cell of the lower half, but standing out from the upper, rounded, concave, gaping, oblique: hence having the form of a sheep's-hoof.

SEEDS solitary, roundish.

Obs. In *A. syriaca*, the silicle is ovate, and not at all bifid.

ESSENTIAL CHARACTER.

Silicle retuse, crowned at the edge with valves, twice as long as the partition. Style intermediate, pointed, oblique. Cells one-seeded.

SPECIES.

1. *Anastatica hierochuntica*. Common *Anastatica*, or *Rose of Jericho*.

Lin. spec. 895. Reich. 3. 211. hort. cliff. 328.

ups. 183. Jacqu. hort. 1. t. 58. Gärtn. fruct. 2. 286.

Thlaspi Rosa de Hiericho. Mor. hist. 2. 328. f. 3. t. 25. f. 8.

Rosa hierochuntica. Baub. pin. 484. Cam. hort. t. 41. Best. exst. aut. 4. fol. 1. f. 1. 3. Raii hist. 1711.

Leaves obtuse; spikes axillary, very short; silicles hooped, thorny.

[2. *Anastatica syriaca*. Syrian *Anastatica*.

Lin. spec. 895. syst. 584. Reich. 3. 211. mant.

424. Jacq. austr. 1. t. 6. Crantz. austr. p. 7. Gron. orient. 78.

Bunias syriaca. Gärtn. fruct. 2. 290.

Myagrum rostratum. Scop. carn. n. 797. t. 35.

Zan. hist. 142. 168. t. 126.—*rigidum*. Pallas it.

3. 741. t. Ll. f. 1.

Thlaspi, &c. Bocc. mus. 135. t. 98.

Rosa hiericonta sylvestris. Baub. pin. 484.—*alia* Cam. hort. t. 42.

Leaves acute, spikes longer than the leaf, silicles ovate, beaked.]

DESCRIPTIONS, &c.

1. This plant grows naturally on the coasts of the Red Sea; in Palestine and near Cairo, in sandy places. The stalks are ligneous though the plant is annual; it rises five or six inches high, dividing into many irregular branches; leaves fleshy and glaucous. The flowers, which are small and white, are disposed in short spikes at the wings of the stalks, and have little beauty; these are succeeded by short prickly pods, having two cells, in each of which are two seeds. It is preserved in botanic gardens for the variety, and in some curious gardens for the oddness of the plant, which, if taken up before it is withered, and kept entire in a dry room, may be long preserved; and after being many years in this situation, if the root is placed in a glass of water a few hours, the buds of flowers will swell, open, and appear as if newly taken out of the ground. [Cultivated in 1656, by Tradescant^a.

2. Petals distant, linear, emarginate, the length of the calyx. Silicles sessile, subovate, roughish, with an unjointed point^b. Stem hard, a foot high, dichotomous from the bottom, branches spreading. Leaves rough with tubercles bearing hairs, which are simple, bifid or trifid; one or two sessile flowers in the axils, and others running out into long loose spikes. Calyxes villose, scarcely half a line in length, rather erect. Petals white, one or two seeds in each cell: the valves tough, so as not to be torn without difficulty^c. It has a small, sub-globular, drupaceous silicle, ending in a subulate style; below which it is divided by a deep longitudinal furrow, and transversely striated, spherically gibbous at the sides, and rough with tubercles, or hispid with bristles. Skin scarcely any. Shell bony, two-celled. Seeds solitary, ovate, plano-convex, pale-coloured^d.—Gärtner remarks that the pods which he gathered in the Ukraine, and which he has procured from botanic gardens, were all bald. It is a native of Austria, Stiria, Carniola, Syria, and Sumatra; and was introduced in 1788, by M. Thouin^e. Flowers in may and june.]

PROPAGATION AND CULTURE.

These plants being annual can only be propagated by seeds, which rarely ripen in England, unless they be sown on a hot-bed in the spring, and the plants afterward put into pots, which should be plunged into another hot-bed to bring them forward; for although the seeds will come up in the full ground where the soil is dry, yet the plants rarely rise to any size, nor do they perfect seeds unless the summer is very hot, and dry: but if the plants are kept in a frame, giving them free air in warm weather, they will flower in june, and the seeds will ripen in september.

ANBLATUM. See *Lathræa*.

ANCHOVY PEAR. See *Grius*.

ANCHUSA. (*Άγχουσα, παρὰ τὸ ἀγγεῖν, from its supposed constringent quality; or as others say, because it strangles serpents.*)

Lin. gen. n. 182. Reich. 194. Schreb. 242.

Juss. 131.

Buglossum. Tournef. t. 53. Gärtn. 67.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Asperifoliae*. *Borragineæ* Juss.

GENERIC CHARACTER.

CAL. Perianth five-parted, oblong, round, acute, permanent.

COR. monopetalous, funnel-shaped; tube cylindrical, the length of the calyx: limb semiquinquefid, from erect expanding, obtuse: throat closed with five small scales; convex, prominent, oblong, converging.

STAM. Filaments very short, in the throat of the corolla; anthers oblong, incumbent, covered.

^a Hort. kew.

^b Linn.

^c Scop.

^d Gärtn.

^e Hort. kew.

Pist. Germs four: style filiform, the length of the stamens: stigma obtuse, emarginate.
PER. none; but the calyx enlarged, and erect, contains the seeds in its bosom.
SEEDS four, oblongish, obtuse, gibbous.

ESSENTIAL CHARACTER.

Cor. funnel-shaped, the throat closed with an arch of scales. *Seeds* engraved at the base.

SPECIES.

1. *Anchusa officinalis*. *Officinal or Garden Alkanet or Bugloss.*

Lin. spec. 191. *Reich.* 387. *succ.* 161. *Oeder dan. t.* 572. *Mill. fig. t.* 72. *Blackw. t.* 500. *Plenck. ic. t.* 79. *Pollich palat. n.* 186. *Scop. carn. n.* 189. *Lour. cochinch.* 103. *Best. exst. est. ord.* 8. *fol.* 6.

Leaves lanceolate, spikes imbricate, pointing one way.

2. *Anchusa angustifolia*. *Narrow-leaved Alkanet.*

Lin. spec. 191. *Reich.* 388. *Pollich pal. n.* 187. *Raii hist.* 496.

Borago. Zan. hist. 49. *t.* 20.

Buglossum angustifolium. Allion. fl. pedem. n. 163.

Mor. hist. f. 11. *t.* 26. *f.* 4.

Buglossum foliis linguiformibus asperis, spicis supermis gemellis. Hall. herb. n. 599.

Echii facie Buglossum. Lob. ic. 536.

Racemes almost naked in pairs.

- [3. *Anchusa italica*. *Italian Alkanet.*

Retz. obs. i. 12. *n.* 15.

Buglossum. Hall. herb. n. 599. *Raii hist.* 493.

Best. exst. est. ord. 8. *fol.* 5. *Baub. hist.* 3. 578.

Leaves lucid, strigose; racemes two-parted, two-leaved, flowers somewhat unequal, bearded at the throat.]

4. *Anchusa undulata*. *Waved Alkanet.*

Lin. spec. 191. *Reich.* 388. *Mill. fig. t.* 29.

Bocc. mus. t. 77. *Barr. ic.* 578. *Gmel. it. t.* 37.

Strigose, leaves linear toothed, pedicels less than the bracte, fruit-bearing calyxes inflated.

5. *Anchusa tinctoria*. *Dyer's Alkanet.*

Lin. spec. 192. *Reich.* 388. *mat. med. p.* 55.

Baub. pin. 255. *Baub. hist.* 3. 584. *Raii hist.* 496. 2. *Woodv. med. bot.* 251. *t.* 92.

Plenck. ic. t. 80.

Buglossum tinctorium. Allion. pedem. n. 165.

Downy, leaves lanceolate, obtuse, stamens shorter than the corollas.

6. *Anchusa virginica*. *Virginian Alkanet.*

Lin. spec. 191. *n.* 5. *Reich.* 389. *Gron. virg.* 19.

Pluk. alm. 30.

Lithospermum virginianum. Meris. hist. f. 11. *t.* 28. *f.* 4. *Raii suppl.* 273.

Flowers scattered, stem smooth.

- [7. *Anchusa lanata*. *Woolly Alkanet.*

Lin. spec. 192. *syn.* 186.

Leaves villose, calyxes shaggy, stamens longer than the corollas.]

8. *Anchusa sempervirens*. *Evergreen Alkanet.*

Lin. spec. 192. *syn.* 186. *Reich.* 389. *Huds. angl.* 80. *With. 191. Sowerby engl. bot. t.* 43.

Buglossum latifolium sempervirens. Mor. hist. f. 11. *t.* 26. *f.* 2. *Raii hist.* 494. 4. *syn.* 227. *Ger.* 653. 3. *emac.* 797. 3.

Leaves ovate, peduncles two-leaved, racemed.

- [9. *Anchusa Barrelieri*. *Barrelier's Alkanet.*

Buglossum Barrelieri. Allion. ped. n. 164.

B. sylvestre minus, flore azureo, radice perenni, italicum. Barr. ic. 333.

Leaves ovate-lanceolate; stem erect, peduncles racemed, pointing one way.

10. *Anchusa paniculata*. *Panicled Alkanet or Bugloss.*

Ait. hort. kew. i. 177.

Leaves lanceolate strigose quite entire, panicle dichotomous divaricate, flowers peduncled, calyxes five-parted, with subulate segments.

DESCRIPTIONS, &c.

These are hardy perennials, or biennials.

1. Stems from a foot to eighteen inches in height, and more, the thickness of a finger, slightly angular, hairy and rough. Leaves slightly decurrent, seven inches long, above an inch broad, hairy and rough. Spikes conjugate, terminating the stem;

the flowers sessile, in a double row. Calyx hirsute. Corollas purple, near half an inch in diameter^a. At first opening they are red, but afterwards become purple^b. Sometimes they are white. This plant flowers in June, July, and August; and the seeds ripen in a month. It grows wild in Italy, Spain, France, Germany, Sweden, Denmark, and Siberia; by roadsides, and in corn fields. It was cultivated in 1748, by Mr. Miller^c. When tender in the spring, it is eaten boiled, in Upland^d. The tube of the corolla is melliferous, and the bees are very fond of it^e. This is not the *Anchusa*, but the *Bugloss* of the official writers. It appears to be nearly similar to Borage; the leaves being less juicy, and the roots more mucilaginous; these with the leaves and flowers, are ranked among the articles of the materia medica, but they are very seldom made use of^f. In China, this plant is in great esteem, for gently promoting the eruption in the small-pox^g.]

2. Grows to the height of two feet when cultivated in gardens, but in the places where it grows wild, is rarely more than a foot. The leaves are narrow, and less hairy than those of the first; the spikes of flowers come out double, and have no leaves about them; the flowers are small and of a red colour. The roots will continue three or four years in poor land. [Haller thinks that this is not a distinct species from the first, Linneus acknowledges that they are very much alike; but observes that the stem-leaves of this are slightly toothed on the edge; that they are rough with small spines, and attenuated to the base: neither are they ovate-lanceolate, as those of the first species are. But according to Retzius, most authors have mistaken the three first species. It is found wild in Italy, Germany, Switzerland; flowering in July and August, by way sides, and the borders of ploughed fields. Cultivated in 1759, by Mr. Miller^h. Boerhaave recommended the juice in the pleurisy and in maniacal cases.

3. Root biennial. Stem erect, angular, branched, strigose, four feet high and more. Root-leaves and lower leaves on the stem two feet long, lanceolate, ending in the petioles; those on the middle of the stem a foot long and lanceolate; the upper ones half a foot in length, cordate, acuminate, sessile; all quite entire. Peduncles terminating and axillary, with two cordate sessile leaflets, ending in a conjugate, reflex spike, in which the flowers are all directed the same way. Pedicels erect, the length of the calyx.—It differs from the first species in size; in that the flowers are equal and funnel-shaped; in this they are salver-shaped; they are much more imbricate in that, the segments of the calyx broader and shorter; those of the corolla ovate; with the scales of the throat only slightly tomentoseⁱ.]

4. Height three feet, with many strong lateral branches, produced from the main stem near the ground. Leaves stiff, rough, six or seven inches long, and about half an inch broad at the top, closely embracing the branches at the base, where they are two inches broad; indented and waved on their edges; the upper surface beset with hairs, and very rough to the touch. Spikes of flowers axillary, a foot or more in length, reflex. Corollas fine blue. The root commonly decays after the seeds are perfected; though sometimes, when it grows upon gravel, or in the joints of stone walls, it will live three or four years. Such plants are seldom more than a foot high, and have small narrow leaves; so that they appear like a different species. It is a native of Spain and Portugal^k. [Gmelin also found it in Siberia. Cultivated in 1739, by Mr. Miller^l.]

5. Rises near as high as the first, to which it bears great resemblance in its leaves and branches, only that they are more woolly; the stamens also are shorter than the corolla. The root is red. [It much resembles the seventh species, and is entirely clothed

^a Pollich. ^b Linn. ^c Hort. kew. ^d Linn. ^e Scop.
^f Lewis. ^g Loureiro. ^h Hort. kew. ⁱ Retz. obs.
^k Mill. fig. ^l Hort. kew.

with a white down. The chaffs of the stamens are as long as the corolla. It grows about Montpellier, in Silesia^m, Spain, and Italy. Cultivated here in 1683, by Mr. James Sutherlandⁿ. This plant is cultivated in the south of France, for the deep purplish red colour of the roots. It imparts a fine deep red to oils, wax, and all unctuous substances, as well as to spirit of wine. The spirituous tincture, on being inspissated, changes to a dark brown. Its chief use is for colouring plasters, lip-salves, &c.^o Roots of Bugloss boiled in Brazil wood are substituted for those of Alkanet; but these will not dye oils red^p.]

6. Seldom rises a foot high in good ground, but not above half that height, where the soil is poor. The flowers grow in loose spikes, upon a smooth stalk. It is perennial, and a native of North America, where it grows in the woods; and being an early plant, generally flowers before the trees are in leaf; so that where it abounds, the earth seems covered with bright yellow flowers. It is known in that country by the name of Puccoon.

[7. Stem single, a foot high. Leaves alternate, villose, rather obtuse. Racemes from the upper axils; leafy, recurved, very villose. Calyxes five-parted, woolly, whitish-yellow. Corolla blue; nectary of five, very short scales. Stamens rather longer than the corolla, with incumbent anthers. Styles very long^a. Found by Brander near Algiers; and very like the fifth.

8. Stems at the sides of the crown of the root, hispid. Leaves ovate, marked with lines, petiolate, remote. Peduncles axillary; with two bractes, opposite, sessile, lanceolate-ovate, many-flowered. Corollas blue, with a short tube^a, rather salver-shaped than funnel-shaped^a. Calyx thick set with long, white, bristly hairs; segments rather longer than the tube of the corolla. Germs imbedded in a hollow, glandular receptacle, one or two generally abortive. Seeds rough, of a bony hardness^a. In habit and character this plant approaches to *Myosotis*^a. It is found wild in Spain, and Italy. With us it has crept out of gardens, and has been remarked growing spontaneously near Rochester, Had-discoe in Suffolk, Cambridge, Birmingham, Worcester, and London; by road-sides, among rubbish, and from the joints of old walls. It flowers from may through a great part of the summer, and is perennial. Kine, horses, sheep, and goats, are said to eat it: and it has the same qualities with the first and second species.

9. Root pale red. Root-leaves many, subdecurrent, obscurely toothletted: petiole broad, channelled. Stem-leaves half-embracing, erect, crowded, more lanceolate. Stem angular, striated, branching from almost every axil to the top, and sometimes subdivided; erect or ascending: the branches are flower-bearing, and have no leaves but the floral ones. Peduncles longer than the bractes. Corolla azure, scarcely larger than the calyx. Seeds subtri-quetrous, rough. The root-leaves are hispid-warted; the hairs are gradually softer on the stem and upper leaves: the peduncles and upper branches are hoary. Found in Piedmont by Bellardi^a.

10. This is easily distinguished by the calyxes being five-parted to the very base, and because it is more strigose than the other species. It is biennial; flowers in may and june; is a native of Madeira, where it was found by Mr. Francis Maffon; and was introduced in 1777^a.]

PROPAGATION AND CULTURE.

1. The roots of this, and some of the other sorts, seldom continue longer than two years, except when they grow in rubbish, or out of a wall. They may all easily be propagated by seeds, sown in the autumn, upon a bed of light sandy earth; and in the spring, when the plants are strong enough to remove, they should be planted in beds, at two feet distance; observing, if the season prove dry, to water

them till they have taken root, after which they will require no farther care, but to keep them clear from weeds. If the seeds of the common sorts be permitted to scatter, the plants will rise in plenty.

ANCHUSA. See *Barleria*, *Borago*, *Lithospermum*, *Myosotis*, *Onosma*, *Pulmonaria*.

[ANCISTRUM. (from *Αγκίστρον*, a hook.)

Forst. gen. n. 2. Linn. suppl. p. 10. syst. 1354.

Schreb. 56. Gærtn. 32. Juss. 336.

Class. 2. 1. Diandria Monogynia.

Nat. order of *Rosaceæ* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, (four-leaved, H. K.) turbinate, truncate, four-toothed: teeth cylindric-awned, erect, terminating in four reversed hooks.

COR. (none, H. K.) superior, one-petalled, funnel-shaped with a very short tube, and a spreading quadrifid border. The divisions nearly equal, obtuse, the length of the tube.

STAM. Filaments fastened to the base of the tube, longer than the corolla, capillary: anthers roundish.

PIST. Germ oblong; style filiform, the length of the corolla; stigma pencil-shaped.

PER. none, but the calyx; in the bottom of which is the fruit. (A Drupe, dry, hispid, one-celled, H. K.)

SEED single, oblong.

ESSENTIAL CHARACTER.

Cal. four-leaved.

Cor. none. Stigma many-parted. Drupe dry, hispid, one-celled.

SPECIES.

1. *Ancistrum decumbens*.

Gærtn. fruct. 1. 163.

A. anserinæfolium. Forst. gen. n. 2.

A. diandrum. Forst. fl. austr. n. 52.

A. sanguisorbæ. Linn. suppl. 89. syst. 73.

Stems decumbent, peduncle scape-form solitary, flowers in a globular head, leaflets wedge-form deeply serrate hoary beneath, seed covered with the thickened calyx.

2. *Ancistrum lucidum*. Shining *Ancistrum*.

Ait. hort. kew. 1. 15.

Stems subdemerged, peduncles scape-form, spikes ovate, leaflets oblong quite entire acute subfascicled.

3. *Ancistrum latebrosum*. Hairy *Ancistrum*.

Ait. hort. kew. 1. 16. Gærtn. fruct. 1. 164.

Agrimonia decumbens. Linn. suppl. 251.

Stems demerged, peduncles scape-form, spikes elongate, leaflets oblong gashed villose, fruits armed on every side.

DESCRIPTIONS, &c.

1. It resembles Burnet in the herb, and manner of flowering. Stalk hairy. Leaves alternate, pinnate with an odd leaflet; leaflets wedge-shaped, deeply ferrate, hoary beneath. Stipules deeply cut. Peduncle terminal, solitary, long. Head globose, with aggregate flowers. Calyx and corolla hirsute on the outside. Remarkable for the yellow awns to the calyx, resembling fox's nails. A native of New Zealand^a.

2. Stems very short, decumbent. Leaves very many, subradical, approximating, unequally pinnate, patulous, two or three inches in length: leaflets usually eight pairs, sessile, shining above, whitish beneath, the keel and tip hairy. Petioles widening at the base, sheathing, ciliate. Common peduncles generally solitary, the length of the leaves, round, villose, having sometimes one or two leaves on them. Spike many-flowered, scarcely half an inch long. Bractes the length of the germs; the lower cleft, the upper quite entire. Leaflets of the calyx hairy on the outside and at the tip, green, scarcely a line in length. Stamens the length of the calyx, very dark red. The germ has four obscure toothlets above the middle, and is hairy. Stigmas fascicled, and of a dark blood-red colour. The drupe is unequally horned at top. Native of Falkland Islands. Introduced in 1777, by John Fothergill, M.D. It flowers in may and june^b.

^m Linn. ⁿ Hort. kew. ^o Lewis. ^p Bergius. ^q Linn.

^r Ibid. ^s Sowerby. ^t With. ^u Sowerby.

^x Allioni. ^y Hort. kew.

^a Lin. suppl.

^b Hort. kew.

3. Root-leaves resembling those of *Potentilla anserina*, pinnate with about twenty leaflets. Stems a foot long, procumbent, with scarcely any leaves on them, quite simple, ending in a raceme^c. Leaflets of the calyx somewhat villose on the outside, two lines in length. Filaments a little shorter than the calyx: anthers bifid. Germ villose, barbed all round. Stigma many-parted, the little parts subulate, short, and spreading very much. Drupe four lines in length, tomentose, armed all round with pedicelled barbs. Nut full of outward cavities, protruding the barbs through the shell of the drupe^d.—It is thus described by the accurate Gærtner. The calyx closes as the seed ripens, and thickens into an ovate-globose, suberose, white-tomentose bark, armed every way with short bristles, thickening outwardly, and having four reversed barbed little prickles. Seed single, ovate-globose, produced at top into a boss, smooth and pale; covered with a thin, membranaceous skin, and on the outside of that with a coriaceous, hard, thick integument, resembling a shell.

The structure of the fruit in this species is somewhat different from that in the first, and may be referred to the drupes along with *Pimpinella* or Burnet; but the difference is not considerable, and the structure of the other parts is nearly the same in both.]

ANDRACHNE. (*Ἀνδράχνη*, the name of a plant in Hippocrates, Theophrastus, and Dioscorides, from *Ἀχνα*, glume or chaff.)

Lin. gen. n. 1095. Reich. 1196. Schreb. 1483.

Juss. 387. Gærtn. t. 108.

Telephoides. Tournef. 365. Dill. elth. 282.

Class. 21. 11. Monoecia Gynandria.

Nat. order of *Tricocea*. *Euphorbia* Juss.

GENERIC CHARACTER.

* Male.

CAL. Perianth five-leaved, equal, marcescent.

COR. Petals five, emarginate, slender, shorter than the calyx. Nectary, leaflets five, semibifid, herbaceous, one within each petal, and less than it.

STAM. Filaments five, small, inserted into the rudiment of each style, anthers simple.

* Female.

CAL. Perianth five-leaved, equal, permanent.

COR. Petals none. Nectary as in the male.

PIST. Germ superior, globose; styles three, filiform, two-parted: stigmas globose.

PER. Capsule globose-trilobate, three-celled; cells bivalved, the size of the calyx; (triccous elastic. G.)

SEEDS in pairs, rounded on one side, triangular and obtuse on the other.

OBS. It is related to *Clutia*.

ESSENTIAL CHARACTER.

MALE. Cal. five-leaved. Cor. five-petalled. Stam. five, inserted into the rudiment of the style.

FEMALE. Cal. five-leaved. Cor. none. Styles three. Caps. three-celled. Seeds two.

SPECIES.

1. *Andrachne Telephoides*.

Lin. spec. 1439. Syst. 871. Reich. 4. 210. hort. cliff. 443. upf. 285. Mill. illustr. ic. Gærtn. fruct. 2. 124.

Telephoides. Dill. elth. t. 282. f. 364. Buxb. cent. 2. t. 12. f. 2.

Glaux. Eocc. musf. 2. t. 119.

Procumbent and herbaceous.

2. *Andrachne fruticosa*.

Lin. spec. 1440. Reich. 4. 211. Olf. it. 228.

β. *Clutia androgyna*. Linn. mant. 128. Syst. 871. Reich. 4. 211.

Erect, shrubby.

3. *Andrachne arborea*.

Mill. dict.

Stem arborescent; leaves ovate, obtuse, hoary underneath.

DESCRIPTION, &c.

1. The first sort is a low plant, whose branches trail on the ground. The leaves are small, of an

oval shape, smooth, and of a sea-green colour. It is found wild in some parts of Italy, and in the Archipelago, from whence Tournefort sent the seeds to the royal garden at Paris: but being a plant of no great beauty, it is seldom cultivated, except in botanic gardens for variety. [It was cultivated in 1732, by James Sherard, M.D.^e]

2. The second sort rises twelve or fourteen feet high, the branches have spear-shaped, pointed, smooth leaves, under which the peduncles are produced: these are pretty long, and hang downward: the flowers are small, of an herbaceous white colour, some of which are male, and others female, but when the latter are situated at too great distance from the former, there are rarely any seeds within their covers; though they seem very fair to sight; whereby several persons have been deceived, who have sown them, without raising a single plant. [Linneus describes it as having the branches smooth, flexile. Leaves oval-oblong, with short petioles, not fragile. Flowers pedunculate, two from a minute strobiliform bud. Some flowers male, with a one-leaved round flat obtuse calyx, a little quinquefid; others on the same plant female, five-parted^f. Native of the East Indies,] China; also of La Vera Cruz in New Spain.

3. Has a strong, woody stem, which rises more than twenty feet high, sending out branches on every side, which have oval blunt leaves, hoary on their under side, and having pretty deep furrows on their upper, placed alternately on the branches: the flowers I have not seen, for the plant which rose from the seeds in the physic garden did not produce any, though it grew upwards of fourteen feet high; nor were there any flowers upon the trees at Campeachy at the time Dr. Houstoun was there; the seeds being then ripe; of these he sent many to Europe which appeared very fair, but on being opened, no kernels were found within them, so that but one plant was raised from all the seeds. It was discovered by the late Dr. William Houstoun growing naturally at Campeachy.

There is also another sort which I have raised from seeds, sent me from Jamaica; the whole form of the seeds agrees with those of the third sort, as do also the plants, but the leaves are somewhat like those of the Laurel, only much larger; this has not as yet flowered in Europe.

PROPAGATION AND CULTURE.

1. If the seeds of this plant are sown on a moderate hot-bed in march, they will arise in about a month after, when they may be transplanted each into a small pot, and plunged into another very moderate hot-bed to bring the plants forward, but in mild weather they should have plenty of air admitted to them, and be often refreshed with water: in June they will produce flowers, and the seeds will ripen in August and September, soon after which the plants will decay.

2. 3. These two sorts are very tender plants, so that when good seeds can be obtained, they should be sown in pots, plunging them in a hot-bed of tanner's-bark, observing to water them as the earth becomes dry in the pots, and when the plants come up, and are fit to remove, they should each be planted in a small pot, plunged into a tan-bed, shading them until they have taken fresh root, after which they should have free air admitted to them in warm weather, but must be constantly kept in the bark stove.

ANDRACHNE. See *Arbutus*.

ANDROMEDA. (named from the daughter of Cepheus, and Cassiope, rescued from the sea-monster by Perseus.)

Lin. gen. n. 549. Reich. 593. Schreb. 747.

Gærtn. 63. 178. Juss. 160.

Ledum. Mich. 106. Chamædaphne. Buxb. Poliofolia. Buxb. Erica. Tournef. 373. B.

Class. 10. 1. Decandria Monogynia.

Nat. order of *Bicornes*. *Erica* Juss.

^c Lin. suppl.

^d Hort. kew.

^e Hort. kew.

^f Linn. mant.

GENERIC CHARACTER.

CAL. Perianth five-parted, acute, very small, coloured, permanent.

COR. monopetalous, campanulate, quinquefid; clefts reflex.

STAM. Filaments subulate, shorter than the corolla, and scarcely fixed to it: anthers two-horned, nodding.

PIST. Germ roundish: style cylindric, longer than the stamens, permanent: stigma obtuse.

PER. Capsule roundish, five-cornered, five-celled, five-valved, opening at the corners: partitions contrary.

SEEDS very many, roundish, shining.

OBS. It differs from *Erica* in number. In some species the corolla is ovate, in others perfectly campanulate. The anthers in some are awned, in others awnless.

A. *Daboecia* (formerly an *Erica*) wants one-fifth in the parts of fructification: and ought perhaps, with *droseroides* and *cœrulea*, to be removed to that genus.

ESSENTIAL CHARACTER.

Cal. five-parted. Cor. ovate (or campanulate) quinquefid at the edge. Caps. superior, five-celled, with the partitions from the middle of the valves.

SPECIES.

[1. *Andromeda tetragona*.
Lin. spec. 563. Reich. 2. 292. succ. 356. lapp. 166. t. 1. f. 4.

Peduncles solitary, lateral; corollas bell-shaped; leaves opposite, imbricate, obtuse, revolute.

2. *Andromeda hypnoides*.
Lin. spec. 563. syst. 406. Reich. 2. 292. succ. 355. lapp. 165. t. 1. f. 3. Oeder. dan. t. 10.

Peduncles solitary, terminal; corollas bell-shaped; leaves crowded, awl-shaped.

3. *Andromeda cerea*.
Linn. suppl. p. 238. syst. 406.

Peduncles axillary, two-leaved, one-flowered; leaves alternate, ovate, serrate.

4. *Andromeda cœrulea*.
Lin. spec. 563. syst. 406. Reich. 2. 292. succ. 354. lapp. 165. t. 1. f. 5. Oeder. dan. t. 57.

Erica folio abietis, flore arbuti. Buxb. cent. 4. t. 43.

Peduncles aggregate; corollas ovate; leaves scattered, linear, obtuse, flat.]

5. *Andromeda mariana*. Maryland *Andromeda*.
Lin. spec. 564. syst. 406. Reich. 2. 293. Gron. virg. 49. 66. Pluk. mant. t. 448. f. 6. Ait. hort. kew. 2. 67.

α. Oval-leaved *Andromeda*.

β. Oblong-leaved *Andromeda*.

Peduncles aggregate, branched; corollas ovate-cylindrical; leaves oblong-ovate, quite entire, deciduous.

[6. *Andromeda ferruginea*. Rusty *Andromeda*.
Ait. hort. kew. 2. 67.

Peduncles aggregate axillary; corolla subglobose; leaves elliptic, quite entire, beneath scaly-scarious.]

7. *Andromeda polifolia*. Marsh *Andromeda*.
Lin. spec. 564. syst. 406. Reich. 2. 293. succ. 353. lapp. 161. t. 1. f. 3. Oeder. dan. t. 54. Hudf. angl. 176. Wither. arr. 425. Lightf. scot. 214. Hall. belv. n. 1017. Pollich palat. n. 394. Plenck. ic. t. 338.

Polifolia. Buxb. cent. 5. t. 55. f. 1.

Erica humilis, &c. Pluk. alm. t. 175. f. 1.

Rhododendron polifolium. Scop. carn. n. 482.

α. A. pol. latifolia. Broad-leaved Marsh *Andromeda*.
L'Herit. stirp. nov. tom. 2. tab. 11.

Leaves oblong; corollas ovate, flesh-coloured; segments of the calyx spreading, ovate, white; sometimes red at the tip.

β. A. pol. media. Common Marsh *Andromeda*, or wild Rosemary.

Leaves lanceolate; corollas oblong-ovate, red; segments of the calyx more erect.

γ. A. pol. angustifolia. Narrow-leaved Marsh *Andromeda*.

Leaves lanceolate-linear, segments of the calyx oblong, red.

Ait. hort. kew. 2. 68.

Peduncles aggregate, corollas ovate, leaves alternate, lanceolate, revolute.

[8. *Andromeda Bryantha*.

Lin. syst. 406. Reich. 2. 293. mant. 238.

Bryanthus. Gmel. fib. 4. t. 57. f. 3.

Flowers corymbed, leaves elliptic, stem prostrate.

9. *Andromeda Daboecia*. Irish Whorts, or Cantabrian Heath, or trailing *Andromeda*.

Lin. syst. 406. Reich. 3. 294. Wither. arr. 425.

Erica Daboecii. Lin. spec. 599. Hudf. angl. 166.

Raii bist. 3. 98. syn. 472.

E. hibernica, &c. Raii bist. 3. lapp. 244. Pet. gaz. 27. f. 4.

Racemes pointing one way, flowers quadrifid ovate, leaves alternate, lanceolate, revolute.

10. *Andromeda droseroides*. Clammy *Andromeda*.

Lin. syst. 406. Reich. 2. 294. mant. 239.

Erica glutinosa. Berg. cap. 98.

Chamæcistus roris solis foliis. Pet. mus. 22. t. 161.

Racemes pointing one way; leaves linear, hairy, viscid.]

11. *Andromeda paniculata*. Panicked *Andromeda*.

Lin. spec. 564. syst. 406. Reich. 2. 295. hort.

cliff. 162. L'Herit. stirp. nov. 2. t. 12.

Racemes terminal, panicked; corollas roundish; leaves ovate rather entire.

[12. *Andromeda japonica*.

Lin. syst. 407. Thunb. jap. p. 181. t. 22. Gærtn.

fruct. 2. 481.

Racemes panicked, cylindric, bracted; leaves elliptic, reflex, serrate at the tip.]

13. *Andromeda arborea*. Tree *Andromeda* or Sorrel-tree.

Lin. spec. 565. Reich. 2. 295. Gron. virg. 48. 67.

Catch. car. 1. t. 71. L'Herit. stirp. nov. tom. 2.

Panicles terminal, corollas rather downy, leaves elliptic, pointed, toothletted.

[14. *Andromeda racemosa*. Branching or Pennsylvania *Andromeda*.

Lin. spec. 564. Reich. 3. 295. L'Herit. stirp.

nov. tom. 2. tab. 13.

Racemes terminal, simple, bracted; corollas cylindric; leaves oblong-lanceolate, serrate.

15. *Andromeda axillaris*. Notch-leaved *Andromeda*.
Ait. hort. kew. 2. 69. L'Herit. stirp. nov. tom. 2.

tab. 14.

Racemes axillary, simple, corollas oblong, leaves ovate, acute, serrulate.

16. *Andromeda coriacea*. Thick-leaved *Andromeda*.
Ait. hort. kew. 2. 70. L'Herit. stirp. nov. tom. 2.

tab. 15.

Racemes axillary, simple; leaves ovate, very entire, very shining, branchlets three-cornered.

17. *Andromeda acuminata*. Acute-leaved *Andromeda*.
Ait. hort. kew. 2. 70. L'Herit. stirp. nov. tom. 2.

tab. 16.

A. lucida. Jacq. collect. 1. p. 95.

Racemes axillary, simple; leaves ovate-lanceolate, acuminate, serrate.]

18. *Andromeda calyculata*. Calyceled *Andromeda*.

Lin. spec. 565. syst. 407. Reich. 2. 295. succ. 357.

Gærtn. fruct. 1. 304. Gort. ingr. 64. Gron.

virg. 21? Gmel. fib. 4. p. 119. n. 4.

α. A. cal. ventricosa. Globe-flowered calyceled *Andromeda*.

Chamædaphne. Buxb. æt. petrop. 1. p. 241. t. 8. f. 1.

Corollas globose, leaves oblong-lanceolate.

β. A. cal. latifolia. Broad-leaved calyceled *Andromeda*.

Corollas oblong-cylindric; leaves oblong-oval, obtuse.

γ. A. cal. angustifolia. Narrow-leaved calyceled *Andromeda*.

Corollas oblong-oval; leaves oblong-lanceolate.

Peduncles solitary, axillary, pointing one way; bractes two; leaves oval, scaly-dotted, obsoletely serrulate.

[19. *Andromeda anastomozans*.

Lin. syst. 407. suppl. p. 237.

Racemes crowded, leafy; leaves ovate slightly serrate, anastomosing underneath and dotted.

20. *Andromeda rupestris*.

Lin. syst. 407. suppl. p. 237. Forst. flor. n. 195.

L. 1

Leaves

- Leaves oblong, alternate, ferrulate.*
21. *Andromeda falicifolia*. *Willow-leaved Andromeda*.
Smith ic. ined. t. 58. Lamarck encycl. 159.
Racemes pointing one way, naked; corollas subcylindrical; leaves lanceolate, acute, quite entire.
22. *Andromeda buxifolia*. *Box-leaved Andromeda*.
Smith ic. ined. t. 59. Lamarck encycl. 159.
Racemes pointing one way, naked; corollas subcylindrical; leaves cordate-ovate, quite entire, with a little dagger point.
23. *Andromeda fasciculata*.
Swartz prodr. 73.
Peduncles aggregate, leaves alternate ovate-lanceolate obtuse slightly crenulate coriaceous.
24. *Andromeda jamaicensis*.
Swartz prodr. 73.
Peduncles aggregate, corollas ovate transparent, leaves alternate broad-lanceolate obtuse entire, beneath ashy-coloured membranaceous.
25. *Andromeda octandra*.
Swartz prodr. 73.
Peduncles aggregate, corollas cylindric quadrifid, leaves alternate ovate-lanceolate entire membranaceous.

DESCRIPTIONS, &c.

1. This is like the *Passerina filiformis*, but the flowers are very different, resembling those of the Lily of the Valley. The leaves are generally four-fold; whence it has the square appearance which acquired it the name of *tetragona*^a. Linneus first observed it growing very sparingly in Lapland, in the year 1732. Gmelin also found it on the mountains of Siberia.

2. This little plant has the appearance of a moss, spreads over great tracts of ground in the Lapland Alps, and adorns them with its beautiful red flowers. The anthers are awned^b. It is found also in Denmark and Siberia.

3. Resembles the fourteenth species, but is smooth. The leaves are on short petioles; the corolla is bell-shaped; the anthers oblong, yellow, two-horned at the back^c. This is from the island of Otaheite.

4. The anthers are without awns. It grows wild on the mountains of Lapland; but more plentifully on those of Dalecarlia and Jemtia^d, and is found also in Denmark and Siberia.

5. Corolla rather cylindric-bell-shaped: anthers without awns^e. A native of North America. Introduced in 1736, by Peter Collinson, Esq.^f Of this there are two varieties.

1. With oval leaves.

2. With oblong leaves.

The corollas are shaped like those of the *Arbutus*, and are of a herbaceous colour. They appear in June and July, and sometimes are succeeded by fruit, which seldom ripens in England.

[6. This is also a native of North America. It was cultivated in 1776, by Mr. James Gordon; and flowers in July and August^g.

7. This elegant little shrub is from six or eight inches to a foot in height, erect and branched. Leaves sessile, rigid, elliptical, their edges turned back; the under surface glaucous. Peduncles long, of a bright red colour, arising from the summits of the branches, each supporting one oval, nodding flower. The calyx is red, and the corolla is of a pink colour. Anthers awned; style white with a purple stigma^h.

Native of America, and the northern countries of Europe, on turf bogs. In Russia, Sweden, Denmark, Germany, Switzerland, and in Britain, on the mosses of Cheshire, Lancashire, Westmoreland, Cumberland, Yorkshire, and Scotland, as on Brigsteer moss near Kendal, Middleton moss by Lancaster, on Blackstone Edge between Halifax and Rochdale, upon Solway moss abundantly, and not unfrequent in peat-bogs in the Lowlands of Scotland. It flowers about the end of May; and is called *Mars Chistus*, *Wild Rosemary*, *Poley Mountain*, *Moorwort*, and *Marsh Holy Rose*.

^a Linn. ^b Ibid. ^c Linn. suppl. ^d Linn. ^e Ibid.
^f Hort. kew. ^g Ibid. ^h Haller, Lightf. Linn. With.

There is some difference between the varieties of this species, as found in North America (α), in Europe (β), and in Newfoundland and Labradore (γ), as specified above.

8. The anthers adhere perpendicularly to the back of the filaments. Peduncles many-flowered. It comes up in thick clumps, like wild Thyme, on the rocks of Kamtschatka.

9. The flowers are borne on a single terminal raceme, on alternate undivided subviscid pedicels, with a linear bracte under each. Calyx four-leaved, awl-shaped, erect, purplish, one-fourth of the length of the corolla, and deciduous. Corolla purple, cylindric-oval, twice as large as that of the seventh species; the mouth quadrifid and a little contracted: the divisions bent back. Stamens eight, with white filaments: anthers the length of the filaments, scarcely shorter than the corolla, brown, sagittate, awnless, truncate at top, with two holes. Style filiform, the length of the corolla: stigma obtuse, subquadrifid. This species has the habit or air of an *Andromeda*, but the character of an *Erica*. The seed vessel is a four-celled four-valved capsuleⁱ. It has been observed to grow only in the Irish bogs, and flowers in June and July.

10. This has leaves resembling *Drosera cistiflora*. In the number of the parts of fructification it is sometimes nearer the *Erica* genus than this. The anthers are awned^k. Stem undershrubby, branching. Leaves alternate, subsessile, obtuse, channelled, almost erect, on the outside beset with scattered hairs, ciliate with little bristles, having viscid glandules at their tips. Racemes terminal, solitary. Peduncles purplish. Flowers nodding. Calyx scarious, ovate, concave, small. Corolla ovate, violet, with a dark purple neck: border minute, white, obtuse. Anthers standing out, with two bristly awns at the base. Number of parts of fructification varies from four or eight, to five or ten. It is sister to n. 9. and has all the habit of *Andromeda*^l. A native of the Cape of Good Hope.]

11. Stem about four feet high: the flowers grow in loose spikes from the ends of the branches; they are shaped like those of the *Arbutus*, but are a little longer, and appear in July; but do not produce seeds in this country. [Anthers awned^m. A native of Virginia; and was cultivated in 1748, by Archibald Duke of Argyleⁿ.

12. This is a tree. Branches coming out by threes or more in a sort of umbel, striated and angular, smooth, purplish, erect, knobbed from the fall of the leaves, and subdivided. Leaves frequent on the twigs, alternate, obovate-lanceolate, acute, attenuated at bottom into the petioles, crenate from the middle to the tip, spreading very much or reflex, nerved, smooth, two inches in length. Petioles semicylindrical, grooved, red, a line in length. Racemes alternate, lax, red, a finger's length, at the ends of the twigs. Peduncles angular, smooth. Pedicels round, thickened, erect, a line long. Bractes subulate, scattered both below and on the pedicels. Perianth, before flowering-time, five-cornered, acute, smooth, red on one side green on the other, five-parted almost to the base, segments lanceolate, scarcely a line in length. Corolla subcylindrical, white, shorter than the calyx, marked with five streaks. Filaments inserted into the receptacle, linear, one third only of the length of the calyx. Anthers ovate, erect, gibbous on the inside, purplish. Germ superior, marked with five streaks, convex, smooth. Style filiform, green, very short. Stigma simple, greenish-purple. Capsule ovate-globose, five-flowered with obtuse angles, smooth. Seeds minute. Native of Japan, near Nagasaki; flowering in December^o.]

13. In Virginia it is a shrub growing ten or twelve feet high, but in Carolina it rises twenty feet. The branches are very slender, bending downward. The flowers grow in long, naked spikes from the sides of

ⁱ Linn. ^k Ibid. ^l Linn. mant. ^m Linn. ⁿ Hort. kew.
^o Thunberg.

the branches : they are of a herbaceous colour, and ranged on one side of the stalk. [Cultivated in 1752, by Mr. Miller^p.

14. Differs from the eleventh, in the racemes being less paniced; in having a linear, lanceolate, stiff, green, deciduous, bracte, under each flower, longer than it; in the capsules retaining the style; and in the leaves being more ferrate. This was found in Pennsylvania, by Kalm^q. Introduced by P. Collinson in 1736. It flowers in July^r.

15. Native of Carolina, where it was found by Mr. John Cree. It was introduced in 1765; and flowers from May to August^s.

16. Found by the same person in North America, and introduced the same year. It flowers in July and August^t.

17. This is a shrub about four feet in height, upright, and the whole of it smooth, with round branches, which are leafy to a considerable extent. Leaves alternate, petioled, two inches long, either quite entire, or very obscurely and unequally crenulate, coriaceous, somewhat rigid, very smooth beneath, almost lucid on the upper surface, reticulate with small veins when looked at through a magnifying-glass. Racemes axillary, solitary; there are also others which come out from the branches themselves without any leaf; they are many-flowered, much shorter than the leaves, and spread out horizontally. Pedicels slender, pendulous. The flowers smell like honey. Perianth green. Corolla snow-white, almost cylindric, with a flat base, and a small, obtuse, five-toothed, revolute border. It flowers in July and August^u. It is a native of North America, and was introduced in 1765^v.]

18. It is a low shrub: the leaves shaped like those of the Box-tree, and of the same consistence; with small punctures on them. The flowers grow in short spikes from the extremities of the branches: they are produced single, between two leaves, and are white. [The leaflets are oval on the racemes, and from the axil of each proceeds a solitary pedicelled flower: the calyx is covered at the base with two ovate leaflets: the anthers are oblong, bifid, and awnless^w. It grows in Sweden, Ingria, Siberia, and also in North America; on mossy land. Cultivated in 1748, by Archibald Duke of Argyle^x. There is some difference in the varieties from Russia (α), Newfoundland (β), and North America and Siberia (γ).

19. A shrub with hairy branches; leaves alternate, crowded, sub-petiolate, acute, shining, scarce apparently ferrate. Corollas ovate. Anthers two-awned, and each of the awns subdivided. Capsules obtuse, gaping at the angles^y. Found by Mutis, in New Granada.

20. Racemes quite simple, bracted: corollas bell-shaped. A native of New Zealand^z.

21. Stem arboreous, with vimineous, subflexuose, round, smooth, leafy branches, flower-bearing at the end. Leaves perennial, alternate, petioled, from erect spreading, with the edges a little rolled back; the upper surface smooth, with two longitudinal vessels parallel to the nerve, giving it the appearance of being three-nerved; the lower whitish, with a stout reddish nerve, reticulately veined. Petioles channelled, smooth. Racemes subpaniced terminating. Pedicels all directed the same way, alternate, simple, short, angular, without bractes, when flower-bearing they nod, but when in fruit they are from erect spreading. Calyx five-cleft beyond the middle, wrinkled, fleshy, smooth, sometimes ciliate; the clefts deltoid, bluntish, slightly keeled. Corolla thrice the length of the calyx, ovate-cylindrical; clefts small, roundish, blunt, a little turned back. Filaments bent, villose, dilated at the base: anthers upright, oblong, awnless, two-celled, opening at the top in two pores, gibbous at the base. Germ obscurely five-lobed, smooth. Style almost the length

of the corolla, straight, subquincangular. Stigma blunt, with five papillose glands. Capsule woody, smooth, oblong; valves concave outwardly, inwardly bearing a partition from the middle. Seeds numerous, small, oblong. It was found by Commerson, in the island of Mauritius^a.

22. Stem shrubby; with round, smooth, leafy branches, flower-bearing at top. Leaves perennial, scattered, spreading, blunt, a little rolled back at the edge, bright green and smooth above; beneath whitish, reticulately-veined, with a stout midrib. Petioles short, channelled, wrinkled. Racemes towards the top of the twigs, axillary, scarcely terminating, straight, simple, angular, slightly pubescent, without bractes, when in flower nodding a little, when in fruit from erect spreading. Flowers in every respect similar to those of the former, except that the calyxes are more ciliate, and the segments of the corollas erect. The unripe fruit is slightly pubescent, but the structure is the same as in *A. salicifolia*. These two handsome species of *Andromeda*, differ scarcely at all in their fructification: the structure of their leaves also is the same, and they can be distinguished only by the form of their leaves. This however has none of those lines parallel to the midrib, which are so conspicuous in the other species. It is a native of the isle of Bourbon, where it was found by Commerson^b.

23. 24. 25. Natives of Jamaica^c.]

PROPAGATION AND CULTURE.

Most of the sorts are hardy deciduous shrubs, delighting in moist ground. They may be increased by their creeping roots, which put up suckers at a distance, which may be taken off with roots, and transplanted where they are designed to remain; for they do not bear to be often removed. [Such also as are imported from America by the seedsmen, may be propagated by seed, which must be sown in the spring, in a bed of moist earth. They may also be increased by layers, in autumn.]

The 13th sort requires to be sheltered from hard frost in winter, but in the summer should be frequently watered. It is a difficult plant to keep in gardens, as it grows naturally on boggy places, and requires a greater heat than that of this climate.

[ANDROPÖGON. (Greek, signifying *Man's-beard*.)

Lin. gen. n. 1145. *Schreb.* 1566. *Roy. lugdb.* 52. *Juss.* 30.

Class. 23. 1. Polygamia Monoecia.

Nat. order of Gramina or Grasses.

GENERIC CHARACTER.

* *Hermaphrodite flowers sessile.*

CAL. a glume, one-flowered, two-valved, oblong, obtuse, cartilaginous, awnless; the outer valve concave, flattish at the back, embracing the inner, which is narrower, with its edges.

COR. a two-valved glume, less and more slender than the calyx: outer valve smaller, frequently very small, within the inner valve of the calyx, sharp or bifid at the end, in most of the species awned: awn terminating, or from the cleft of the glume, long, with a bent joint, and twisted at bottom: the inner valve lanceolate, doubled at the edges. *Nectary* two-leaved: leaflets thickish, diaphanous.

STAM. *Filaments* three, capillary, very tender: *anthers* oblong, forked at both ends, incumbent.

PIST. *Germ* oblong: *styles* two, capillary: *stigmas* oblong, feathered.

PER. none, glumes of the corolla and calyx involving and inclosing the seed.

SEED. solitary, oblong, covered; armed with the awn of the corolla, which easily falls off.

* *Male flowers peduncled, single, or in pairs to each hermaphrodite.*

CALYX, COROLLA, and STAMENS as in the others, only that the corolla has no awn.

ESSENTIAL CHARACTER.

HERM. *Cal.* glume one-flowered. *Cor.* glume awned at the base. *Stam.* three. *Styles* two. *Seed* one.

MALE. *Cal.* and *Cor.* the same. *Stam.* three.

^p Hort. kew. ^q Linn. ^r Hort. kew. ^s Ibid. ^t Ibid.
^u Jacquin. ^x Hort. kew. ^y Linn. ^z Hort. kew. ^a Linn.
^b Forst.

^c Smith ic. ined. ^d Ibid. ^e Swartz prodr.

1. *Andropogon caricosum*.
Lin. spec. 1480. Reich. 4. 299. Thunb. jap. 39.
Gramen caricosum. Rumph. amb. 6. t. 7. f. 2. A.
Spike solitary, imbricate; seeds shaggy; awns naked,
contorted.
2. *Andropogon contortum*.
Lin. spec. 1480. syst. 903. Reich. 4. 299. suppl.
432. Allion. ped. t. 91. f. 4. Retz. obs. 3. 43.
n. 94.
Ægilops maderaspatana, &c. Scheuch. gram. 92.
Gram. secalinum indicum, &c. Pluk. alm. t. 191.
f. 5. Mor. hist. f. 8. t. 4. f. ult.
Spike solitary: male flowers awnless on the back of the
spike; female flowers on the belly of it, twice as long
as the males, with twisted approximating awns,
longer than the whole spike.
3. *Andropogon crinitum*.
Lin. syst. 903. Thunb. jap. 40. t. 7.
Spike solitary, shaggy: awns naked, jointed, very long.
4. *Andropogon divaricatum*.
Lin. spec. 1480. syst. 903. Reich. 4. 299. Gron.
virg. ed. 2. 159.
Lagurus humilior, &c. Gron. virg. 135.
Spike oblong; flowers woolly, remote, divaricate: awn
flexuose, naked.
5. *Andropogon Gryllus*.
Lin. spec. 1480. syst. 903. Reich. 4. 299. Amæn. 4.
p. 332. Hall. belv. n. 1412. (Phoenix). Gouan
monsp. 513. Scop. carn. n. 1235. Villars
dauph. 2. 68.
Ægilops bromoides spica purpurascens. Scheuch.
gram. 267. t. 6. f. 1.
Gram. sparteum festuceum, &c. Barr. ic. 18. f. 2.
Gram. avenaceum, &c. Monti p. 57. ic. 67.
Peduncles of the panicle entirely simple, three-flowered;
the hermaphrodite floscule sessile, awned, ciliate,
bearded at the base.
6. *Andropogon saccharoides*.
Swartz prodr. 26.
Branches of the panicle simple, florets in pairs, her-
maphrodite awned sessile, the other awnless pedi-
celled withering, pedicel and rachis woolly.
7. *Andropogon nutans*.
Lin. spec. 1480. syst. 903. Reich. 4. 320. Gron.
virg. 133. 158.
Panicle nodding: awns twisted, polished; glumes of the
calyx shaggy.
8. *Andropogon ciliatum*.
Lin. syst. 903. Thunb. jap. 40.
Panicle nodding; outer calyx many-flowered, ciliate;
awns contorted, hairy.
9. *Andropogon ferratum*.
Lin. syst. 903. Thunb. jap. 41.
Panicle loose: one floscule sessile, villose at the base;
the other pedicelled, with the pedicel villose, and
shorter than the calyx.
10. *Andropogon cotuliferum*.
Lin. syst. 903. Thunb. jap. 41.
Panicle spreading, villose: awn twisted, naked: pedi-
cels clubbed or swelling at top, and hollowed like a
saucer or dish.
11. *Andropogon cymbarium*.
Lin. syst. 903. mant. 303. Reich. 301.
Panicle scattered; bractes boat-form; flowers trans-
verse, awned, three-fold.
12. *Andropogon squarrosus*.
Lin. syst. 904. suppl. 433.
A. muricatum. Retz. obs. 3. 43. n. 95. & 5. n. 49.
Panicle crowded, glumes awl-shaped, rugged.
13. *Andropogon prostratum*.
Lin. syst. 904. Reich. 4. 301. mant. 304.
Peduncles in five-flowered umbels without calycles, the
hermaphrodite floscule awned.
14. *Andropogon fastigiatum*.
Swartz prodr. 26.
Spikes of the panicle solitary, peduncles elongate sub-
fastigate, rachis woolly, floscules awned, male fertile.
15. *Andropogon alopecuroides*.
Lin. spec. 1481. syst. 904. Reich. 4. 302. Gron.
virg. 133. 158.
Gram. Dactylon, &c. Sloan. jam. 1. t. 14. t. 70. f. 1.

- Panicle loose, rachis woolly, a twisted awn to each
floscule.
16. *Andropogon distachyum*.
Lin. spec. 1481. syst. 904. Reich. 4. 302.
Spikes two, terminal: culm undivided.
 17. *Andropogon Schænanthus*. Sweet Rusß or Ca-
mel's-bay.
Lin. spec. 1481. syst. 904. Reich. 4. 302. mat.
med. 219. Rumph. amb. 5. 181. t. 72. f. 2.
Lour. cochinch. 646. Reliqu. Rudb. t. 21. f. 3.
Lagurus. Fl. zeyl. 465.
Gram. ad junceum accedens aromaticum majus syria-
cum. Mor. hist. f. 8. t. 9. f. 25.
Gram. dactylon aromaticum, &c. Pluk. alm. t. 190.
f. 1.
Schænanthus. Bauh. hist. 2. 515. Raii hist. 1310.
Spike of the panicle conjugate, ovate-oblong; rachis
pubescent, floscules sessile with a twisted awn.
 18. *Andropogon virginicum*.
Lin. spec. 1482. Reich. 4. 303. Roy. lugdb. 53. 2.
Gron. virg. 132. 159. Brown. jam. 365. n. 3.
Gram. dactylon bicorne tomentosum minus. Sloan.
jam. 1. t. 68. f. 2.
Spikes of the panicle conjugate, peduncles simple, rachis
woolly, floscules awnless, the male one wasting.
 19. *Andropogon bicorne*.
Lin. spec. 1482. Reich. 4. 303. Brown. jam. 365.
n. 4. Swartz obs. 382. Gron. virg. ed. 2. 159.
Lagurus, &c. Lin. hort. cliff. 25. 2. Gron. virg.
135.
Gram. dactylon bicorne tomentosum maximum,
spicis numerosis. Sloan. jam. 1. t. 15.
Spikes of the panicle conjugate, peduncles branching
very much, rachis woolly, awn caducous, male flos-
cule wanting.
 20. *Andropogon hirtum*.
Lin. spec. 1482. syst. 904. Reich. 4. 303. Roy.
lugdb. 53. 1. Gron. virg. 133. 159. Reliqu.
Rudb. t. 7. f. 3. & t. 15. f. 1.
Gram. dactylon spica gemina. Scheuch. gram. 95.
Gram. dactylon siculum, &c. Pluk. alm. t. 92. f. 1.
Spikes of the panicle conjugate, calyxes shaggy.
 21. *Andropogon insulare*.
Lin. spec. 1480. Reich. 4. 303. Amæn. 5. 412.
Brown. jam. 365. n. 2. Swartz obs. 383.
Gram. avenaceum, &c. Sloan. jam. 1. t. 14. f. 2.
Panicle loose, smooth; floscules double, awnless; one
pedicel shorter, calyxes woolly.
 22. *Andropogon barbatum*.
Lin. syst. 904. Reich. 4. 304. mant. 302. Retz.
obs. 3. 43. n. 96.
Spikes digitate, calyxes permanent, corollas ciliate.
 23. *Andropogon pubescens*.
Ait. hort. kew. 3. 423.
Chloris ciliata. Swartz prodr. 25.
Spikes digitate, calyxes subtriflorous, outer petals awn-
ed; keel and edge of the hermaphrodite flower
ciliate.
 24. *Andropogon Nardus*.
Lin. spec. 1482. Reich. 4. 304. mat. med. 219.
Lagurus. Fl. zeyl. n. 45.
Branches of the panicle superdecompound, proliferous.
 25. *Andropogon muticum*.
Lin. spec. 1482. Reich. 4. 305.
Spikes digitate, mostly three: floscules alternate, ses-
sile, awnless.
 26. *Andropogon Ischæmum*.
Lin. spec. 1483. syst. 904. Reich. 4. 305. mant.
500. Gouan. hort. 513. Jacqu. austr. 4. t. 384.
Schreb. gram. 2. p. 66. t. 33. Scop. carn.
n. 1237. Neck. gallob. 414. Pollich. palat.
n. 935. Hall. belv. n. 1414. Villars dauph.
2. 68.
Gram. dactylon, &c. Scheuch. gram. 94. t. 11.
f. 11. A. B. Barr. ic. 753. f. 2.
Many digitate spikes, floscules sessile, awned and awn-
less, pedicels woolly.
 27. *Andropogon fasciculatum*. Many-spiked Andro-
pogon.
Lin. spec. 1483. Reich. 4. 305. Ait. hort. kew.
3. 424. Brown. jam. 365. n. 6?
Chloris radiata. Swartz prodr. 26. obs. 383.
Gram.

Gram. dactylon, &c. *Mor. hist. f. 8. t. 3. f. 15.*
Sloan. jam. 1. t. 69. f. 2?

Spikes fascicled, very many, smooth; calyxes two-flowered; valves acute, smooth and even, the outer like petals and awned, the inner floscule barren.

28. *Andropogon polydactylon.*

Lin. spec. 1483. Reich. 4. 306. Amæn. 5. 412.
Brown. jam. 364.

Chloris polydactyla. Swartz prodr. 26.

Gram. dactylon elatrus, &c. *Sloan. jam. 1. t. 65. f. 2.*

Spikes fascicled, outer petals awned, those of the lower floscule ciliate-bearded.

29. *Andropogon glaucum.*

Retz. obs. 5. 20. n. 46.

Panicle leafy, involuclers and calyxes two-flowered, calyxes of the sessile flowers three-valved, of the peduncled ones two-valved.

30. *Andropogon ferratum.*

Retz. obs. 5. 21. n. 47.

Spike simple imbricate with two rows of awned sessile flowers, and two of awnless pedicelled ones, calyxes one-valved.

31. *Andropogon incurvatum.*

Retz. obs. 5. 21. n. 48.

Spikes filiform subdigitate, flowers twin, the female pedicelled and awned, the male sessile and awnless, calyxes one-valved.

32. *Andropogon binatum.*

Retz. obs. 5. 21. n. 50.

Spikes twin, woolly, one valve of the calyxes acuminate, the other truncate three-toothed, the larger petal awned.

33. *Andropogon aciculatum.*

Retz. obs. 5. 22. n. 51. Rumph. amb. 6. p. 14. t. 5. f. 1.

Panicle contracted upright, peduncles three-flowered, male flowers two pedicelled acuminate, female sessile awned.

34. *Andropogon Bladhii.*

Retz. obs. 2. 27. n. 96.

Spikes about eight, hermaphrodite floscule sessile awned, neuter peduncled ciliate awnless.

35. *Andropogon provinciale.*

Retz. obs. 3. 43. n. 97.

Spikes fascicled smooth, floscules alternate subsessile, directed one way, awned.

DESCRIPTIONS, &c.

Most of these Grasses are natives of the East Indies, America, or the West India islands. Only the second, fifth, sixteenth, twentieth, twenty-sixth, and thirty-fourth, are found wild in Europe.

1. Culm single or branching, round, jointed, smooth, two feet high or more. Leaves alternate, sheathing, sheaths shaggy at top, sword-shaped, entire, hairy; spikes terminating, shaggy; seeds wholly covered with a ferruginous shag; awn spreading, longer than the flower^a. A native of Amboina and Japan.

2. Culms many, filiform, weak, polished, reddish: from three to five joints, sickle-shaped. Leaves seven inches long, polished, subciliate at the base and throat. Spike peduncled, two inches long, narrow, polished, imbricate, with male and female flowers. The males subpedicelled, pressed, alternate; the calyx one-valved, the corolla two-valved, with the valves awnless, sublanccolate, polished, and a few hairs standing out; anthers yellow. The females cylindric, gray, pressed; calyx one-valved, the awn taking the place of the other valve; pistils hairy, blood-red^b. A native of the East Indies. Introduced in 1779, by Anthony Chamier, Esq.^c

3. Roots filiform, fascicled. Culms many, single and branched, filiform below, capillary above, jointed, erect, smooth, from seven inches to a foot high: branches alternate, like the culm, sometimes branching again. Leaves alternate, villose at the joints, smooth, entire. Spikes solitary, sometimes double, linear, an inch long. The rachis at the insertion of each flower villose, with short, white,

stellate hairs. Glumes of the calyx smooth, awn with a reddish joint at the base, thence capillary, very slender, spreading horizontally, naked, many times longer than the flower^d. A native of Japan. Found by Thunberg.

4. Spike conical, lax, nodding. Glumes brown, hard, shining, beset with a few short villose hairs. Awn very long, brown, lucid. Native of Virginia^e.

5. Culm three feet high. Leaves a line and upwards in breadth, shaggy. On the top a loose spike. Peduncles three or four-flowered: the lowest flower sessile, with a pointed, elliptic, shortly hirsute, channelled, hard glume, opposite to which is a tender shaggyish one. The stamens are inclosed in the furrow of the glume, and a small two-horned seed in the furrow of the scape: the two side flowers are petiolate, similar and equal, with very strong petioles, the two glumes of the calyx unequal, hard, pointed, ending in a tender awn. The two glumes of the corolla tender, feathered, violet-coloured, inclosing the stamens, and a very small seed: the fourth flower with a jointed awn, flat below, shaggy above, has a channelled hard glume, emitting a flexuose weak awn: to this is opposed another awn, far greater and bent; then a glume much less, and tender; stamens are interposed between them, and a very small seed^f. It has a very short wool at the base of the hermaphrodite flower^g. The two side male flowers are diandrous^h. A native of Piedmont, Verona, Montpellier, Carniola, the Grisons, and Switzerland.

6. Native of Jamaicaⁱ.

7. Peduncles naked; pedicels two-flowered; both flowers awned, one sessile: a short down in the glumes themselves^k. A native of Virginia and Jamaica.

8. Culm round, jointed, simple, erect, two feet high. Leaves sheathing, with long scattered hairs, especially near the joints, streaked and of the length of the culm. The outer calyx or involucre of the flower convolute, ciliate at the base, smooth, sharp-pointed, twice as long as the flowers: the proper calyx two-glumed, equal, awnless; the glumes lanceolate, and villose: a ferruginous down on the outside of the proper calyx, shorter than the calyx. Corolla bivalve, with one valve rather less than the calyx; the other evanescent, but in its place a villose twisted spreading awn, the length of the involucre. Filaments very short; anthers linear. Pistils in the barren flowers, which are numerous, filiform, the length of the calyx^l. Found by Thunberg on the mountains of Nagasaki in Japan; flowering in september.

9. Culm simple, round, erect, three feet high. Leaves veined, smooth, the edge of the sheaths shaggy, ferrate and ciliate. Panicle ferruginous, about seven inches long. Peduncles capillary, flexuose, erect, smooth. Floscules two, in the teeth of the peduncles: the calyxes, at bottom black and hairy; above smooth: awn contorted, smooth, four times as long as the flower, and deciduous^m. A native of Japan.

10. Culm round, streaked, smooth, simple, jointed; a finger in thickness, and two feet in height. Leaves sheathing, villose at the opening of the sheath, linear, nerved, edged, with the edge very slenderly ferrate, smooth, a foot long. Panicle superdecompound, with the floscules deciduous: peduncles capillary, flexuose; pedicels very short; rachis flexuose, with the denticles villose. Glume of the calyx lanceolate, acuminate, streaked, villose, rugged. Awn jointed spreading, twice as long as the calyx. This grass is singular in having all the pedicels hollow at top to receive the flowerⁿ. A native of Japan.

11. Culms a fathom high, polished, full, erect, almost covered with sheaths, size of a quill. Leaves rather large, a foot long, streaked, rough on the

^d Thunberg.

^b Scop.

^c Gron. virg.

ⁱ Swartz.

^m Thunberg.

^f Haller.

^k Linneus.

^a Ibid.

^g Linneus.

^l Thunberg.

^a Thunberg.

^b Lin. suppl.

^c Hort. kew.

edge, sheaths smooth. Panicle a foot long, on capillary pedicels. Bracte like the calyx in a compound flower, boat-shaped or ovate, acuminate, concave, membranaceous, purplish, placed transversely, containing three flowers, placed also transversely on a short hairy pedicel, arising from the bosom of the bracte. Three flowers (besides the accessory ones,) sessile on a common pedicel (within the bracte;) with a common two-leaved calyx, the leaflets equal, lateral, lanceolate, the length of the florets, distant. Hermaphrodite floscules three, sessile-subulate, with a long twisted, terminal awn. Male floscules two, equal, narrower, awnless. Hermaphrodite floscules on the proper pedicels, except a middle hermaphrodite floscule, to which one male floscule is adjacent^o. A native of the East Indies.

12. Culms smooth. Leaves somewhat rugged. Hermaphrodite flower sessile, males pedicelled: glumes narrow, one-flowered, ending in a very long cusp, especially the outer glume of the calyx, smooth upwards but rough downwards, with cusps turned up: corollas ciliate. In the panicle and glumes it resembles an *Agrostis*^p. Koenig observed it in Ceylon, swimming on deep pools. It is used by the natives for its pleasant smell: they also make fans of it.

13. Culms many, a foot long, very branching, jointed, smooth, prostrate, rooting. Leaves many, alternate, smooth, with a rough edge, scarce longer than their sheaths, which are compressed and broader than the leaf. Peduncle filiform, from the last axils of the leaves, and tops of the branches, terminated by a small five-flowered umbel. No common calyx, but a short beard. One central floret hermaphrodite: glume bivalve oblong, with a twisted, long awn. Two male florets very like the other, but awnless, pedicelled, sitting on the base of the hermaphrodite floret, with pedicels the length of it. Side florets of the umbel four, equal, pedicelled, awnless, male^q. A native of the East Indies.

14. Native of Jamaica^r.

15. The down longer than the flowers, even in the very glume^s. A native of Jamaica and Virginia.

16. Above a foot high. Leaves flat. The two spikes equal, oblong, erectish, each having twenty florets at least. Pedicels close, very short, flattish, hairy at the base, broader above. Flowers solitary: calyxes one-flowered, the outer valve smooth, subtruncate, scariose, and pubescent at top, with a long, jointed, spreading awn; the inner valve very small^t. Linneus says, from Burser, that it grows wild in Switzerland. Scheucher had it from Smyrna. Haller thinks this grass to be the same with the *Festuca* figured by Boccone in Mus. t. 8. f. 1. Linneus gives Caspar Bauhin's name, which Boccone adopted, to the twentieth species.

17. Perennial, with a creeping root. Culm short, erect, solid, forming tufts. Leaves three feet long, reclining, strigose, flat, striated, scabrous, bright green, sweet. Panicle somewhat declining, slender, half a foot in length^u. Calyxes smooth. Native of Arabia and India^w. Cultivated in the gardens of China and Cochinchina, where the inhabitants use it to season their meat^x.

This is brought over from Turkey in bundles, about a foot long. When in perfection, it has an agreeable smell, with a warm, bitterish, not unpleasant taste. It was formerly employed as a warm stomachic and deobstruent, but in this country, more common aromatic vegetables have now superseded its use. Being kept in the shops only as an ingredient in Mithridate, and Theriaca, and these compositions being no longer found in the Pharmacopoeias; the *Schoenanthus*, or *Funcus odoratus*, is left out of our Materia medica^y.

18. This plant is the height of a man, declining: culm slender, smooth, joints hardish. Leaves ensiform, and ventricose, striated; outwardly smooth

and green, inwardly gray; from each axil proceed two branches, besides the ascending culm, one greater than the other. On each branch is a leaflet, from the axil of which grow two, equal, filiform peduncles, covered with white wool at the end, and terminated by a still smaller leaflet, tubulous below the middle, but expanding above: this leaflet incloses two very loose, long spikes; the flowers are distant, on long hairy peduncles; they are surrounded at the base with white hairs longer than the flowers, whence the whole spike has a white villose appearance^z. A native of America.

19. Culm from three to six feet high, upright, simple, round, smooth. Leaves serrate. Panicle fastigiate, a foot long, loose but not diffused. Peduncles numerous, from the terminating sheaths of the culm, upright, branched, subdivided. Pedicels filiform, long, upright. Spicules small, terminating, hairy, whitish, solitary or twin. Floscules awnless, concealed by villose hairs: hermaphrodite, subsessile, with one or two males by the side of it; these are pedicelled and much smaller. Native of the East Indies, on dry hills, and there called by the English *Fox-tail Grass*².

20. Peduncles roughly hairy, as are also the rachis and glumes, the hairs of the latter not longer than the flower^b. A native of Portugal, Italy, Sicily and Smyrna. Compare this with the sixteenth species.

21. This has a thin, contracted panicle; a three-glumed calyx, and the wool of the calyx pressed close. A native of Jamaica. See *Panicum lanatum*. Rottboel act. Hafn. for 1778. p. 269. t. 1. f. 2. The conformity of the valves; and the absence of the awn, remove this species from the Andropogons. The male flowers also are frequently wanting^c.

22. Culm jointed, smooth, erect, simple, a foot high, frequently branched. Leaves three, alternate, remote, narrow, with rough edges: sheaths sometimes smooth, but more frequently bearded and ciliate; they are often the length of the leaf. Spikes digitate, ten, linear, equal, all pointing outwards, erect, sessile. Calyxes permanent, even after the fructification is dropped. Calyx two-valved, two-flowered, sessile, valves lanceolate, acute; the outer the length of the corolla, the inner shorter; florets two, the female below the male. The female floret has the outer petal ovate, concave, ciliate; awn terminal, straight, long; inner petal less, smooth, awnless. The male floret has the outer petal obcordate, arched, very obtuse, swelling, with a straight terminal awn; inner petal roundish, arched, very obtuse, with a straight terminal awn also^d. A native of the East Indies. Introduced in 1777, by Daniel Charles Solander, LL.D^e.

23. This is a native of Jamaica, from whence it was sent by Mr. Gilbert Alexander. It was introduced at Kew, in 1779; and flowers from July to September. It is perennial^f. Swartz has placed this, with several other species of this genus, and of *Agrostis*, under a new genus, which he has entitled *Chloris*.

24. The size of Reed. From the axils of the upper leaves, and the flat side of the culm, from a sheath, proceed two peduncles, the shorter of which produces short peduncles, which are again prolific; but the longer peduncle is generally prolific: hence the panicle is mixed with leaflets resembling calyxes^g. Indian Nard or Spikenard, as brought to us, is a congeries of small tough, reddish-brown fibres, forming a bunch about the size of a finger. It was kept in the shops only as an article in Mithridate, and Theriaca; and is said to be used among the orientals as a spice. It is moderately warm and pungent, accompanied with a flavour not disagreeable^h.

There is an account of the true *Nardus indica* in the Philosophical Transactionsⁱ by Dr. Blane. It was

^o Lin. mant.
^s Linneus.

^p Lin. suppl.
^t Ibid.

^q Lin. mant.
^x Loureiro.

^r Swartz.
^w Linneus.

^y Loureiro.

^z Lewis.

^z Royen.

^d Lin. mant.

^h Lewis.

^a Swartz.

^c Hort. kew.

ⁱ Vol. 80. part. 2. for 1790. p. 284, &c.

^b Linneus.

^f Ibid.

^e Swartz.

^g Lin. zeyl.

discovered

discovered in India by his brother in december 1786, after crossing the river Rapti, about twenty miles from the foot of the northern mountains; where perceiving the air to be perfumed by an aromatic smell, and asking the cause, he was told that it proceeded from the roots of the grass trodden out of the ground by the elephants and horses. The country was wild and uncultivated, and this was the common grass which covered the surface of it, growing in large tufts close to each other, very rank, and in general from three to four feet in length. Transplanted into a garden at Lucknow it thrived exceedingly, and in the rainy season shot up spikes about six feet high. The whole plant has a strong aromatic odour; but both the smell and the virtues reside principally in the husky roots, or lower parts of the stalks, which in chewing have a bitter, warm, pungent taste, accompanied with some degree of that kind of glow in the mouth which cardamoms occasion.

It is remarkable that the circumstance of the discovery, corresponds, in a striking manner, with an occurrence related by Arrian^k: that during the march of Alexander the Great through the deserts of Gadosia, the air was perfumed by the Spikenard, which was trampled under foot by the army; and that the Phœnicians collected large quantities of it, as well as of myrrh, in order to carry them into their own country, as articles of merchandise. Gadosia or Gedrosia answers to the modern Mackran or Kedge-Mackran, a maritime province of Persia, situated between Kerman (the ancient Carmania) and the river Indus, being of course the frontier of Persia towards India; and this desert lies in the middle of the tract of country between the river Indus and the Persian gulph, and within a few days march of the Arabian or Erythræan sea; which is the northern part of the Ethiopic ocean, and not the Red Sea. It should seem that the Nard was found towards the eastern part of it; for Alexander was then directing his route to the westward, and the length of march through the desert afterwards was very great.

Garcias ab Horto, a Portuguese, who resided many years at Goa, in the sixteenth century, has given a figure of the roots, or rather the lower part of the stalks, which corresponds with Dr. Blane's specimens; he says, that there is but one species of *Nardus* known in India, either for the consumption of the natives, or for exportation to Persia and Arabia. It is remarkable, that he is perhaps the only author who speaks of it in its recent state from his own observation. Rumphius mentions having seen a dried specimen, of which the leaves were almost five feet long; and that Mackran was one of the countries from whence it was brought.

It is probable that the *Nardus* of Pliny, and great part of what is now imported from the Levant, and found under that name in the shops, is a plant growing in the countries on the Euphrates, or in Syria, where the great emporiums of the eastern and western commerce were situated. There is a *Nardus Assyria* mentioned by Horace; and Dioscorides speaks of the *Nardus Syriaca* as different from the *Indica*, which certainly was brought from some of the remote parts of India; for both Dioscorides and Galen, by way of fixing more precisely the country from whence it comes, call it also *Nardus Gangites*.

It is called by the natives *Terankus*, which means literally, in the Hindoo language, Fever-restrainer, from the virtues they attribute to it in that disease. They infuse about a drachm of it in half a pint of hot water, with a small quantity of black pepper. This infusion serves for one dose, and is repeated three times a day. It is esteemed a powerful medicine in all kinds of fevers, whether continued or intermittent.

It was highly valued anciently as an article of luxury as well as medicine. The favourite perfume which was used at the ancient baths and feasts was

the *unguentum nardinum*; and it appears, from a passage in Horace, that it was so valuable, that as much of it as could be contained in a small box of precious stone, was considered as a sort of equivalent for a large vessel of wine, and a handsome quota for a guest to contribute at an entertainment, according to the custom of antiquity:

—*Nardo vinum merebere,*

Nardi parvus onyx eliciet cadum.

It may here be remarked, that as its sensible qualities do not depend on a principle so volatile as essential oil, like most other aromatic vegetables, this would be a great recommendation to the ancients, as its virtues would thereby be more durable; and they were not acquainted with the method of collecting essential oils, being ignorant of the art of distillation. The fragrance and aromatic warmth of the *Nardus*, depends on a fixed principle like that of Cardamoms, Ginger, and some other spices. I tried, says Dr. Blane, to extract the virtues of the *Nardus* by boiling water, by maceration in wine, and proof spirits, but it yielded them sparingly and with difficulty to all these menstrua.

It had a high character among the ancients as a remedy both external and internal. It is one in the list of ingredients in all the antidotes, from those of Hippocrates, as given on the authority of Myrepus, and Nicolaus Alexandrinus, to the officinals which have kept their ground till modern times, under the name of Mithridate and Venice Treacle. It is recommended by Galen and Alexander Trallian in the dropsy and gravel. Celsus and Galen recommend it both externally and internally in pains of the stomach and bowels. The first occasion on which the latter was called to attend Marcus Aurelius was, when that emperor was severely afflicted with an acute complaint in the bowels, answering by the description to that we now call the *Cholera morbus*; and the first remedy he applied was warm *Oleum nardinum* on wool to the stomach. He was so successful in the treatment of this illness, that he ever afterwards enjoyed the highest favour and confidence of the Emperor.

It appears that the natives of India consider it as an efficacious remedy in fevers, and its sensible qualities promise virtues similar to those of other simples now in use among us in such cases. Besides a strong aromatic flavour, it possesses a pungency to the taste little inferior to the *Serpentaria*, and much more considerable than the *Contrayerva*. It is mentioned in a work attributed to Galen, that a medicine composed of this and some other aromatics, was found useful in long protracted fevers, which are the cases in which medicines of this class are employed in modern practice.

25. Culms seven inches high, many, slightly hairy, as are also the sheaths and leaves; the latter of which are convolute-awl-shaped. Spikes linear, jointed, pointing one way. Calyxes two-valved, acute, gaping at the sides, green: petals contrary to the calyx, coloured, tender¹. A native of the Cape of Good Hope.

26. This has two floscules close together, in each tooth of the spike; one hermaphrodite, the calyx hirsute, the inner petal awned; the other, which is the male, awnless, the pedicel hirsute^m. The male floscule pedicelled; the other sessile: the awn from the receptacle. It has the appearance of *Panicum Daëtylon*. The spikes opposite, and alternate, as in *P. sanguinale*, but pedicelledⁿ. During the time of flowering, the spikelets recede from the scape, and stand in a vertical direction: when the germ is impregnated, they again approach the scape^o. A native of the southern parts of Europe, growing on mountains, hills, and other dry situations. Introduced in 1778, by Mr. Thomas Blackie^p.

27. A native of Jamaica. Found by Mr. Gilbert Alexander. Introduced in 1779. It flowers from July to September^q.

¹ Linneus.

^m Ibid.

ⁿ Scop.

^o Pollich.

^p Hort. kew.

^q Ibid.

^k Book 6. chap. 22.

28. Swartz says, that on inspecting the Linnean herbarium, he found this to be the same with *Agrostis radiata* of Linneus, which, together with some other species, on account of the peculiar disposition of the parts of the flower, he unites in a new genus, under the name of *Chloris*. He informs us that the synonym from Browne, is a different grass; and that Sloane's is *Paspalum virgatum*. Spikes from seven to eleven, rising from the top of the stalk: they are all slender, and flowered underneath*. A native of Jamaica.

29. Culms filiform, a foot high, leafy. Leaves linear, flat, glaucous. Panicle sparse. Peduncles short, from the sheath of a leaf, solitary or several. Involucre short, boat-shaped, terminated by a short, broadish awn; hence proceed two short pedicels, each of which is furnished with an involucre like the involucre, and containing two flowers, one sessile, the other peduncled. The sessile floret has a three-glumed, cartilaginous calyx; the two side valves somewhat sickle-shaped, flat; the third longer, convolute, straight, acuminate; corolla hermaphrodite or female, one valve boat-shaped and larger, the other flat and lanceolate, both hyaline. The peduncled floret has a pedicel the length of the flower, sessile, thick, rigid; calyx bivalve, acute, longer; this is two-flowered as well as the other; corollas bivalve, linear-lanceolate, hyaline, one female, the other neuter; stigmas feathered. Native of the East Indies; whence it was sent by Koenig, who supposed it to be a species of *Anthistiria*†.

30. Culms filiform, a foot high, branched, leafy; the joints bearded. Leaves linear, smooth. Peduncle elongate, almost capillary. Spike solitary, an inch and half long. Flowers pressed close to the rachis, in four rows: calyxes one-valved, valve ovate blunt green-striated ciliate, corollas two-valved, valves hyaline lanceolate, the inner keeled; anthers, in the male, three linear; germ, in the female, ovate, sharp at both ends, compressed, styles two, awn long brown twisted, inserted at the side of the germ. Native of Bengal. Found there by Koenig†.

31. Culms filiform, two feet high, leafy, branched. Leaves linear, many at the root, few on the culm. Peduncle elongate. Spikes several, filiform, green tinged with brown. Flowers rough with hairs, bearded at the base. Calyxes linear, one-valved, blunt, rough with hairs, brownish-green. Corollas two-valved, lanceolate, hyaline. Awn of the female flower long, twisted, brown to the joint, then whitish, inserted near the base of the germ, which is long and cylindrical. Anthers three, small‡. Found by Koenig in Tranquebar, near rivers.

32. Culms filiform, a foot or a foot and half in height. Peduncles one to three, long, filiform. Spikes an inch long. There is a yellow fasciated lanugo at the teeth of the rachis. The flowers are sessile and beset with the same lanugo. Calyx striated, the larger valve acuminate, the smaller truncate and three-toothed. Outer valve of the corolla linear, with a jointed awn; inner shorter, awnless. Stigmas villose, brown. Observed in the East Indies by Koenig‡.

33. Culms radican at the base, ascending, from a foot to two feet in height, quite simple. Leaves lanceolate, ferrulate-ciliate, the upper ones sheathing. Panicle brownish-purple, stiff, contracted, an inch in length. Receptacle of the sessile flower hairy, and hence two hairy lines run along the peduncle. Sessile flower female, the calyx ciliate with minute prickles, the inner petal acuminate, with a scabrous awn. Calyxes of the male pedicelled flowers subulate, acuminate, angular: corolla none: stamens two: the rudiment of a germ. Native of the East Indies, in barren places‡.

34. Culm simple, round, sparingly leafed, the joints bearded. The leaves have white scattered hairs, especially at the edges of the sheaths, which are naked and striated. Spikes peduncled, termi-

nating, linear, upright, unequal, undivided; the rachis jointed, and hairy, as are also the pedicels. Floscules alternate, geminate, surrounded with white hairs at the base. Awn of the hermaphrodite floscule, long and twisted; stigmas long, black, thickened, shortly hirsute, on short capillary styles. Native of China, and sent from thence by Bladh‡.

35. Root annual. Culms a foot high, leafy, branched at the base. Leaves ciliate on both sides, but not at the edges. Spikes terminating, fifteen or sixteen, by no means umbelled, patulous; flowers on a flat linear rachis. Valves of the calyx subulate, unequal, shorter than the flower, awnless. The hermaphrodite flower has the outer valve longer, embracing, awned; the inner smaller, ciliate. The neuter flower is small, pedicelled, and has a short awn. This species has the appearance of *Andr. barbatum*. Native of the south of France; from whence the seeds were sent by Dahl‡.

PROPAGATION AND CULTURE.

Few of these Grasses have been cultivated in European gardens. The greater part of them would require the protection of a stove, since they are natives of the East or West Indies.]

ANDROPOGON. See *Saccharum* and *Stipa*.

ANDROSACE. (*Androsaxes*, *Diosc.* *Andros axos*, *The shield of a man*; so called from the form of the calyx, in the common species. *Arys*, in composition, is put for great.)

Lin. gen. n. 196. *Reich.* 209. *Schreb.* 257.

Gertn. 50. *Tournef. t.* 46. *Juss.* 96.

Class. 5. 1. Pentandria Monogynia.

Nat. order of Precia. *Lyfimachia* *Juss.*

GENERIC CHARACTER.

CAL. Involucre many-leaved, many-flowered, very small. *Perianth* one-leaved, five-cornered, semiquinquefid, acute, erect, permanent.

COR. monopetalous, salver-shaped: *tube* ovate, involved in the calyx: *border* flat, five-parted: *divisions* ovate-oblong, obtuse, entire: *throat* beset with glands.

STAM. *Filaments* very short, within the tube: *anthers* oblong, erect, included.

PIST. *Germ* globose: *style* filiform, very short: *stigma* globose, included.

PER. *Capsule* globose, fitting on a flat calyx, one-celled, opening into five parts at the top.

SEEDS very many, roundish, gibbous on one side, flat on the other.

REC. erect, free.

OBS. *A. maxima* differs in very large expanding perianths.

ESSENTIAL CHARACTER.

An *Involucre* to the umbel. *Tube* of the corolla ovate, with a glandulous mouth. *Caps.* one-celled, globose.

SPECIES.

1. *Androsace maxima.* *Oval-leaved Androsace.*

Lin. spec. 203. *Reich.* 409. *Jacq. austr.* 4.

t. 331. *Hall. belv. n.* 624. *Mill. fig. t.* 30. *f.* 1.

Scop. carn. n. 201. *Pollich palat. n.* 194.

Perianths of the fruit very large.

[2. *Androsace elongata.* *Cluster-flowered Androsace.*

Lin. syst. 192. *Reich.* 409. *Retz. obs.* 2. 10.

n. 14. *Jacq. austr.* 4. *t.* 330. *obs.* 1. 31. *t.* 19.

Leaves lanceolate-toothed, fruiting umbel elongate, corollas shorter than the angular calyx.]

3. *Androsace septentrionalis.* *Tooth-leaved Androsace.*

Lin. spec. 203. *Reich.* 409. *succ.* 70. *lapp.* 78.

Gertn. fruct. 1. 232. *Fl. dan. t.* 7. *Mill. fig.*

t. 30. *f.* 2. *Buxb. atl. petrop.* 2. 369. *t.* 23. *f.* 2.

Aretia. *Hall. belv. n.* 621.

Leaves lanceolate, toothed, smooth; perianths angular, shorter than the corollas.

4. *Androsace villosa.* *Hairy Androsace.*

Lin. spec. 203. *Reich.* 410. *Jacqu. austr.* 4.

t. 332. *Scop. carn. n.* 202.

* Browne. † Retz. obs. ‡ Ibid. § Ibid. ¶ Ibid. † Ibid.

* Retz. obs.

* Ibid.

Aretia. Hall. *helv.* n. 620. *Sedum*. Clus. *hist.* 62. f. 1. *Chamæjasme Alpina*. Baub. *hist.* 3. 853.

Leaves hairy, perianths shaggy.

5. *Androsace lactea*. Grass-leaved *Androsace*.

Lin. *spec.* 204. Reich. 410. Jacq. *austr.* 4. t. 333.

Scop. *carn.* n. 203.

A. obtusifolia. Allion. *pedem.* p. 90. t. 46. f. 1?

Aretia. Hall. *helv.* n. 622.

Sedum alpinum, &c. Baub. *pin.* 284. Rait *hist.* 1042.

Leaves lanceolate, smooth; umbel many times larger than the involucre.

6. *Androsace carnea*. Awl-leaved *Androsace*.

Lin. *spec.* 204. Reich. 410. Allion. *pedem.* p. 90.

t. 5. f. 2.

Aretia. Hall. *helv.* n. 619. t. 17.

Sedum alpinum. Col. *ecphr.* 2. t. 65. f. 2.

Leaves awl-shaped, smooth; umbel equalling the involucre.

[7. *Androsace filiformis*.

Retz. *obs.* 2. 10. n. 15. Gmel. *fib.* 4. 81. t. 44.

f. 4.

Leaves ovate-toothed petioled, rays of the umbel capillary, corollas exceeding the bell-shaped calyx.

DESCRIPTIONS, &c.

1. Root annual, slender. Leaves spreading on the ground, ovate, acute, sessile, commonly toothed, especially above the middle, thickish, smooth, pale green, sometimes reddish about the edge. Scapes several, simple, round, from two to six inches in height, usually red and somewhat villose, thickened a little at top. Each is terminated by a simple umbel of seven flowers at most, standing single on peduncles about half an inch long. Under the umbel is a large involucre, consisting of as many ovate leaflets as there are peduncles. Calyx twice as large as the corolla, which is white with sometimes a tinge of purple, and the tube yellowish. The tube of the calyx is more villose, and of a pale colour, but the segments are green, ovate, acute and ferrulate; they enlarge much as the fruit ripens, and become of a rufous colour. There are six or more seeds in a capsule; they are dark brown or blackish, and slightly pubescent^a.] The flowers appear in april or the beginning of may; the seeds ripen in june, and the plants soon after perish. It grows naturally among corn, in Austria, Bohemia, [and other parts of Germany, in the Valais, Piedmont, Carniola, and Hungary. It was cultivated here in 1596, by Gerard^b.

2. Root annual, slender, branched. Leaves many, spreading on the ground, acute, sharply toothed, especially above the middle, but sometimes quite entire. Scapes numerous, as many as forty, two or three inches high, filiform, round; the middle one upright, the rest spreading very much. Umbels simple, containing from eight to sixteen flowers, on very slender pedicels, of unequal lengths, lengthening so much after flowering time, as to equal the height of the scape. The involucre consists of nearly as many leaflets as there are peduncles; they are lanceolate, acute, usually quite entire, and twice the size of those in the third species. Calyx angular, green except that the tips of the teeth are red, twice as large as the corolla, not much increased after the flowers are past. Corolla white, except the tube, which is yellow; the segments are slightly emarginate. It has the capsules and seeds as in *A. septentrionalis*, which it much resembles: it differs however from it, in the scapes being more numerous and lower, in the relative size of the calyx, in having less hoary leaves, with more and longer teeth, the involucre larger, and a more tender habit^c. Native of Austria, near Vienna, up to the very suburbs. It flowers in april, and perfects its seeds in june^d. Introduced in 1776, by M. Thouin^e.

3. Root annual (according to Miller biennial). The leaves grow close to the ground, are smooth,

and sometimes slightly indented on the edges; but for the most part they are entire. From their centre arise three or four scapes, about four inches high, each supporting a loose umbel of flowers, on long slender peduncles: the corollas are white^f. Native of Lapland, Sweden, Denmark, Switzerland, Germany, Russia, in mountainous situations. Cultivated by Mr. Miller, in 1755^g.

4. Root perennial. Leaves in little roses, oblong-ovate or lanceolate, quite entire, pale green, ciliate with soft villose hairs, in other respects smooth. Scape usually single, somewhat hirsute, from an inch to two inches in height, upright, supporting a kind of umbel of flowers, rather large in proportion to the plant, and from two to seven or eight in number. Involucre of about five leaves, resembling the others. Calyx hirsute erect. Tube of the corolla yellow, spreading into a white border which at length becomes purple; segments obovate, either quite entire or slightly emarginate, sometimes six in number: the throat is yellow, with five glands; and there is a star of five folds in the middle of the segments. Capsule smooth, shining, roundish, flattened at top^h. Common in the Swiss alps, Jura, &c. in the mountains of Austria and Carniola; in the Pyrenees, &c. Introduced in 1768, by Professor de Saussureⁱ.

5. Root perennial. Leaves in a rose close to the ground, linear, acute, thickish, flat, shining, quite entire, very obscurely ciliate when viewed with a glass. Scapes slender, one or more, green, smooth, upright, three inches long, ending in few flowers, and sometimes in a single one. Peduncles an inch in length. When there are several flowers, the leaflets of the involucre equal them in number; when only one, there is a pair of leaflets, or none. Calyxes yellowish green and half-five-cleft; tube five-cornered and bell-shaped; segments acute, angular at the back. Tube of the corolla yellow, with yellow glands at the throat; segments obcordate, large, emarginate, snow-white. Capsule round, shining, the size of the calyx, containing from four to six seeds^k. Native of the mountains of Switzerland, Austria, and Carniola. Flowering, as does the foregoing, in july and august.

Allioni says, that his *Androsace obtusifolia* (n. 326.) is the same with *Aretia* of Haller, n. 621. Scopoli and Jacquin make *Aretia*, Hall. n. 622. to be the same with this species. It was introduced here in 1768, by Professor de Saussure^l.

6. From each crown of the root proceeds a tuft of linear-lanceolate, dark green leaves, with a very few fine hairs. Scapes three inches high, hirsute. Umbel compact, with from three to seven flowers; sometimes only one. Peduncles shorter than in the foregoing. Corollas flesh-coloured; five yellow glands in the throat; segments not emarginate^m. Native of the Alps and Pyrenees. Introduced in 1768, by Professor de Saussureⁿ.

7. Root short. Bottom leaves toothletted, glaucous. Scapes from two to four, cylindric, striated, filiform. Involucre many-leaved; leaflets filiform, very short. Umbel simple, containing from six to sixteen flowers, with unequal capillaceous rays. Calyx campanulate, five-cornered, very short. Corolla white, small, longer than the calyx; segments quite entire. Gmelin took it for a variety of *A. septentrionalis*. Linneus referred it to *A. elongata*; but it is a very different plant from both^o. It is a native of Siberia.]

PROPAGATION AND CULTURE.

These, being low plants, with small flowers, making no great appearance, are only preserved in botanic gardens.

All the sorts, except the first, require a shady situation. The seeds should be sown soon after they are ripe; otherwise they seldom grow the same year. If permitted to scatter, they will come up of them-

^a Jacquin & Pollich.

^b Hort. kew.

^c Retz & Jacquin.

^d Jacquin.

^e Hort. kew.

^f Miller's figures.

^g Hort. kew.

^h Jacquin & Haller.

ⁱ Hort. kew.

^k Jacquin & Scopoli.

^l Hort. kew.

^m Haller & Allioni.

ⁿ Hort. kew.

^o Retzius.

selfes,

selves, and often succeed better than those which are sown. The annual sorts perish as soon as the seeds are ripe; but the others will live in an open border for several years, and require no other care, but to keep them clean from weeds.

ANDROSACE. See *Aretia*.

ANDROSÆMUM. See *Hypericum*.

ANDRYALA. (*Andros ἀλή, viri erratio, anxietas animi*.)

Lin. gen. n. 915. Reich. 994. Schreb. 1240. Gærtn. t. 158. Juss. 171.

Eriophorus. Vaill. mem. acad. 1721. 20.

Class. 19. 1. Syngenesia Polygamia Æqualis.

Nat. order of *Compositæ Semiflosculosæ*. *Cichoraceæ* Juss.

GENERIC CHARACTER.

CAL. common, many-parted, short, rounded, villose: scales very many, subequal, subulate. (in a double row. G.)

COR. compound imbricate, uniform: Corollules hermaphrodite, numerous, equal. Each ligulate, linear, truncate, five-toothed.

STAM. Filaments five, capillary, very short. Anther cylindrical, tubulose.

PIST. Germ ovate. Style filiform, the length of the stamens. Stigmas two, reflex.

PER. none. Calyx converging, globose.

SEEDS solitary, ovate. Down capillary, the length of the calyx, (sessile. G.)

REC. villose, flattish; (alveolate, hairy. G.)

ESSENTIAL CHARACTER.

Rec. villose. Cal. many-parted, subequal, rounded. Down simple, sessile.

SPECIES.

1. *Andryala integrifolia*. Hoary *Andryala*.
Lin. spec. 1136. syst. 720. Reich. 3. 655. hort. upf. 240. Gærtn. fruct. 2. 361.
Sonchus lanatus. Dalech. hist. 1116. Baub. hist. 2. 1026. f. 2.
S. villosus luteus major. Baub. pin. 124. 1. Park. theat. 809. f. 1.
Hieracium villosum. Raii hist. 231. 3.
β. *A. sinuata*.
Lin. spec. 1137. hort. cliff. 387.
Sonchus villosus luteus minor. Baub. pin. 124. 2. prodr. 6. Park. theat. 809. 2. Raii hist. 231. 4.
Lower leaves runcinate; upper ovate-oblong, tomentose.
- [2. *Andryala cheiranthifolia*. Various-leaved *Andryala*.
L'Heritier stirp. nov. p. 35. t. 18.
A. glandulosa. Lamarck encycl. 1. p. 154.
A. tomentosa. Scop. insubr. 2. p. 12. t. 6.
Leaves runcinate; upper ones lanceolate, entire; down glanduliferous.
3. *Andryala pinnatifida*. Pinnatifid-leaved *Andryala*.
Ait. hort. kew. 3. 129.
α. Tooth-leaved *Andryala*.
Leaves pinnatifid; pinnae distant, toothed.
β. Wing-leaved *Andryala*.
Leaves deeply pinnatifid; pinnae short, entire.
Leaves tomentose, pinnatifid: calyxes tomentose, hairy: hairs rather stiff.
4. *Andryala crithmifolia*. Sampire-leaved *Andryala*.
Ait. hort. kew. 3. 129.
Leaves pinnate, linear, tomentose.]
5. *Andryala ragulina*. Downy *Andryala*.
Lin. spec. 1136. Reich. 3. 656. Mill. fig. t. 146. f. 2. Herm. lugdb. t. 673.
Leaves lanceolate, undivided, denticulate, acute, tomentose, flowers solitary.
6. *Andryala lanata*. Woolly *Andryala*.
Lin. spec. 1137. Reich. 3. 656. amæn. 4. 288.
Hieracium montanum tomentosum. Dill. elth. t. 150. f. 180. Haller belv. n. 37. Mill. fig. t. 146. f. 1.
Leaves oblong-ovate, slightly toothed, woolly: peduncles branching.

DESCRIPTIONS, &c.

1. Near a foot and half in height, with woolly branching stems, having leaves scatteringly set on them, which are oblong and downy. The flowers

are produced in small clusters at the top of the stalks, are yellow, and like those of Sow-thistle. It flowers in July, and the seeds ripen in September.

β. The lower leaves are indented and woolly, but those upon the stem are entire: this seldom rises more than a foot high, supporting a few yellow flowers at the top.

These are annual plants growing naturally in the south of France, Spain, Italy and Sicily. [Cultivated in 1711, in the Chelsea garden^a.

2. Perennial, three feet high, full of milk: with the air of *Cheiranthus incanus*. Stem erect, herbaceous, simple, branch-panicled, at top round, size of the finger, shaggy, marked with the scars of the leaves. Branches alternate, loose, they and the whole plant covered with a down, glanduliferous at the tips: glands tawny, somewhat viscid. Leaves alternate, close, sessile or half stem-clasping; the upper ones lanceolate, entire, gradually less. Panicle terminal, branching, leafy, very loose. Flowers yellow, scarce nodding. Peduncles stiff, one-flowered, round, longer than the opposite leaf. Bractee linear or subulate, sessile, deciduous, with other leafy bractees permanent^b. Native of the island of Madeira. Observed there by Mr. Francis Masson, and introduced in 1777^c.

3. α. A native of Madeira, β. of the Canary islands. Found there by Mr. Francis Masson. It flowers in July and August. Introduced in 1778.

4. Native of Madeira. Found by Mr. Francis Masson. Flowers from June to August. Introduced in 1778.

Both these species are biennials^d.]

5. Lower leaves about four inches long, little more than half an inch broad, very hoary. Stems weak, nine inches high, dividing towards the top into two or three smaller branches, and at each joint a small leaf almost entire; one yellow flower terminates every branch in June and July. This plant being very hoary makes a pretty appearance, intermixed with others whose leaves are green. It will not live abroad, except in a dry soil and warm situation. Robert More, Esq. sent it from Spain; it has also been received from the Cape, and Algiers^e. [Linneus says it is a native of the islands of the Archipelago. Leaves stiffer, more acute, and more acutely toothed than the other species.]

6. Root thick, fibrous. Leaves broader, longer, and more downy. Flower-stems near two feet high, with a single leaf at each joint, whence arise peduncles, each sustaining one large yellow flower. This is biennial, flowers in June, and the seeds ripen in August^f. [According to others it is perennial. The whole plant is white: receptacle generally not villose^g. Native of the south of Europe. Cultivated in 1732, by James Sherard, M. D.^h]

PROPAGATION AND CULTURE.

All these plants may be propagated from seeds; those of the hardy sorts should be sown in the spring, in the place where the plants are to remain. They require no other culture, but to thin them when they are too close, and to keep them clean from weeds.

2. &c. The second, third, fourth, and fifth, require the protection of a green-house, where they flower all the summer, till late in the autumn, frequently perfecting their seeds, by which they may be propagated. The perennial sorts may also be propagated by their creeping roots.

ANDRYALA. See *Leontodon*.

ANEMONE. (*Ἀνεμών, Hippocr. Theoph. and Diosc. from ἄνεμος, the wind: because the flower is supposed not to open, except the wind blows: or rather, because it grows in situations much exposed to the wind.*)

Lin. gen. n. 694. Reich. 752. Schreb. 948. Gærtn. 74. Juss. 232.

Anemone and Pulsatilla. Tournef. 147, 148.

Anemonoides, Anemone-Ranunculus, Hepatica.

Dill. gen. 4, 5.

^a Hort. kew.

^b L'Heritier.

^c Hort. kew.

^d Ibid.

^e Mill. fig.

^f Ibid.

^g Gmel.

^h Hort. kew.

Anemonoides. *Vaill. mem. acad.* 1719.
 Engl. *Wind-flower*, or *Anemone*. Fr. *Anemone*.
 Class. 13. 7. Polyandria Polygynia.
 Nat. order of *Multifloræ*. *Ranunculaceæ* Juss.

GENERIC CHARACTER.

CAL. none.

COR. *Petals* in two or three rows, three in a row, somewhat oblong.

STAM. *Filaments* numerous, capillary, half the length of the corolla: *anthers* twin, erect.

PIST. *Germes* numerous, in a head: *styles* acuminate: *stigmas* obtuse.

PER. none. *Receptacle* globular or oblong, hollowed and dotted.

SEEDS very many, acuminate, retaining the style.

OBS. *Hepatica* Dill. has a three-leaved perianth, remote from the flower: an involucre.

Pulsatilla Tourn. has a leafy, multifid involucre, with the seeds tailed, hairy.

Anemonoides and *Hepatica* Dill. have naked seeds without a feathered tail.

ESSENTIAL CHARACTER.

Cal. none. *Petals* six or nine. *Seeds* many.

SPECIES.

* *Hepatica* with a subcalyculate flower.

1. *Anemone Hepatica*. *Hepatica*.

Lin. spec. 758. *Reich.* 2. 631. *succ.* 480. *mat. med.* 140. *Hall. belv.* 1156. *Fl. dan.* t. 610. *Curtis mag.* t. 10. *Scop. carn.* n. 658. *Pollich pal.* n. 615. *Blackw.* t. 207. *Ger.* 1032. *emac.* 1203. *Park.* 1368. *Raii hist.* 580.

Hepatica. *Mill. dict.*

Leaves three-lobed, quite entire.

** *Pulsatillas* with the peduncle involucre, and the seeds tailed.

2. *Anemone patens*. *Woolly-leaved Anemone*.

Lin. spec. 759. *Reich.* 2. 631.

Pulsatilla polyanthes violacea, anemones folio. *Breyn. cent.* 132. *Helw. puls.* 52. t. 2. 3.

Pulsatilla patens. *Mill. dict.* *Amman. ruth.* 104.

Peduncles involucre, *leaves* digitate, multifid.

[3. *Anemone sulphurea*.

Lin. mant. 78. *syft.* 509. *Reich.* 2. 632. *Hall. belv.* n. 1148.

Peduncle involucre; *leaves* triply-pinnate, hairy, flat, acutely-gashed, *seeds* tailed.

4. *Anemone baldensis*.

Lin. mant. 78. *syft.* 509. *Reich.* 2. 632. *Allion. pedem.* n. 1928. t. 44. f. 3. & t. 67. f. 2. *Hall. belv.* n. 1151. *Scop. carn.* n. 662. t. 26.

Leaves biternate, shaggy.]

5. *Anemone vernalis*.

Lin. spec. 759. *syft.* 509. *Reich.* 2. 632. *succ.* 483. *lapp.* 223. *Hall. belv.* 1147. t. 21. *Fl. dan.* t. 29. *Pollich pal.* n. 516. *Helw. puls.* 63. t. 9. *Raii hist.* 635. 9.

Pulsatilla vernalis. *Mill. dict.*

Peduncle involucre, *leaves* pinnate, *flowers* erect.

[6. *Anemone cernua*.

Lin. syft. 510. *Thunb. jap.* 238.

Peduncle involucre, *leaves* pinnate, *flowers* nodding.]

7. *Anemone Pulsatilla*. *Pasque-flower*.

Lin. spec. 759. *Reich.* 2. 633. *succ.* 481. *mat. med.* 141. *Huds. angl.* 237. *Witb.* 565. *Relb. cantab.* n. 395. *ic.* *Sowerby engl. bot.* t. 51. *Hall. belv.* n. 1146. *Pollich palat.* n. 517. *Scop. carn.* n. 665. *Fl. dan.* t. 153.

Pulsatilla folio crassiflore, et majore flore. *Baub. pin.* 177. *Park. theat.* 341. 2. *Mor. hist. f.* 4. t. 26.

f. 1. *Ger.* 308. 1, 2. & 309. *emac.* 385. 1. *Helw. puls.* 62. t. 8. *Camer. epit.* 392. *Baub. hist.* 3. 409. 2 & 3. *Raii syn.* 260. *hist.* 633.

Pulsatilla vulgaris. *Mill. dict.*

Peduncle involucre, *petals* straight, *leaves* bipinnate.

8. *Anemone pratensis*. *Meadow Anemone*.

Lin. spec. 760. *syft.* 510. *Reich.* 2. 633. *succ.* 482. *Fl. dan.* t. 611. *Woodv.* 400. t. 148.

Pulsatilla pratensis. *Mill. dict.* *Helw. puls.* 66. t. 12. & 65. t. 11.

Peduncle involucre, *petals* reflex at the tip, *leaves* bipinnate.

9. *Anemone alpina*. *Alpine Anemone*.

Lin. spec. 760. *Reich.* 2. 634. *mant.* 406. *syft.* 510. *Jacqu. austr.* 1. 53. t. 85. *Hall. belv.* n. 1149. *Scop. carn.* n. 664. *Crantz austr.* 105. 8. t. 3. f. 2. *Clus. hist.* 244. *Lob. ic.* 282. (*Pulsatilla*.)

Stem-leaves ternate, connate, superdecompound, multifid; *seeds* shaggy tailed.

[10. *Anemone apiifolia*.

Lin. syft. 510. *Jacqu. Misc.* v. 2. p. 47. t. 4. *Scop. carn.* n. 663? *Hall. belv.* n. 1149. β. *Clus. hist.* 1. 245. (*A. sylv.* 3.) *Camer. epit.* 393. *Baub. hist.* 3. 411.

Stem-leaves ternate, connate, superdecompound, multifid, very slender, extremely hairy underneath.]

*** *Anemones* with a leafy stem and tailed seeds.

11. *Anemone coronaria*. *Narrow-leaved Garden Anemone*.

Lin. spec. 760. *Reich.* 2. 634. *Mill. fig.* t. 31. *Ger. herb.* 302. *Park. parad.* 208—212. *Raii hist.* 629—633.

Radical leaves ternate-decompound, involucre leafy.

12. *Anemone hortensis*. *Broad-leaved Garden Anemone*.

Lin. spec. 761. *Reich.* 2. 634. *Ger. prov.* 380. 5. *Hall. belv.* n. 1152. *Curt. mag.* t. 123. *Park. parad.* 204. *Dod. pempt.* 434. 1. *Ger. herb.* 303. f. 5. *Raii hist.* 626.

Leaves digitate, *seeds* woolly.

[13. *Anemone palmata*.

Lin. spec. 758. *Reich.* 2. 635. *syft.* 510. *Mor. hist.* 2. f. 4. t. 25. f. 3.

Leaves heart-shaped, sublobate; *calyx* six-leaved, coloured.

**** *Anemonoides* with a naked flower, and tailed seeds.

14. *Anemone fibrica*.

Lin. spec. 763. *Reich.* 2. 635. *syft.* 510. *Gmel. fib.* 4. p. 199. n. 41.

Stem one-flowered, involucre leafy, obtuse.]

15. *Anemone sylvestris*. *Large white-flowered Wood Anemone*.

Lin. spec. 761. *Reich.* 2. 635. *succ.* 484. *Curt. mag.* t. 54. *Gmel. fib.* 4. p. 176. *Crantz. austr.* 123. n. 5. *Pollich pal.* n. 515. *Hall. belv.* n. 1150. *Park. parad.* 202.

Peduncle naked; *seeds* roundish, shaggy, awnless.

[16. *Anemone fragifera*.

Lin. syft. 510. *Jacqu. Misc.* v. 2. p. 55. *icon. rar.* t. 103. *Hall. belv.* n. 1151. *Baub. pin.* 176. *prodr.* 94.

Peduncle naked; *seeds* roundish, woolly, awnless, gashes of the leaves acute, lanceolate.]

17. *Anemone virginiana*. *Virginian Anemone*.

Lin. spec. 761. *Reich.* 2. 636. *Gartn. fruct.* 1. 357. *Herm. lugdb.* 645. *parad.* t. 18.

Peduncles alternate, very long; *fruit* cylindric; *seeds* shaggy, awnless.

[18. *Anemone decapetala*. *Ten-petalled Anemone*.

Lin. mant. 79. *syft.* 510. *Reich.* 2. 636. *Ard. spec.* 2. p. 27. t. 12.

Stem one-flowered, flower ten-petalled, *leaves* ternate, lobate, radical.

19. *Anemone pensylvanica*. *Pennsylvanian Anemone*.

Lin. mant. 247. *syft.* 510. *Reich.* 2. 637.

Stem dichotomous, *leaves* sessile stem-clasping, the lowest ternate, trifid, gashed.]

20. *Anemone dichotoma*.

Lin. spec. 762. *Reich.* 2. 637. *mant.* 406. *syft.* 511. *dec.* t. 15. *amæn.* 1. p. 155. *Gmel. fib.* 4. p. 197.

Stem dichotomous; *leaves* sessile, all opposite, stem-clasping, trifid, gashed.

[21. *Anemone trifolia*.

Lin. spec. 762. *Reich.* 2. 637. *Dalib. par.* 161. *Gmel. sibir.* 4. 199. n. 39. *Scop. carn.* n. 659.

Leaves ternate, ovate, entire, serrate; *stem* one-flowered.

22. *Anemone quinquefolia*.

Lin. spec. 762. *Reich.* 2. 637. *Pluk. alm.* t. 106. f. 3.

Leaves quinate, oval, serrate; *stem* one-flowered.]

23. *Anemone*

23. *Anemone nemorosa*. *Wood Anemone*.
Lin. spec. 762. *Reich.* 2. 637. *succ.* 485. *Huds.*
angl. 236. *With.* 566. *Relb. cantab.* n. 396.
Hall. belv. n. 1154. *Curt. lond.* 2. 38. *Fl.*
dan. 549. *Petiv. t.* 40. *f.* 9. *Ger.* 306. 2.
emac. 383. 2. *Park.* 325. 1. *Mor. hist. f.* 4.
t. 28. *f.* 10. *Baub. hist.* 3. 412. 2. *Raii hist.*
624. *syn.* 259. 1.
Seeds acute, leaflets gashed, stem one-flowered.
24. *Anemone apennina*. *Mountain Wood Anemone*.
Lin. spec. 762. *Reich.* 2. 638. *Huds. angl.* 237.
With. 567. *Curt. lond.* n. 65.
Ranunculus nemorosus flore purpureo-cæruleo.
Park. theat. 325. *Raii syn.* 259. *Mentz. pug.*
t. 8. *Clus. hist.* 1. 254. 2.
Seeds acute, leaflets gashed, petals lanceolate, nume-
rous.
- [25. *Anemone ranunculoides*. *Yellow Wood Anemone*.
Lin. spec. 762. *Reich.* 2. 638. *succ. n.* 486. *Huds.*
angl. 237. *With.* 567. *Fl. dan. t.* 140. *Hall.*
belv. n. 1153. *Pollich pal. n.* 520. *Scop.*
carn. n. 661. *Ger. herb.* 306. 1. *emac.* 383. 1.
Park. theat. 325. 5. *Baub. hist.* 3. 413. (*Ra-*
nunculus) *Raii hist.* 625. 3.
Seeds acute, leaflets gashed, petals roundish, stem mostly
one-flowered.
26. *Anemone narcissiflora*. *Narcissus-flowered Anemone*.
Lin. spec. 763. *Reich.* 2. 638. *mant.* 406. *syft.*
511. *Hall. belv. n.* 1155. *Jacq. austr.* 2.
t. 159. *Crantz. austr. t.* 3. *f.* 1.
Flowers umbelled; seeds oval-depressed, naked.
27. *Anemone fasciculata*.
Lin. spec. 763. *Reich.* 2. 639.
Ranunculus orientalis. Tourn. cor. 20. *itin.* 3. *t.* 92.
Flowers umbelled, collected, leaves multifid.]
28. *Anemone thalictroides*. *Meadow-Rue-leaved*
Anemone.
Lin. spec. 763. *syft.* 511. *Reich.* 2. 639.
Ranunculus nemorosus, aquilegiæ foliis, virginia-
nus, asphodeli radice. Pluk. alm. 310. *t.* 106.
f. 4.
Flowers umbelled; stem-leaves simple, verticillate;
radical leaves biternate.

DESCRIPTIONS, &c.

1. [The leaves of the year before remain; they are heart-shaped, three-lobed, obtuse, smooth, beneath veined in net-work. Petioles cylindric, long, rising. The bud has generally four outer scales, ovate and membranaceous; three inner, concealing the leaves and flowers. Peduncles three, cylindric, hairy, one-flowered. The flower lies a year complete in all its parts within the bud^a. The corolla has six petals in two rows of three each, lanceolate, and spreading: stamens about twenty-five: seeds oblong-ovate, involved in a silky substance; many of them abortive^b. This plant is astringent, but not in use. It is found wild in Sweden abundantly, in Denmark, Switzerland, France, Spain, Italy, and other parts of Europe; in woods and among bushes; with blue, red, and white flowers, single. I gathered it at the foot of Mont Saleve, in flower, on the 14th of march 1779. It was cultivated in 1596, by Gerard^c.]

There are many varieties of *Hepatica* common in gardens. As, 1. Single and double blue. 2. Single and double red or peach-coloured. 3. Single and double white. 4. Single and double variegated red and white. 5. Single and double violet-coloured. 6. With striped leaves. Parkinson mentions a white with red stamens.—These are some of the greatest ornaments of the spring; the flowers are produced in february and march in great plenty, before the green leaves appear, and make a very beautiful figure in the borders of the pleasure-garden, especially the double sorts, which commonly continue a fortnight longer in flower than the single ones, and the flowers are much fairer.

2. [Root perennial. Root-leaves ternate-digitate; leaflets sessile, lacinate, acuminate, the mid-

dle leaflet tripartite, the side ones bipartite. Scape one-flowered, shorter than the leaves. Involucre remote, villose. Corolla white, villose underneath: stamens yellow^d. A native of Siberia about Tobolski, and of lower Lusatia. It was cultivated in 1759, by Mr. Miller^e.

3. Differs from the vernal in having sharper petals, yellow within^f.—There is a confusion in these *Anemones*. Reichard refers to n. 1148 of Haller, as a synonym of this species. Allioni refers this to a different species, which he entitles *A. Halleri* (n. 1922) and figures t. 80. f. 2. It is said to resemble *A. sulphurea*, but to be really different. The whole plant is covered with a silky down: the pinnae of the leaves are more deeply, and sharply cut: the flower is entirely purple, with a silky down; and the petals are tender, not hard and firm as in the *sulphurea*, which has the petals covered with a yellow, thick, soft down. Allioni refers n. 1147. t. 21 of Haller to the *sulphurea* of Linneus.

4. Unknown to later writers, and totally different from the *alpina*. Root-leaves many, petiolate; the petiole shaggy three-parted; each lobe unequally trifid, with two or three unequal teeth; all broadish and lanceolate. Scape shaggy, three inches high; with three leaves like the radical ones, springing from a shaggy sheath, trifid, with three-parted lobes. The corolla has eight or ten white petals, shaggy on the outside and reddish. The fruit resembles that of the Garden *Anemone*^g. Four times smaller, weaker and less hairy than the *alpina*. The root-leaves twice-ternate, gashed and not decompound^h. It grows wild about Aigle, &c. in Switzerland, Monte Baldo, M. Cenis, &c.

5. Flower red without, white within; it blows earlier than our Pasque-flowersⁱ. Leaves approaching those of Meadow-Rue. Stem half a foot high, with a very tomentose, yellow, shining involucre in the middle, finely cut. When the flower is young, it is white with a blush of purple on the outside, where it is hairy: these hairs afterwards become yellow. The corolla consists of six convergent ovate-lanceolate petals: the stamens are very numerous^k. It grows in the woods bordering on the mountains, in barren sands, in Sweden, Germany; and on the high alps of Switzerland.

6. Differs from the last in the nodding of the flower, and in the leaves having more pinnae, finely cut. Thunberg found it in Japan near Jedo, flowering early in spring.

7. Peduncles erect, round, from four to seven or eight inches high, villose, one-flowered; lengthening after the flowering is past. Involucre multifid, with the divisions linear and villose. It fits close to the flower, but when that is fallen it is found almost in the middle of the peduncle. Corolla specious, purple; petals lanceolate, villose without. Seeds ovate, tailed, hairy, scarcely adhering to the receptacle^l. Leaves rough, finely cut, with three or four pairs of pinnae and pinnules^m. The plant is acrid, and will raise blisters; the distilled water will vomit; it cannot therefore be safe to give it in disorders of the lungsⁿ. It grows wild on open hills in dry soils, in Sweden, Denmark, Switzerland, France, Italy, Germany, Carniola, Siberia, &c. and in England on chalky downs, as Gogmagog-hills, Barnack-heath near Stamford, about Leadstone-hall near Pontefract, near Charlbury in Oxfordshire, Loxham, Bury, Newmarket, &c. Flowering in April. It has the Italian name *Pulsatilla* from the downy seed being beaten about by the wind.] There is a variety with double, and another with white flowers.

8. [The flower of this, is less than that of the former, and of a darker colour; it hangs down like that, but the tips of the petals are bent back. It is very common in the barren stony fields of Oeland and Scania, also in Denmark, Germany, and Piedmont^o.] The leaves are shorter, the stalks

^a Linn.^b Haller.^c Hort. kew.^d Linn.^e Hort. kew.^f Linn. mant.^g Haller.^h Linn.ⁱ Ibid.^k Haller.^l Relham.^m Haller.ⁿ Helwing.^o Linn.

do not rise so high, and the flowers do not expand so wide as in the former.

[9. Stem-leaves woolly at the base, leaves of the involucre superdecompound like the root-leaves. Flower almost as big as a Tulip, white with a tinge of purple, and pubescent on the outside. It differs from the next, in having the stem and superdecompound leaves from the same place of the root; the base of the leaves woolly; the sheaths of the involucre not emarginate; and the ends of the tails straight and beardless, which in that are bent and villose^r. It grows wild on the Alps, Jura, and in Austria: and was, with the foregoing, cultivated by Mr. Miller, in 1731^q.

10. Stems simple, about a span high, upright, round, red at the base, and hirsute with abundance of hoary villose hairs; they have each one flower at the top, and are leafless, having only a large leafy involucre a little above the middle: this at the base embraces the stem; it is closely hirsute and three-leaved; the leaves tripinnate, resembling those of *Cherophyllum sylvestre*, each taking its rise from a common stipular petiole, which is somewhat membranaceous, broadish, short, and resembling a spathe, and divided into three large petiolate pinnae; each of these again is tripartite, the pinnules themselves being subsessile, lanceolate, pinnatifidly serrate; the teeth oblong, sharpish, flat, entire: the leaves and petioles are naked above, and of a dark grass green, but beneath they are extremely hirsute with long, dense, hoary, villose hairs. Root-leaves from two to four, tripinnate, resembling those of the involucre, except that they are larger, and have a common petiole near half a span in length, with the base sheathing, and of a dark blood-red colour. Flower large, consisting of six or seven equal, spreading, entire, lanceolate petals, of a firm texture, and sulphureous colour, closely hirsute on the outside, smooth within and marked with abundance of lines. Filaments one third of the length of the corolla, subulate, yellow. Styles long, reddish at the tip, hoary-villose, as are also the germs: stigmas yellowish. Seeds villose, with long villose tails. It has no smell; and is a native of the Leontine Alps^r.

After all, it may be doubted whether this be really distinct from the ninth species.]

11. *Narrow-leaved Garden Anemone* grows naturally in the Levant; particularly in the islands of the Archipelago, where the borders of the fields are covered with it of all colours, but the flowers are single, and have been rendered double by culture. In France it was long cultivated, before it was much known in Holland or England: [We find it however in our gardens in 1596^q.

Parkinson, in 1629, says that some reckoned up thirty sorts with single flowers, of which he mentions only the watchet or pale blue, the ordinary purple, and the scarlet, with some of their intermediate varieties. Of those with double flowers he gives twelve varieties: 1. Common double red or scarlet. 2. Party-coloured crimson. 3. Crimson velvet. 4. Great double blush. 5. White. 6. Lesser blush. 7. Purple. 8. Blue. 9. Rose-coloured. 10. Carnation. 11. Purple velvet. 12. Purple velvet of three colours.—He observes, that the art of raising them from seed was not then familiarly known to our nation, although it was very frequent in the Low Countries; and he gives directions for that purpose.

Mr. Ray, in his history, enumerates near three hundred varieties of this and the broad-leaved sort.

Mr. Rea, in his *Flora or Complete Florilege*^q, specifies the following varieties of the narrow-leaved, or soft-leaved *Anemone*, as it was called by the Walloons, who brought them over out of France and Flanders to sell. 1. Common double red. 2. Variable. 3. Elegant red. 4. Scarlet. 5. Variegated

scarlet. 6. White with a scarlet thrum. 7. Nacara, or yellowish scarlet. 8. Double Brimstone. 9. Green. 10. Great White. 11. Greatest or White of Bourdeaux. 12. Blush, called *Columbina*. 13. Rose-coloured. 14. Variegated Rose. 15. Spotted Blush. 16. Purple. 17. Lavender-coloured. 18. Blue. 19. White with a purple thrum or plush, called *Perfect in beauty*. 20. Red, with a dark or murrey purple thrum, called *Amarant*. 21. Variegated *Amarant*. 22. Five-coloured. 23. Dark purple striped with white.—Besides these, he gives a list of seventy-four varieties raised from seed in France and Flanders, all fine, different, and many rare: and another, translated out of French, by the accomplished Sir Thomas Hanmer, containing forty-seven sorts.

The catalogues of our modern feedsmen have usually about one hundred and fifty or two hundred.]

The principal colours in *Anemones*, according to Mr. Miller, are White, Red, Blue, and Purple; and these in some are curiously intermixed: but the most prevailing colours amongst our English-raised *Anemones* are White and Red; though we have received from France great variety of Blues and Purples, which are exceeding fine flowers, and being intermixed with those of English growth, make a beautiful variety. [The plain colours in the modern catalogues are, Red, Crimson, Rose-coloured, Purple, Lilac, Clear and Pale Blue, Ash-coloured, and White. The principal variegated ones are, red and white striped, rose and white, blue and white, red white and purple: but there are innumerable shades of these and the other colours.

A double *Anemone*, in order to be a fine one, should have a strong upright stem, about nine inches high; the flower should be from two to near three inches in diameter, the outer petals should be firm, horizontal except that they turn up a little at the end, and the smaller petals within these should lie over each other gracefully, so as to form an elegant whole. The plain colours should be brilliant and striking; the variegated ones should be clear and distinct.

12. *Broad-leaved Garden Anemone*; or *hard-leaved Anemone*, as it was formerly called by the Walloons who imported the roots; or *Star Anemone*, as the single varieties are sometimes named, is found wild, with single flowers, in Italy, Provence, and Germany. Clusius discovered it near the Rhine, with red, and with purple flowers; Ray also remarked it with these colours, in many parts of Italy; and Haller in Switzerland. Clusius found it with white flowers in Germany; and it has been seen of the same colour in Austria.

Haller thus describes this species. The root-leaves are of two kinds; one very deeply gashed, so that they have the appearance of being five-fingered; but are in reality three-parted, the side-lobes being two-parted to the very base; all the lobes are narrow and sharp; the side ones deeply bifid, the middle ones trifid or quadrifid, the extreme ones sharply lanceolate: the other kind broad, deeply three-lobed, blunt, bluntly and shortly serrate at the tip, with an awn standing out. The leaf on the stem, which Linneus calls the involucre, is ternate, the leaflets ovate-lanceolate. The peduncle is solitary and one-flowered, as in the foregoing: the petals three times three (in the natural single flowers), long, elliptic, marked with lines, the outer ones subhirsute on the outside, white at the base with green lines. The roots of both sorts, it is well known, consist of small tubers.

Parkinson enumerates several varieties of this also, both with single and double flowers: as single and double Yellow—Purple *Starre Anemone*, darker and paler—Violet Purple—Purple striped—Carnation—Gredeline, between a peach-colour and a violet—Cochenille, of a fine reddish violet or purple—Cardinal, of a rich crimson red—Blood-red, of a deeper, but not so lively a red—Crimson—Stamell, near unto a scarlet—Incarnadine, of a fine delayed red or flesh-colour—Spanish Incarnate, of a lively

^r Scopoli. ^q Hort. kew. ^r Jacq. misc. ^s Ger. herb.
^t Lond. 1702 fol.

lively flesh-colour, shadowed with yellow—Blush, of a fair whitish red—Nutmegge, of a dark whitish colour, striped with veins of a blush-colour—Monk's-gray, pale whitish tending to a gray, such as the monks and friers were wont to wear with us—Great Orange Tawny—Lesser Orange Tawny.—Of double flowers the most remarkable are—the great double Anemone of Constantinople, or Spanish Marigold—great double Orange Tawny—double Anemone of Cyprus—double Persian Anemone.

Rea mentions, the common great double Variable Anemone—Common double and variegated Scarlet—Red and Purple; and variegated of these colours: besides single of divers sorts and colours.—He says, that the best Star-Anemones come from Britany, where they raise yearly many fine sorts.

This species also was cultivated here by Gerard, in 1597.

13. This having a six-parted calyx connects the Hepaticas with the Anemones: the calyx is quite entire, villose and coloured, not remote from the flower. It is the *Anem. latifolia flava* of Bauhin, pinax 176. and *An. hortensis latifolia* 1. of Clusius, (hist. 1. p. 248.) who found it in Portugal, by the Tagus. The leaves are large; the corolla consists often or more petals, yellow without and orange within.

14. Leaves suborbiculate ternate, leaflets gashed-palmate, ciliate, petioles hairy, scape naked, hairy, involucre under the flower three-parted lobed, with the divisions lanceolate. Flower patent, with six roundish, tawny petals: stamens yellow: heads of pistils roundish muricate^a. Found in Siberia by Gmelin:]

15. This approaches near to our Wood Anemone, but the seeds of it are round and hairy; the flower is large and white, but having little beauty is seldom planted in gardens. [It does not indeed recommend itself by the gaudiness of its colours; but there is in the flowers, especially before they expand, a simple elegance, somewhat like that of the Snow-drop, which affords a pleasing contrast to the more showy flowers of the garden^x. Parkinson notices its creeping roots, its large white flowers standing on the tops of the flower-stalks, which sometimes grow two together, but most commonly single; the leaves on the stalk, he observes, are more finely divided than those of the root, and its seeds are woolly. It is a native of many parts of Germany. Linneus observed it once in Sweden; it is found also in Alsace and Siberia. It flowers in may, and ripens its seeds in june.

16. Root-leaves four, six or more on each stalk, on long petioles, subtriplicate-ternate or doubly-tripartite, the lobes deeply and unequally bifid or trifid, irregularly toothed about the edge, broadish, flat, ovate-lanceolate. They are hirsute at first, but at length become almost naked. Peduncle from the centre of the root-leaves, half a span long, round, upright, rufous-green, tomentose-hirsute. Flowers solitary; petals from five to seven, white, oblong-oval, somewhat hirsute on the outside and tinged with pale purple; they are deciduous, and then the head of germs resembles a strawberry. Smell none. Native of Carinthia^y.

17. Stem naked, terminated by three ternate leaves, the middle three-lobed, acute, ferrate, the side ones two-parted, lobate-ferrate. From the centre of the petioles issues a peduncle long and naked. Flowers small, with ovate petals, green like a calyx. The head of pistils lengthened, cylindric, is resolved into shaggy seeds: near the base of the peduncle comes out another stalk, terminating in a peduncle, and two opposite leaves, and so on^z. It was cultivated in 1722 in the Chelsea garden^a. It is a native of North America, and flowers in may and june.

18. Size of the *A. virginica*. Root-leaves ternate, petiolate; leaflets subovate, obtuse, trilobate

or cut. Stem quite simple, half a foot high. Involucre one-flowered, three-parted, multifid, linear, acute, smooth. Peduncle the length of the involucre, and hairy. Corolla small, white, ten-petalled; petals lanceolate, permanent, the inner ones rather smaller. Stamens shorter than the corolla. Germ capitate, conic, villose. Stigmas acuminate, polished. It is a native of Brazil.

19. This is so like the *dichotoma*, that a person might easily be deceived: but the leaves at the first dichotomy of the stem are not two, but three: sessile, more veined, less horizontal. The corollas are wholly white, and larger: the anthers yellow. The fruit globose; the tops of the seeds subulate, standing out on every side^b. It is a native of Canada and Pennsylvania, and was cultivated in 1766, by Mr. James Gordon^c.

20. Root creeping far and wide. Leaves opposite, horizontal. Corollas purplish underneath. Anthers tawny. Seeds naked, but with a minute recurved point^d. Stem a foot high, erect, round, pubescent: branches erect, thickening toward the top. Leaves revolute near the end, scarcely petioled, cordate, trifid beyond the middle: lobes equal, lanceolate, quite entire at the base, deeply ferrate and acute at the end, three-nerved, hairy on both sides, purple at the edge, flat, with acute sinuses. Petioles membranaceous, connate. Peduncles from the forks of the branches, solitary, filiform, erect, pubescent, half as long again as the internodes, sustaining one flower, the same size as that of *A. nemorosa*. It flowers about midsummer, and ripens its seeds. It is a native of Canada, and Siberia; from whence it was sent growing, by David de Gorter, physician in ordinary to the empress of Russia, into Sweden, in the year 1760^e.

21. Stem round. Petioles red at the base. Leaves oblong, concave, the upper surface shining, and tinged with red, toothed about the edge. Peduncles one-flowered; corolla six-petalled and white; petals elliptic: germs pubescent with white down: stamens white, more than a hundred^f. A native of France, Carniola, and Siberia: growing in woods, and flowering at the end of april.

22. Native of Virginia and Canada.

23. Root of *Wood Anemone* perennial, creeping. Height of the whole plant from five to ten inches. Stem single, round, pubescent; bearing one leaf, and one flower. The leaf is doubly ternate; each part is petioled; the petiole is flat, broad particularly at the base: each part, or leaf (for some consider it as three leaves) is trifid; each leaflet being gash-ferrate, and hairy underneath, especially on the nerves. The peduncle is from an inch to two inches in length, is only a continuation of the stem, and springs from the centre of the leaf. The flower consists of six or seven oblong-ovate petals, sometimes ending bluntly, sometimes emarginate, and I have observed them not unfrequently even gashed or lacerate. The usual colour is white, but they are often tinged with purple on the outside, particularly the three outer ones; and sometimes they are entirely purple on both sides. The joint of the stem, and the backs of the leaves are also apt to be tinged with red.

It grows in woods, among bushes, and in hedges in most parts of Europe, and sometimes in pastures. In many of our woods the ground is almost covered with the flowers in march, april, and may. In fine clear weather the blossoms are expanded, and become so erect as to face the sun; but in the evening, and in wet weather, they are closed and hang down.

It is acrid, and in some degree poisonous; according to Linneus, cattle brought from open to woody pastures, and eating of this plant, have been affected with the bloody-flux, and have made bloody urine.

The paper in which dried specimens of this plant

^a Linn. ^x Curtis magaz. ^y Jacqu. misc. ^z Linn.
^a Hort. kew.

^b Linn. mant. ^c Hort. kew. ^d Linn. mant. ^e Linn. dec.
^f Scop.

are preserved being stained brown, it is probable that it may be employed as a dye^g.

When the flowers become double, the Wood Anemone is cultivated by the gardeners; and were the same pains taken with it as with the foreign Anemones, it might probably be much improved in the eye of the florist^h.

The leaves have frequently a parasitical plant growing on their backs, which deceived Bobart and the great Dillénius, who took it for a Fern, and figured it as such in the third edition of Ray's synopsis. This error, though detected more than sixty years sinceⁱ, has been lately revived, and has given occasion to Mr. Relhan to ascertain that this appearance is occasioned, not by eggs of an insect, as some supposed, but by the *Æcidium fuscum*^k.

24. Root perennial, tuberous. Stem round, purplish, about a span high. Root-leaves on long petioles, ternate; leaflets usually three parted; segments variously cut and divided, somewhat pointed, hairy on both sides: one three-parted leaf, or three leaves together on the stem, like the others, but on short, sheathing petioles. From the centre of these arises the peduncle, about a hand high, round, purplish, except near the flower, where it is green. The stem, leaves, and peduncle are commonly slightly hairy. Flower upright, of a pale blue colour, and sweet smell; petals oblong, from twelve to fifteen, disposed in three rows.

It flowers in april, at the same time as the Wood Anemone, with which it has some affinity in its foliage; but the root is much thicker and more knobby, the petals much narrower, more than twice as many, and of a light pleasant purplish blue: when they first expand, the outside has a rich purplish tint, which is lost when the flowers have been some time exposed to the sun.

Native of the Apennines, near Rome; and of some few places in England, as Lord Spenfer's park at Wimbledon, near Harrow on the Hill, in a wood by Luton Hoe in Bedfordshire, and near Berkhamstead in Hertfordshire.

It is a very ornamental plant, suitable to the flower-garden or plantation; and loves a light, loamy soil^l.

25. This differs from the Wood Anemone in having a yellow corolla, two petals alternately outer, and two inner, and one having one side within and the other side without the next petal; whereas that has three outer and three inner petals; it differs also in the peduncles being accompanied with two leaflets, the later of which is furnished with three at the base. It flowers a day or two earlier than the other^m. This sometimes has two flowers on a stem, the peduncles villose, short, so that the flower scarcely rises above the leaves. Petals five, roundish; stamens about fiftyⁿ. It grows wild in Sweden, Denmark, Switzerland, France, Germany, Austria, Carniola, Italy, Siberia; I gathered it by la Batie near Geneva in flower, april the 8th, 1779: with us it has been found near King's Langley in Hertfordshire, and near Wrotham in Kent.

26. Leaves hirfute, soft; the radical ones petiolate, five-lobed, with the lobes very deeply bifid, or trifid, so that they seem to be seven-lobed; the small lobes acutely trifid, crowded so close as to lie over each other. The stem-leaves ternate, palmate, acutely trifid or quadrifid. From these arise six or eight flowers, on short one-flowered peduncles. Petals six or seven, subhirfute, ovate-lanceolate, white within, reddish without, and forming a salver-shaped corolla. Seeds large, naked, round and flattened^o. It grows wild on the mountains of Italy, Switzerland, Austria, and Siberia. Introduced in 1773, by John Earl of Bute^p.

27. This very much resembles the last, so that Linneus doubts whether it be a distinct species, and Haller thinks that it is only a variety. It was first

observed by Tournefort in the Levant, and is found in the mountains about the lake Baikal.

28. The involucre has the leaflets petiolate. Linneus thus describes the Canadian plant from Kalm. Root tuberous. Radical leaves with long petioles, doubly ternate: leaflets subcordate, angular. Scape a little higher than the leaves, terminated by four simple leaves, resembling the radical leaflets, fitting on long petioles. Peduncles terminal, crowded or fasciculate, one, two, three, or five, simple, one-flowered; equal. Corollas white, with ovate, obtuse, spreading petals: stamens yellowish: the head of pistils ovate, muricate. It grows wild in Virginia and Canada; and was cultivated in 1768, by Mr. Miller^q.

PROPAGATION AND CULTURE.

The plants of this genus are mostly hardy perennials, and may be increased both by seeds and by the roots.]

Hepatica.

The Hepaticas are some of the greatest beauties of the spring. The flowers are produced in february and march in great plenty, before the green leaves appear, and make a handsome figure in the borders of the pleasure-garden, especially the double sorts, which commonly continue a fortnight longer in flower than the single ones, and the flowers are much fairer.

The single sorts produce seeds every year, whereby they are easily propagated, and also new flowers may be that way obtained. The best season for sowing the seeds is in the beginning of august, either in pots or boxes of light earth, which should be placed so as to have only the morning sun until october, when they should be removed into the full sun, to remain during the winter season; but in march, when the young plants will begin to appear, they must be removed again to a shady situation, and in dry weather should be frequently watered, and about the beginning of august they will be fit to be transplanted; at which time you should prepare a border facing the east, of good, fresh, loamy earth, into which you should remove the plants, placing them about six inches distance each way, closing the earth pretty fast to their roots, to prevent the worms from drawing them out of the ground, which they are very apt to do at that season; and, in the spring following, they will begin to show their flowers; but it will be three years before they flower strong, and till then you cannot judge of their goodness; when, if you find any double flowers, or any of a different colour from the common sorts, they should be taken up, and transplanted into the borders of the flower-garden, where they should continue at least two years before they are taken up or parted; for it is remarkable in this plant, that where they are often removed and parted, they are very subject to die; whereas, when they are permitted to remain undisturbed for many years, they will thrive exceedingly, and become very large roots.

The double flowers, which never produce seeds, are propagated by parting their roots, which should be done in march, at the time when they are in flower; but you should be careful not to separate them into very small heads, nor should they be parted oftener than every third or fourth year; if you intend to have them thrive, for the reason before given. They delight in a strong loamy soil, and in an eastern position, where they may have only the morning sun, though they will grow in almost any aspect, not too warm, and are never injured by cold.

[Mr. Bradley relates a remarkable change that was made in the colours of these flowers. Some roots of the double blue Hepatica were sent to Mr. Harrison of Henley upon Thames, from Mr. Keys's garden in Tothill-fields, whose soil was so different from the ground they were planted in at Hen-

^g Stokes in Withering. ^h Curtis. ⁱ Mart. Tourn. 2. 215.
^k Lin. syst. Emel. p. 1473. ^l Curtis. ^m Linn. succ.
ⁿ Haller. ^o Ibid. ^p Hort. kew.

^q Hort. kew.

ley, that when they came to blossom there they produced white flowers, and were therefore returned back to their first station, where they retook the blue colour they had at first.²]

Pulsatillas (2—10.)

These plants may be propagated by seeds, which should be sown in boxes or pots filled with very light sandy earth, observing not to cover the seeds too deep with mould, which will prevent their rising, for they require no more than just to be covered. These boxes should be placed where they may have the morning sun until ten of the clock, but must be screened from it in the heat of the day; and, if the season proves dry, the earth should be often refreshed with water. The best time for sowing these seeds is in July or August, soon after they are ripe, for if they are kept till spring, they seldom grow.

These boxes or pots, in which the seeds are sown, should remain in this shady situation until the beginning of October, when they should be moved where they may enjoy the full sun during the winter season. About the beginning of March, the plants will begin to appear, at which time the boxes should be again removed where they may have only the forenoon sun; for if they are too much exposed to the heat, the young plants will soon be destroyed. They should also be refreshed with water in dry weather, which will greatly promote their growth, and should be carefully kept clean from weeds, which, if suffered to grow among them, will in a short time overbear them.

When the leaves are entirely decayed (which is commonly in July,) you should then take up all the roots, which being nearly of the colour of the ground, will be difficult to find while small; therefore you should pass the earth through a fine wire sieve, which is the best method to separate the roots from the earth, (but notwithstanding all possible care taken, yet there will be many small roots left; so that the earth should either be put into the boxes again, or spread upon a bed of light earth, to see what plants will arise out of it the succeeding year.) The roots being taken up, should be immediately planted again on beds of light, fresh, sandy earth, about three or four inches asunder, covering them about three inches thick with the same light earth. The spring following most of these plants will produce flowers, but they will not be so large and fair as in the succeeding years, when the roots are larger.

The roots of these plants generally run down deep, and being of a fleshy substance, somewhat like Carrots, will not bear to be kept long out of the ground; therefore, when they are removed, it should be done early in the autumn, that they may take fresh root before the frost comes on; for if they are transplanted in the spring, they will not produce strong flowers. These plants thrive best in a loamy soil, for in very light dry ground they are apt to decay in summer.

Garden Anemones. (11. 12.)

These are natives of the east, from whence their roots were brought originally; but have been so greatly improved by culture, as to render them some of the chief ornaments to our gardens in the spring. I shall therefore proceed to give ample directions for their culture; by which, if duly observed, every person may have these flowers in perfection.

Take a quantity of fresh untried earth (from a common, or some other pasture land) that is of a light sandy loam, or hazel mould, observing not to take it above ten inches deep below the surface; and if the turf be taken with it the better, provided it has time to rot thoroughly before it is used: mix this with a third part of rotten cow dung, and lay it in a heap, keeping it turned over at least once a month for eight or ten months, the better to mix it, and rot the dung and turf, and to let it have the advantages of the free air: in doing this be careful to rake out all great stones, and break the clods (but by no means sift

or screen the earth, which is found very hurtful to many sorts of roots); for when the earth is made very fine, upon the first great rains of winter or spring, the small particles thereof join closely together, and form one solid mass, so that the roots often perish for want of some small stones to keep the particles asunder, and make way for the tender fibres to draw nourishment for the support of the root.

This earth should be mixed twelve months before it is used, if possible; but if you are constrained to use it sooner, you must turn it over the oftener, to mellow and break the clods; and observe to rake out all the parts of the green-sward, that are not quite rotten, before you use it, which would be prejudicial to your roots, if suffered to remain. The beginning of September is a proper season to prepare the beds for planting (which, if in a wet soil, should be raised with this sort of earth six or eight inches above the surface of the ground, laying at the bottom some of the rakings of your heap to drain off the moisture; but in a dry soil, three inches above the surface will be sufficient: this compost should be laid at least two feet and a half thick, and in the bottom there should be about four or five inches of rotten neats-dung, or the rotten dung of an old Melon or Cucumber-bed, so that you must take out the former soil of the beds to make room for it.

And observe in preparing your beds, to lay them (if in a wet soil) a little round, to shoot off the water; but in a dry one, let it be nearer to a level; in wet land, where the beds are raised above the surface, it will be proper to fill up the paths between them in winter, either with rotten tan or dung, to prevent the frost from penetrating into the sides of the beds, which often destroys the roots. The earth should be laid in the beds at least a fortnight or three weeks before you plant the roots, that it may settle; and when you plant them, stir the upper part of the soil about six inches deep, with a spade; then rake it even and smooth, and with a stick draw lines each way of the bed at six inches distance, so that the whole may be in squares, that the roots may be planted regularly: then with three fingers make a hole in the center of each square, about three inches deep, laying therein a root with the eye uppermost; and when you have finished your bed, with the head of a rake draw the earth smooth, so as to cover the crown of the roots about two inches.

The best season for planting these roots, if for forward flowers, is about the latter end of September; and for those of a middle season, any time in October; but observe to perform this work, if possible, at or near the time of some gentle showers; for if the roots are planted when the ground is perfectly dry, and there should no rain fall for three weeks or a month after, they will be very apt to grow mouldy upon the crown, and if they once get this distemper, they seldom come to good after.

You may also reserve some of your Anemone roots till after Christmas, before you plant them, lest by the severity of the winter your early planted roots should be destroyed, which sometimes happens in very hard winters, especially where they are not covered to protect them from frost: these late planted roots will flower a fortnight or three weeks after those which were planted in autumn, and many times blow equally as fair, especially if it prove a moist spring, or that care be taken to refresh them gently with water.

But then the increase of these roots will not be near so great as those of your first planting, provided they were not hurt in winter; and it is for this reason all those who make sale of these roots, are forward in planting: for although it may happen, by sharp pinching frosts in the spring, that their flowers are not so double and fair as those planted a little later, yet if they can preserve the green leaves of the plants from being injured, the roots will greatly increase in bulk; but in such gardens where these flowers are preserved with care, there is always provision made to cover them from the injuries of the

² Philosophical account of the works of nature, p. 79.

the weather, by arching the beds over with hoops, or frames of wood, and covering them with garden-mats or cloths, in frosty nights, and bad weather, especially in the spring of the year, when their buds begin to appear; for otherwise, if you plant the best and most double flowers, the black frosts and cutting winds in march will cause them to blow single, by destroying the thrum that is in the middle of the flower; and this many times has occasioned persons who have bought the roots, to think they were cheated in the purchase of them, when it was wholly owing to their neglect of covering them, that their flowers were single.

In the beginning of april your first planted roots will begin to flower, which will continue for three weeks or more, according to the heat of the weather, or the care taken in covering them, during the heat of the day, with mats or cloths: after these are past flowering, the second planted sorts will come to succeed them, and these will be followed by those planted in the spring; so that you may have these beauties continued for near two months together, or sometimes longer, if the season prove favourable, or proper care be taken to shade them in the heat of the day.

The beginning of june, the leaves of your first blown roots will begin to decay; soon after which time you must take them out of the ground, clearing them from decayed stalks, and washing them, to take the earth clean from the root; then spread them on a mat in a dry shady place till they are perfectly dried, when you may put them up in bags, and hang them out of the reach of mice, or other vermin, which will destroy many of the roots if they can come at them.

Observe also to take up the latter planted roots as soon as their leaves decay; for if they are suffered to remain long after in the ground, and there should fall some showers of rain, they would soon put forth fresh fibres, and make new shoots, when it would be too late to remove them: at the time when you take up the roots, is the proper season for breaking or parting them, which may be done by separating those that you would choose to make all possible increase from, into as many parts as you can conveniently, provided each one of them have a good eye or bud; but those you intend to blow strong, should by no means be parted too small, which greatly weakens their flowering.

You should observe, in planting the roots, to distribute the different colours, so as to make an agreeable mixture of each in every bed, which will greatly add to their beauty.

But since all the fine varieties of these flowers were first obtained from seeds, no good florist, who has garden room, should neglect to sow them: in order to which, he should provide himself with a quantity of good single (or what the gardeners call Poppy Anemones) of the best colours, and such as have more leaves than common, and have other good properties; these should be planted early, that they may have strength to produce good seed, which will be ripe in three weeks or a month's time, after the flowers are past: when you must carefully gather it, otherwise it will be blown away in a short time, it being inclosed in a downy substance. You must preserve this seed till the beginning of august, when you may either sow it in pots, tubs, or a well prepared bed of light earth: in the doing of it you must be careful not to let your seeds be in heaps, which is to be avoided thus.

After having levelled your bed of earth, in which you intend to sow your seeds, rub the seeds well between your hands, with a little dry sand, in order to make them separate the better; then sow them as regularly as possible over the bed; but as these seeds will still adhere closely together by their down, take a strong hair brush, with which gently sweep over the whole bed, observing not to brush off the seeds; this brush will so separate the seeds, if carefully managed, as not to leave any entire lumps; then gently sift some light earth, about a quarter of

an inch thick over the seeds; and, if it should prove hot dry weather, it will be advisable to lay some mats hollow upon the bed in the heat of the day, and now and then to give them a little water; but this must be given gently, lest by hastily watering you wash the seeds out of the ground; but be sure to uncover the bed at all times when there are gentle showers, and every night, that the seeds may have the benefit of the dews; and as the heat of the weather decreases, you may begin to uncover your bed in the day time also.

In about ten weeks after sowing, the plants will begin to appear, if the season has proved favourable, or your care in management has not been wanting, otherwise they many times remain a whole year in the ground. The first winter after their appearing above ground, they are subject to injuries from hard frosts, or too much wet, against both of which you must equally defend them; for the frost is very apt to loosen the earth, so that the young plants are often turned out of the ground, after which a small frost will destroy them; and too much wet often rots their tender roots, so that all your former trouble may be lost in a short time for want of care in this particular; nor do I know of any thing more destructive to these tender plants, than the cold black frosts and winds of february and march, from which you must be careful to defend them, by placing a low reed fence on the north and east sides of the bed, which may be moveable, and only fastened to a few stakes to support it for the present, and may be taken quite away as the season advances, or removed to the south and west sides of the bed, to screen it from the violence of the sun, which often impairs these plants when young.

As the spring advances, if the weather should prove dry, you must gently refresh them with water, which will greatly strengthen your roots; and when the green leaves are decayed, if your roots are not too thick to remain in the same bed another year, you must clear off all the weeds and decayed leaves from the bed, and sift a little more of the same prepared good earth, about a quarter of an inch thick over the surface, and observe to keep them clear from weeds during the summer season, and at Michaelmas repeat the same earthing; but as these roots so left in the ground, will come up early in the autumn, the beds should be carefully covered in frosty weather, otherwise their leaves will be injured, whereby the roots will be weakened, if not destroyed. If your roots succeed well, many of them will flower the second year, when you may select all such as you like, by marking them with a stick; but you should not destroy any of them until after the third year, when you have seen them blow strong, and can judge of their goodness; for until the roots have acquired strength, the flowers will not show themselves to advantage.

By this time your roots will be too thick in the seed-bed to remain, as soon therefore as their green leaves are decayed, you must sift the earth of the bed through a very fine sieve, in order to get out the roots which can be no otherwise found, being small, and so near the colour of the earth; but in doing this, observe not to disturb the ground too deep, so as to endanger the burying any of the roots; for, notwithstanding all your care, many small roots will be left behind; therefore as soon as you have sifted your whole bed, and taken out all the roots you can find, you must level the earth of your bed again, and let it remain till next year, when you will find a plentiful crop of roots come up again; the young roots which you take up must be dried, as was directed for the old ones, but should be planted again three weeks before them, that they may increase in strength, so as to flower strongly the succeeding year.

The single (or Poppy) Anemones will flower most part of the winter and spring, when the seasons are favourable, if they are planted in a warm situation, at which time they make a fine appearance, therefore deserve a place in every flower-garden, especially as

they require little culture; for if these roots are taken up every other year, it will be often enough; and when they are taken up, they should be planted again very early in the autumn, otherwise they will not flower till the spring. There are some fine blue colours amongst these single Anemones, which, with the Scarlets and Reds, make a beautiful mixture of colours; and as these begin flowering in January or February, when the weather is cold, they will continue a long time in beauty, provided the frost is not too severe. The seeds of these are ripe by the middle or end of May, and must be gathered daily as they ripen, otherwise they will soon be blown away by the winds.

Wild Anemones. (23, 24, &c.)

The roots of *Wood Anemone* may be taken up when the leaves decay, and transplanted into wildernesses, where they will increase greatly, if they are not disturbed; and in the spring, before the leafing of the trees, will have a good effect, in covering the ground with their leaves and flowers.

The *Blue Anemone* (n. 24.) flowers at the same time with the foregoing, and when intermixed with it, makes a fine variety. Double flowers of both these sorts have been obtained from seeds. This, and most of the other wild Anemones, may be propagated like that of our woods, by offsets from the root, which they put out plentifully; and they will grow in moist soils and situations.

Virginian Anemone, (n. 17.) and some others, produce plenty of seeds, and may be readily increased also that way.

ANEMONE pusilla. See *Dryas*.

ANEMONOIDES. See *Anemone*.

ANEMONOSPERMOS. See *Arctotis* and *Gorteria*.

ANETHIFOLIUS. See *Protea*.

ANETHUM. (*ἄνθον*, Hippocr. Theophr. and Diosc. *παρὰ τὸ ἀνα εἶναι*, from its running up quick, or straight.)

Lin. gen. n. 364. Reich. 394. Schreb. 496.

Gært. 21. Tourn. 169. and *Foeniculum* 164.

Gært. 23. Juss. 219.

Class. 5. 2. Pentandria Digynia.

Nat. order of *Umbellatæ*, or *Umbelliferae*.

GENERIC CHARACTER.

CAL. Umbel universal and partial manifold. *Involucre*, neither universal nor partial. *Perianth* proper obsolete.

COR. universal uniform: *floscules* all fertile: *proper*: petals five, involute, entire, very short.

STAM. Filaments capillary; *anthers* roundish.

PIST. Germ inferior. *Styles* approximating, obsolete. *Stigmas* obtuse.

PER. none. *Fruit* subovate, compressed, striated, bipartite.

SEEDS two; subovate, margined, convex and striated on one side; flat on the other.

Obs. *Anethum* T. has the seeds surrounded with a membranaceous rim, which *Foeniculum* T. has not.

ESSENTIAL CHARACTER.

Fruit subovate, compressed, striated. *Petals* involuted entire.

SPECIES.

1. *Anethum graveolens.* Common Dill.

Lin. spec. 377. Reich. 1. 721. hort. cliff. 106.

upf. 66. Gært. fruct. 1. 91. mat. med. 85.

Blackw. t. 545. Woodv. 439. t. 159. Park.

theatr. 886. Plenck. ic. t. 215.

An. hortense. Bauh. pin. 147.

Anethum. Ger. emac. 1033. Raii hist. 415. Mor.

umb. t. 1. f. 22. and γ, δ. Riv. pent. t. 13.

Fruit compressed.

[2. *Anethum segetum.*

Lin. syst. 291. Reich. 1. 721. mant. 219. Jacqu.

hort. 2. t. 132.

A. sylvestre minus. Bauh. pin. 147. prodr. 76.

Three stem-leaves, fruits oval.]

3. *Anethum Foeniculum.* Fennel or Finckle.

Lin. spec. 377. Reich. 1. 722. mat. med. 85.

Hall. herb. n. 762. Hudf. angl. 126. Wither.

arr. 311. Krock. files. n. 466. Lour. cochinch.

181. Woodv. 441. t. 160. Plenck. ic. 216.

Mill. illustr. ic. Blackw. t. 288. Rivin. t. 61.

Mor. hist. f. 9. t. 2. f. 1. Ger. 877. 1. emac.

1032. Park. theat. 884. Bauh. hist. 3. 6. 3:

Raii hist. 457.

α. *Foeniculum vulgare.* Common Fennel.

Mill. dict. n. 1.

β. *Foeniculum dulce.* Sweet Fennel.

Mill. dict. n. 2.

γ. *Foeniculum Azoricum.* Azorian Fennel or Finchio.

Mill. dict. n. 3.

Fruits ovate.

DESCRIPTIONS, &c.

1. [*Dill* differs from Fennel, which it otherwise resembles very much, in having an annual root, a smaller and lower stem, seldom exceeding three quarters of a yard; the leaves more glaucous, and of a less pleasant smell; the seeds broader, flatter, surrounded with a membranaceous rim, and of a less pleasant flavour than fennel seeds; the umbels of flowers yellow, but smaller than those of fennel^a. This plant has a peculiar strong smell, but aromatic. The bruised herb is anodyne and resolvent. The seeds are aromatic and contain an etherial oil; are useful therefore in flatulencies; for this purpose they rub the bellies of children with the oil prepared by infusion: the essential oil is also good in the colic^b. A distilled water, drawn off to the quantity of a gallon from a pound of the seeds, was ordered in the London Pharmacopoeia; and occasionally made the basis of carminative draughts and juleps: its flavour is more agreeable than that of the seeds in substance. Along with the water arises a considerable quantity of essential oil, which is given from one to three or four drops, or more, as a carminative; and in hiccoughs^c. No mention is made of this in the last edition of the London Pharmacopoeia. It grows wild among the corn in Spain and Portugal; also in Italy on the coast. It is annual, and was cultivated in 1597^d.

2. Stem six or seven inches high, round, smooth and even, streaked, glaucous. Branches three or four, alternate, spreading, the length of the stem. Leaves three, bi- or tri-pinnate, smooth and even, filiform, linear, flat; leaflets alternately subdivided, Upper leaf triternate: leaflets very like the others, but undivided. No involucre, but only a rudiment. Umbel convex, spreading, dispersed. Umbellules nine with the central floret abortive. Corolla flosculous, yellow: petals involute, length of the stamens: styles two, conical, permanent. Fruits oval, convex, with three raised streaks^e. Annual. A native of Portugal.

3. Height three to five or six feet. Stem upright, very smooth. Leaves finely cut, leaflets capillary. Umbels very large, hollow. Corollas yellow, petals equal. Fruit ovate-oblong: the seeds have five ribs on the back, and have no membrane round the edge, as the Dill has. Native of Germany, Spain, Italy, Madeira, China, &c. It flowers in July, and the seeds ripen in autumn. Linneus distinguishes four varieties of Fennel. 1. Sweet Fennel. 2. Common Fennel. *Fæn. vulgare germanicum.* Bauh. pin. 147. 3. Italian Fennel. *Fæn. vulgare italicum.* Bauh. pin. 4. Wild Fennel. *Fæn. sylvestre.* Bauh. pin. Miller has only three varieties as above.]

α. The common Fennel has a strong fleshy root, which penetrates deep into the ground, and will continue several years. It flowers in July, and the seeds ripen in autumn. It has sown itself in many places, where it has been introduced in such plenty, as to appear as if it were a native in England; but it is no where found at a great distance from gardens. [It is however enumerated among our native plants, by Hudson, Withering, &c. though certainly not originally so: and is now common on chalk cliffs, as about Marazion in Cornwall, in Sussex, about Gravefend, and other parts of Kent, and in many inland places, as Nottingham castle, near Spetchly in Worcestershire, Burwell, and other places in Cambridgeshire.]

^a Ray hist. ^b Allioni. ^c Lewis. ^d Gerard. ^e Lin. mant.

β. The

β. The sweet Fennel has been by many supposed only a variety of the common sort; but I have cultivated it in the same ground with that, where it has always retained its differences. [Mr. Ray however affirms, that it will return to its pristine form and qualities.] The leaves of it are very long and slender, growing more sparsely, and do not end in so many points as those of the common sort; the stalks do not rise so high, and the seeds are longer, narrower, and of a lighter colour. These seeds are generally imported from Germany or Italy, and are by some preferred to those of the common sort for use, being much sweeter.

[The tender buds of Fennel are eaten in salads. The leaves boiled are used as sauce for fish, and they are eaten raw with pickled fish. In Spain, they put them up with olives, and pickled pork.]

A pound of sweet Fennel seeds impregnates a gallon of water strongly with their flavour; in distillation. A great quantity of yellowish essential oil, floats on the surface of the water, mild and sweetish like oil of aniseeds, and like it also, congealing by a slight cold, into a white mass like butter.

These seeds contain likewise a considerable quantity of gross expressed oil, which is extracted, along with the aromatic matter of the Fennel, by digestion in rectified spirit, but rises to the surface upon inspissating the filtered tincture: the concentrated extract retains much the greatest part of both taste and smell.

The seeds of common Fennel are warmer and more pungent, but less sweet, and of a less grateful flavour. There is the same difference in the preparations from them: the spirituous tincture of sweet Fennel is yellowish; of this, greenish. The leaves impregnate water by distillation with a grateful flavour, and yield a considerable portion of essential oil. An extract made from them by rectified spirit, is likewise no inelegant aromatic.

The roots, taken up early in the spring, have a pleasant sweetish taste, with a slight aromatic warmth. They are ranked among the aperient roots, and supposed by some to be equivalent in virtue to the *Ginseng*; from which however they differ considerably in their sensible qualities f.]

γ. The Finocchio is supposed to have been originally brought from the Azorian islands; it has been long cultivated in Italy as a salad-herb; and there are some few gardens in England, where it is now cultivated, but in small quantities, for there are not many English palates which relish it, nor is it easy to be furnished with good seeds; those which are annually brought from Italy seldom prove good; and it is difficult to save it in England, because the winter frequently kills those plants which are left for seeds, and when any good plants of the early sowing are left for seeds, they do not ripen, unless the winter proves very favourable. This sort has very short stalks, which swell just above the surface of the ground, to four or five inches in breadth, and almost two thick, being fleshy and tender: this is the part which is eaten when blanched, with oil, vinegar, and pepper, as a cold salad. When the plants are permitted to run for seeds, the stalks do not rise more than a foot and a half high, having a large spreading umbel standing on the top. The seeds of this sort are narrow, crooked, and of a bright yellow colour; they have a very strong smell like Aniseed, and are very sweet to the taste.

PROPAGATION AND CULTURE.

Dill.

This plant is propagated by sowing the seeds, which should be done in autumn soon after they are ripe; for if they are kept out of the ground till spring, they frequently miscarry; or if any of the plants come up, they often decay before they have perfected their seeds. They love a light soil, and will not bear to be transplanted, but must be sown where they are to remain, and should be allowed eight or ten inches room to grow, otherwise they will

draw up very weak, and produce few lateral branches; whereby their leaves will decay, and be rendered useless, nor will they produce so good seeds; therefore the best way is, when the plants are come up, to hoe them out, as is practised for Onions, Carrots, &c. leaving the plants about eight or ten inches asunder every way; observing to keep them clear from weeds; and when the seeds begin to be formed, you should cut up those that are intended to be put into the pickle for Cucumbers; leaving those that are intended for the use of the seeds until they are ripe; at which time they should be cut, and spread upon a cloth to dry, and then beat out for use: if you let the seeds fall upon the ground, the plants will rise the next spring without any care.

Fennel.

The best time to sow the seeds, is soon after they are ripe; the plants will come up in the autumn or the following spring; and require no other care but to keep them clean from weeds, and thin the plants where they are too close; it will grow in any soil or situation.

Finocchio.

For the cultivation of this plant, your first care must be to procure good seeds from some person who has been careful in the choice of the plants, otherwise there will be little hope of having it good; for the plants will run up to seeds before they swell to any size, and thus not be fit for use: then make choice of a good spot of light rich earth, not dry nor very wet, for in either extreme this plant will not thrive. The first crop may be sown about a fortnight in march, which, if it succeeds, will be fit for use in july; and by sowing at several times, there may be a supply for the table till the frost puts a stop to it. After having well dug and levelled the ground smooth, you must make a shallow drill by a line, into which you must scatter your seeds pretty thin; for if your plants are six inches asunder in the rows, it will be full near enough; however, you must expect some of your seeds to fail; and therefore you should scatter them about two inches distance; then cover the seeds about half an inch thick with earth, laying it smooth: these drills should be made eighteen inches asunder, or more, that there may be room to clean the ground, as also to earth up the plants when they are full grown. When the plants come up, which will be in about three weeks or a month after sowing, you must with a small hoe cut up all the weeds between them, and where the plants are too close, they should be thinned to about three inches distance; and as they advance, and the weeds spring again, they should, from time to time, be hoed; and at the last time of thinning them, they should be left seven or eight inches asunder at least. If your kind be good, the stems of the plants will increase to a considerable bulk just above the surface of the ground; which part should be earthed up in the manner of Celery, to blanch, about a fortnight or three weeks before it is used, and this will cause it to be very tender and crisp.

Your second crop should be sown about three weeks after the first, and so continue sowing every three weeks or a month till the end of july, after which time it will be too late for the plants to come to any perfection. But you should observe to sow in april, may, and june, on a moister soil than that which you sowed the first on; as also what you sow in the latter part of july, should be sown on a drier soil, and in a warmer situation; because this crop will not be fit for use till late in autumn, and therefore will be subject to injuries from too much wet or cold weather, if on a moist soil. But as the ground is often extremely dry in june and july, and the seeds more apt to miscarry and not come up, you should therefore observe to water and shade the beds where this seed is sown at that season, until the plants come up. And if the season should prove dry, the plants must be duly watered, otherwise they will run up to seed before they are of any size; therefore there should be a channel made where every row of plants grows, to detain the water which is poured

on them. In the autumn, if there should happen sharp frosts, it will be very proper to cover the plants with some Peas-haulm, or other light covering, to prevent their being pinched; by which method they may be continued for use till the middle of winter.

A small bed of this plant will be sufficient at each fowing for a middling family; and for a large family, a bed of about twenty feet long, and four feet broad, will be full enough at a time.

ANGELICA. (*From the angelic, or supposed super-excellent qualities of the roots and seeds.*)

Lin. gen. n. 347. Reich. 377. Schreb. 479.

Juss. 222. Gertn. t. 85.

Class. 5. 2. Pentandria Digynia.

Nat. order of Umbellatæ, or Umbelliferae.

GENERIC CHARACTER.

CAL. Universal umbel manifold, roundish: *partial*, when flowering exactly globular. Universal involucre three-or five-leaved, small: *partial* eight-leaved, small. Proper perianth five-toothed, scarcely observable.

COR. Universal uniform: floscules all fertile: *partial*, petals five, equal, lanceolate, flattish, incurved, caducous.

STAM. Filaments simple, longer than the corolla: anthers simple.

PIST. Germ inferior: styles reflex: stigmas obtuse.

PER. none. Fruit roundish, angular, solid, bipartile.

SEEDS two, ovate; flat on one side, and margined; convex on the other, scored with three lines.

ESSENTIAL CHARACTER.

Fruit roundish, angular, solid, with reflex styles. Corollas equal, with petals bent inwards.

SPECIES.

1. *Angelica Archangelica*. Garden Angelica.

Lin. spec. 360. Reich. 1. 691. lapp. n. 101. Juss. n. 245. mat. med. 80. Gertn. fruct. 2. 29. Fl. dan. t. 206. Plenck. ic. 197. Riv. pent. t. 15. Blackw. t. 496. Crantz umb. p. 65. Hall. herb. n. 807. Scop. carn. n. 326. Krock. files. n. 431. Raii hist. 434. Ger. 846. 1. emac. 999. 1. Park. theat. 940. 1.

Ang. fativa. Mill. dict. n. 1.

β. Ang. Archangelica. Mill. dict. n. 2. Tabern. icon. 82. Raii hist. 434. 3. Ger. emac. 1000. 3. Park. 940. 4.

The odd leaflet of the leaves lobed.

2. *Angelica sylvestris*. Wild Angelica.

Lin. spec. 361. Reich. 1. 691. Juss. n. 246. lapp. n. 102. Hudf. angl. 118. With. 290. Hall. herb. 806. Rivin. pent. t. 17. Moris. hist. f. 9. t. 3. f. 2. Ger. 846. 2. emac. 999. 2. Park. theat. 940. 2. Scop. carn. n. 327. Pollich palat. n. 285. Plenck. ic. t. 198. Krock. files. n. 432. Villars dauph. 2. 628. Baub. hist. 3. 6. 144. Raii hist. 434. 2.

Leaflets equal, ovate-lanceolate, serrate.

[3. *Angelica verticillaris*.

Lin. syst. 284. Reich. 1. 691. mant. 217. 561. Jacqu. hort. 2. t. 130. Allion. pedem. n. 1311. Krock. files. n. 433.

Leaves very much divaricate, leaflets ovate, serrate, stem verticilled with peduncles.]

4. *Angelica atropurpurea*. Purple Angelica.

Lin. spec. 361. Reich. 1. 692. mant. 354. Corn. canad. 198. t. 199. Raii hist. 436. 7.

The outermost pair of leaves coadjoined; the terminal leaf petioled.

5. *Angelica lucida*. Shining Angelica.

Lin. spec. 361. Reich. 1. 692. hort. cliff. 97. upf. 62. Jacqu. hort. 3. 16. t. 24. Corn. canad. 196. t. 197. Mor. hist. f. 9. t. 3. f. 8. Park. theat. 949. f. 3. Raii hist. 435. 7.

Leaflets equal, ovate, gash-serrate.

[6. *Angelica Razulii*.

Allion. pedem. n. 1310. Gouan. illustr. p. 13. t. 6. Tourn. schol. bot. 167.

Panax alpina, &c. Bocc. t. 99.

Leaves bipinnate, leaflets lanceolate, serrate, decurrent.

DESCRIPTIONS, &c.

These are all hardy, biennial or perennial plants. The umbel of flowers is large, spreading, and composed of many rays; the partial umbels are globular. The leaves are large, and mostly bipinnate.

1. Root thick, branched, very long, brown on the outside, white within. Leaves pinnate, with the extreme leaflet three-lobed. Universal umbel copious, rays (sixty) angular; partial globular. Involucre frequently one-leaved; involuclers many-leaved (ten), linear, reflex. Petals ovate, acute, greenish or pale purple, caducous. Filaments white^a. Fruit elliptic, swelling, lens-shaped, slightly emarginate at both ends, grooved and winged, whitish or pale straw-colour; splitting into two seeds, which are convex on one side, with a stiff marginal wing, and three on the back similar to it; flat on the other side, with a single raised longitudinal streak. This is the structure of the seeds in the garden plant; the wild one has no dorsal wings, but only three curved risings, and those very low ones^b. Scopoli remarks, that in this species, the back of the seed is more convex (than in the *sylvestris*), and truly furrowed; so that it cannot be said to be marked with lines, but to be really angular.

Native of the northern parts of Europe. It flowers with us from June to August; and was cultivated here in 1568^c.]

β. Mr. Miller makes a distinct species of the Angelica, which grows naturally in Hungary and some parts of Germany. He affirms, that from many years experience in the culture of this plant, he could never observe any alteration in it; for all the plants which he raised from seeds, proved exactly the same as the parent plant, and when planted in the same soil with the common sort, they were twice their size. The leaves were also much larger, and deeper sawed on the edges, the umbels much larger, and the flowers were yellow.

[The stalks of Garden Angelica were formerly blanched, and eaten as Celeri. The young shoots are in great esteem among the Laplanders. In Norway bread is sometimes made of the roots.] The gardeners near London, who have ditches of water running through their gardens, propagate great quantities of this plant, for which they have a great demand from the confectioners, who make a sweetmeat with the tender stalks of it cut in May. [The roots are one of the principal aromatics of European growth, though not much regarded in the present practice. The other parts of the plant have the same flavour, but their active principles are far more perishable. The seeds, which come nearest to the roots, can scarcely be kept till the spring after they are gathered^d. These however are the only part of the plant which is ordered by the London college, and that only in compound spirit of aniseed. The college formerly directed the roots brought from Spain to be kept in the shops; but they are probably more efficacious on their native northern mountains; and accordingly that direction is now dropped.

2. Our Wild Angelica grows to the height of six feet, with a smooth stem. Leaf-stalks channelled on the upper surface, widening below into a large membranaceous sheath inclosing the stem. Leaves large and pinnate, as in the first species; pinnae five and three-leaved; pinnules generally ovate, serrate, the serratures ending in a sharp, reddish point. Peduncles rising from the sheaths of the leaf-stalks. Umbel very large and close: universal involucre commonly none; but sometimes it has one or two very small, slender leaves. The umbel has as far as forty, and the umbellule eighty rays. Involucels permanent; leaflets 5—12, subulate, unequal. Petals nearly equal, white more or less tinged with purplish red. The fruit has four wings, and three ridges on each side^e.

It is perennial, and is found common in moist woods and hedges, and by the sides of rivers, flow-

^a Linneus.

^b Gertner.

^c Hort. kew. from Turner.

^d Lewis.

^e Haller, Withering, Relhan.

ering in july and august. This, possessing only the same properties with Garden Angelica in a far lower degree, has been long neglected. The herb however dyes a good yellow.

3. Height of the stem six feet and more, with a glaucous bloom on it. Flowering branches four or five in verticils, two or three; with one peduncle above another to the top of the stem. Leaves decomposed: petioles full, or not fistulous, knotted at the base; leaflets smooth, green, not lucid, the outmost not decurrent. Umbel not convex, nor close. Flowers green: petals minute, inflex, entire. Seeds cordate-orbiculate, obtuse, polished, much compressed^a. A native of Italy and Silesia. Introduced in 1774, by M. Richard^b.

4. Stem six feet high, fistulous, jointed, polished, dark purple, with a glaucous bloom. Common petioles sheathing, streaked; partial compressed, channelled. Leaflets oblong, sublobate with the ferratures white at the tip, veined, naked, pale underneath, and mostly sessile. Umbels terminal three; sheaths two, opposite, purple, leafy at the top. Common peduncle round: partial angular, or furrowed: proper polished. No involucre. Involucels with twelve subulate leaflets, the length of the umbellule, which is hemispherical. Petals incurved, shorter than the stamens, ferruginous without, purple within. Receptacle and stamens green. Seeds convex, three-keeled^c. A native of North America. It was cultivated by Mr. Miller, in 1759^d.

5. The whole plant is smooth. Root biennial. Stem from a foot to two feet in height, the thickness of a finger at least, round, sometimes straight, sometimes flexuose, branched, hollow, striated especially towards the top. Leaves bipinnate, rising from a large, striated sheath. Root-leaves tripinnate. Leaflets lanceolate or ovate, the outmost confluent with the next pair. Umbels and umbellules convex and close: rays striated: universal involucre of about five narrow-lanceolate, mucronate leaflets; the leaflets of the partial involucre are about as many as there are outer rays of the umbellule; they are subulate and acuminate: petals of a dirty whitish or very pale yellow colour: anthers twin, yellowish. Seeds brown, of a hot aromatic flavour, with little smell. It flowers in june, and the seeds ripen in august^e. Native of Canada.

6. Root perennial, thick, deeply fixed into rocks. It has the appearance of the first species. Stem three feet high, angular, streaked and smooth; branches only three or four. Primordial leaves like those of Elder, triangular, ternate; the two lower opposite pinnules quinate; the leaflets lanceolate, ferrate, pubescent beneath. The root and lower stem-leaves are also triangular, and almost a foot long; they consist usually of five pinnules; the lower ones have four pairs of leaflets, with an odd one; the second three, or two only; the terminating pinnule has uniform, sessile, lanceolate, ferrate leaflets, the ferratures ending in a tender awn or point: these leaflets are decurrent. The upper surface of the leaves is green and smooth; the lower ash-coloured and pubescent. Umbel very large, hemispherical, consisting of about eighty unequal rays, from two to three inches in length, cinereous-pubescent. In place of an universal involucre there is a slender bristle-shaped leaflet, one-third of an inch in length. Involucels, bristle-shaped, with from four to six leaflets. Corollas before they unfold bright purple, afterwards white. Germs hoary, pubescent; fruits ovate-oblong, with three ribs on the back, appearing wrinkled and hirsute with a magnifying glass. Some of the umbels seem to be hermaphrodite, and others female^f. Native of the Apennines and Piedmontese mountains. It was found on the former by M. Rasouls, an apothecary at Perpignan, whence the trivial name.

PROPAGATION AND CULTURE.

All the sorts may be increased by seeds.]

^a Linneus.

^b Hort. kew.

^c Linneus.

^d Hort. kew.

^e Jacqu. hort.

^f Gouan.

The common Angelica delights to grow in a very moist soil; the seeds of this plant should be sown soon after they are ripe, for if they are kept until the spring, seldom one seed in forty will grow. When the plants are come up about six inches high, they should be transplanted at a large distance, for their leaves extend very wide; the best place for this plant is upon the sides of ditches, or pools of water; where being planted about three feet asunder, they will thrive exceedingly. The second year after sowing, they will shoot up to flower; therefore if you have a mind to continue their roots, you should cut down these stems in may, which will occasion their putting out heads from the sides of the roots, whereby they may be continued for three or four years; whereas, if they had been permitted to feed, their roots would perish soon after; where it is cultivated for the seeds, there should be new plantations annually made to supply the places of those which die, for when they are permitted to seed, they last but two years.

[ANGELICA. See *Ægopodium*, *Cherophyllum*, *Cicuta*, *Laserpitium*, *Selinum*, *Smyrnium*.

ANGELICA-TREE. See *Aralia*.

ANGIOPTERIS. See *Onoclea*.

ANGRÆCUM. See *Epidendrum*.

ANGUILLARIA. See *Ardisia*.]

ANGUINA. See *Calla* and *Trichosanthes*.

[ANGURIA. (Modern Greek; from *ἄγγος*, a vessel.)
Lin. gen. n. 1037. Reich. 1129. Schreb. 1399.
Jacqu. amer. 242. Fuss. 395.

Class. 21. 2. Monoecia Diandria.

Nat. order of *Cucurbitaceæ*.

GENERIC CHARACTER.

* Male flowers.

CAL. Monophyllous, quinquefid, swelling at the base; divisions lanceolate, short.

COR. pentapetalous, spreading, growing to the border of the calyx.

STAM. Filaments two, opposite, inserted into the calyx: anther creeping up and down.

* Female flowers.

CAL. and COR. as in the male.

STAM. Filaments as in the male, but no anthers.

PIST. Germ inferior oblong: style semibifid; stigmas bifid, acute.

PER. a Pome oblong, quadrangular, bilocular.

SEEDS very many, oval, compressed, nestling.

ESSENTIAL CHARACTER.

MALE. Calyx five-cleft. Corolla five-petaled.

FEMALE. Cal. five-cleft. Cor. five-petaled. Pome inferior, two-celled, many-seeded.

SPECIES.

1. *Anguria trilobata*.

Lin. spec. 1376. syst. 840. Reich. 4. 91. Jacqu. amer. 243. t. 156. pist. p. 119. t. 234. Plum. spec. 3. ic. 22.

Leaves three-lobed.

2. *Anguria pedata*.

Lin. spec. 1376. Reich. 4. 92. Jacqu. amer. 242. t. 155. pist. t. 233. Plum. ic. 23.

Leaves pedate, ferrate.

3. *Anguria trifoliata*.

Lin. spec. 1376. Reich. 4. 92.

Cucumis triphyllus. fructu variegato. Plum. amer. 85. t. 99.

Leaves ternate, quite entire.

DESCRIPTIONS, &c.

1. This plant has a very shining appearance. The leaves are alternate, large and three-lobed: the lobes oblong, acuminate, flat, entire except that they have a few toothlets on the edge; the outer ones usually have a blunt appendicle with a terminating toothlet, resembling the rudiment of a fourth and fifth lobe. Tendrils the length of the leaves. Peduncles of the male flowers solitary from the axils, long, and bearing at the end about twenty subaggregate, sessile, inodorous, beautiful, vermillion-coloured flowers, opening successively. They are perfectly those of the next species, except that the petals are more round.

round^a. Jacquin had not an opportunity of observing the female flowers. Native of Carthage in South America; flowering there in June.

2. This is a perennial plant, climbing trees by means of long tendrils to the height of twenty feet. The old stems are woody, leafless and farmentose; the younger ones round, pliant, smooth and leafy. Leaves ternate, repand-ferrate, acuminate, shining, petioled, alternate; leaflets petioled, the middle one lanceolate, the side ones pedate, a little shorter, and frequently difform. Peduncles of the male flowers racemed, longer than the leaves: of the females one-flowered, round, smooth, axillary, commonly two together. Flowers inodorous, with orange-coloured petals. Fruits an inch in length, the thickness of the middle finger, green with longitudinal white streaks and shining. Seeds white. Plumier's figure has male and female flowers on the same plant. Jacquin has always found them on different plants; and yet from the analogy which this genus bears to Cucumbers, he suspects that the *Anguria* may sometimes be monoecous, as Plumier has represented it.

Native of St. Domingo, flowering in September. The fruit is ripe in December^b.

3. This differs, in having the leaves quite entire, and narrower; and several fruits collected together^c. Native of St. Domingo.

ANGURIA. See *Cucurbita*.

ANIBA. See *Cedrota*.

ANIL. See *Indigofera*.

ANISIFOLIUM. See *Limonia*.

ANISOMARATHRUM. See *Scandix*.]

ANISEED-TREE. See *Illicium*.

ANISUM or Anise. See *Pimpinella*.

—— africanum. See *Bubon*.

ANNONA. (*Anona*. Amer. a messe. *Annona* and *Guanabanus* are barbarous words, that the sound however may be kept, I name it *Annona*, on account of the fruit which is so grateful to the natives. Lin. cliff.)

Lin. gen. n. 693. Reich. 751. Schreb. 945. Juss. 283. Gært. t. 138. 125.

Guanabanus. Plum. 10.

Class. 13. 7. Polyandria Polygynia.

Nat. order of *Coadunatae*. *Anonae* Juss.

GENERIC CHARACTER.

CAL. Perianth three-leaved, small: leaflets cordate, concave, acuminate.

COR. Petals six, cordate, sessile: the three alternate interior ones less. (Nectary.)

STAM. Filaments scarcely any: anthers very numerous, placed on the receptacle.

PIST. Germ roundish, placed on a roundish receptacle: styles none: stigmas obtuse, numerous, covering the whole germ.

PER. a Berry, very large, roundish, cloathed with a scaly bark, one-celled: (or a compound Berry, as in *Rubus*.)

SEEDS very many, hard, ovate-oblong, placed in a ring, nestling.

ESSENTIAL CHARACTER.

Cal. three-leaved. Pet. six. Berry many-seeded, roundish, with a scaly bark.

SPECIES.

1. *Annona muricata*. Rough-fruited Custard Apple, or Sour Sop.

Lin. spec. 756. syst. 508. Reich. 2. 628. hort. cliff. 222. 1. mant. 405. Swartz obs. 220. Gron. virg. 61. 83. Brown. jam. 255. Sloan. jam. 2. t. 225. Pluk. alm. t. 134. f. 2. and t. 135. f. 2. Comm. hort. 1. t. 69. Merian surin. t. 14. Jacqu. obs. 10. t. 5. amer. pict. t. 161.

Guanabanus. Plum. gen. t. 143. f. 1.

Araticu-Ponhe. Marcg. bras. 93. Pis. bras. 69. f. 70. Raii hist. 1651. n. 5.

Leaves oval-lanceolate, smooth, acute; fruits muricate; petals ovate, the interior ones obtuse, shorter.

^a Jacqu. amer.

^b Ibid.

^c Plumier.

2. *Annona tripetala*. Broad-leaved Custard Apple.

Ait. hort. kew. 2. 252. Trew ebret. 16. t. 49.

Feuill. itin. 3. p. 24. t. 17.

Ann. Cherimola. Mill. dict. n. 5.

Leaves ovate, acute, pubescent beneath; flowers three-petalled: petals lanceolate, coriaceous, tomentose.

3. *Annona squamosa*. Undulated Custard Apple, or Sweet Sop.

Lin. spec. 757. syst. 508. Reich. 2. 629. mant.

405. Swartz obs. 221. Gært. fruct. 2. 193.

Jacqu. obs. 13. t. 6. f. 1. amer. pict. t. 162.

Pluk. alm. t. 134. f. 3. Brown. jam. 256.

Sloan. jam. 2. t. 227. Lour. cochinch. 349.

A. tuberosa. Rumph. amb. 1. 138. t. 46.

Atamaram. Rheed. mal. 3. t. 29. Raii hist. 1650. n. 1.

Leaves oblong, acute, smooth: fruits obtusely scaled: outer petals lanceolate, inner ones minute.

4. *Annona reticulata*. Netted Custard Apple.

Lin. spec. 757. syst. 509. Reich. 2. 629. Swartz

obs. 222. Jacqu. obs. 14. t. 6. f. 2. amer. pict.

t. 264. f. 93. Brown. jam. 256. Sloan. jam. 2.

t. 226.

Guanabanus fructu aureo et molliter aculeato. Plum. gen. 43.

Annona-marami. Rheed. mal. 3. t. 30. 31. Raii hist. 1650. n. 2. and 1651. n. 3.

Leaves oblong-lanceolate, acute, smooth: fruits ovate, reticulate-areolate; outer petals lanceolate, inner minute.

[5. *Annona hexapetala*. Long-leaved Custard Apple.

Lin. suppl. 270.

Leaves elliptic-oblong, acute, smooth: petals spatulate, equal, acute.

6. *Annona palustris*. Shining-leaved Custard Apple.

Lin. spec. 757. syst. 509. Reich. 2. 629. Swartz

obs. 223. Brown. jam. 256. Sloan. jam. 2.

t. 228. f. 1. Pluk. alm. t. 240. f. 6. Raii dendr.

78. n. 1.

Guanabanus palustris, fructu laevi viridi. Plum.

Leaves oblong, rather obtuse, smooth; fruits arcuate.]

7. *Annona triloba*. Trifid-fruited Custard Apple.

Lin. spec. 758. Reich. 2. 630. Mill. fig. t. 35.

Cateb. car. 2. t. 85. Trew ebret. t. 5. Du-

ham. arb. 1. p. 56. t. 19.

Leaves elliptic, acute, smooth: flowers pendulous, campanulate: calyxes ovate: petals many, oval.

[8. *Annona glabra*. Smooth Custard Apple.

Lin. spec. 758. Reich. 2. 630. Cateb. car. 2.

t. 64.

Leaves lanceolate-ovate, fruits conoid smooth.]

9. *Annona asiatica*. Asiatic Custard Apple.

Lin. spec. 758. Reich. 2. 630. hort. cliff. 222. 2.

fl. zeyl. 225. Burm. zeyl. 21. Lour. cochinch.

350. Plum. spec. 43. ic. 143. f. 2. (*Guanaba-*

nus.)

Leaves lanceolate, smooth, shining, marked with lines.

[10. *Annona africana*. African Custard Apple.

Lin. spec. 758. Reich. 2. 630. hort. cliff. 222. 3.

Plum. gen. 43. Trew ebret. t. 49. (*Guanaba-*

nus.)

Leaves lanceolate pubescent.

DESCRIPTIONS, &c.

These trees are natives of the hot climates of Asia, Africa, and America: some of them are esteemed for their fruits, which are commonly served up at the tables of the principal inhabitants, in the countries where they grow.

The species require a more accurate examination than they have hitherto had; some having a simple, and others a compound pericarp; the radicle of the embryo in some being centripetal, in others centrifugal; they are probably not of the same natural genus^d.

1. The first species is a middle-sized tree, rarely above twelve or fourteen, or at most twenty feet high. Trunk upright, with stiff, round, smooth branches, and a brownish ash-coloured bark. Leaves petioled, alternate, sparse, oblong, acuminate, entire, shining, firm, stiffish. Petioles short. Peduncles axillary, solitary, thick, longer than the

petioles, one-flowered. Flowers coriaceous, yellow. Calyx one-leafed, triangular. Corolla three-petalled: petals acuminate, thick, concave, coriaceous, smooth, scabrous on the outside, pale green. Nectary three-leaved; leaflets alternate with the petals, only half the size, subcordate, smooth, convex, yellow. Filaments scarcely any. Anthers rather pedicelled, subclavate, bivalve, whitish. Styles very short, crowded together into a conical form. Stigmas oblique, hirsute after flowering time. Berry difform, cordate-oblong, muricate with prickles bowed back, fleshy. Seeds oblong, black, with a lateral scar of a different colour, placed in a ring^a.]

Miller compares it with the fourth species, and remarks that this is not so large a tree, nor so well furnished with branches; the leaves are broader, have a smooth surface, without any furrows, and are of a shining green colour: the fruit is large, of an oval shape, irregular and pointed at top; being of a greenish yellow colour, and full of small knobs on the outside; the pulp is soft, white, and of an acid and sweet taste intermixed.

[It is a native of the West-Indies, and is common in every savannah of Jamaica, flowering in the spring. The large succulent fruit is agreeable to new-comers, and over-heated habits; but it is so common, and so much in use among the negroes, that it is now hardly ever used among the better sort of people^b. The smell and taste of the fruit, flowers, and whole plant, resemble very much those of Black Currants. There is a variety of it in Jamaica with inodorous leaves, larger flowers of a fulvous colour, and spherical mucronate fruits^c.

It was cultivated here in 1656, by Mr. John Tradescant, jun.^d]

2. The second sort grows to a very large tree in South America, and is well furnished with branches. Leaves bright green, much larger than those of any other species. The fruit is oblong, scaly on the outside, and of a dark purple colour when ripe; the flesh is soft and sweet, and has many brown seeds intermixed with it, which are very smooth and shining. This fruit is esteemed by the Peruvians as one of their most delicate sorts. [It was cultivated in 1739, by Mr. Miller^e.

3. The third sort is a small tree, about eight feet in height, and is frequently rather a shrub. The trunk is smooth, and the branches spreading and round. Leaves alternate, acuminate, entire, nerved, smooth on both sides, glaucous on the back. Petioles short, round, smooth, thickened at the base. Flowers peduncled, usually in pairs, oblong, acuminate, green without, whitish within. Peduncles below the petioles, longer, one-flowered. Calyx one-leafed, triangular. Petals three, lanceolate, triquetrous, plane-convex without, sharp at the tip, excavated within at the base, dark purple, smooth. Nectary none. Filaments scarcely any. Anthers imbricate, pressed close to the germ, obtuse, two-valved. Styles short, thick, imbricate. Stigmas oblong, oblique. Berry oval: scales adnate, roundish, bluish, resembling subimbricate teats. Seeds flattened a little, black with a white scar on the side, wrapped in a succulent cottony substance^f. It is a native both of the East and West-Indies. The fruit is sweet, and is eaten in those countries. It was cultivated in 1739, by Mr. Miller^g.]

4. The fourth sort is a tree which grows to the height of twenty-five feet or more, with spreading branches; the bark is smooth and of an ash colour. The leaves are of a light green colour, and have several deep transverse ribs, ending in acute points.

[They are alternate in two rows, elongate, broad, rounded at the base, acuminate with a blunted tip, entire about the edge, veined, smooth on both sides. Petioles gibbous, short, excavated, smooth. Flowers three or four close together, peduncled, nodding, whitish, the same size as in *A. squamosa*. Petals three, linear, thick, three-cornered, blunt, unequal

and brown on the outside, yellowish white within, spotted with dark purple, excavated at the base. The Nectary consists of three very minute, oblong, blunt petals, at the base of the genuine petals. The body of stamens and pistils is roundish, minute, whitish. The fruit is roundish, heart-shaped, the rind sometimes reticulate, thick, brown, shining^h.] Miller describes it as of a conical form, as large as a tennis-ball, of an orange colour when ripe, having a soft, sweet, yellowish pulp, the consistence of a custard, whence the name. [It is a native both of the East and West-Indies; and, according to Browne, the fruit is much esteemed by many people. Swartz says, that it is seldom eaten. It was cultivated in 1690, in the royal garden at Hampton Courtⁱ.

5. This tree is very like most of the genus. The leaves are elliptic and smooth; the calyx three-leaved and minute; the six petals equal and oblong^k. It is a native of China, and is cultivated in the East-Indies. It was introduced in 1758, by Hugh Duke of Northumberland^l. Father Loureiro suspects that this is not different from the third sort, both having usually no more than three petals, though sometimes the corolla may be double.

6. The sixth sort is a small tree, only a fathom in height, or little more. Branches round, scabrous, ash-coloured; twigs smooth, alternate, patulous. Bark tenacious, and may be drawn out into long threads for making ropes. Leaves petioled, alternate, spreading, ovate, scarcely acuminate, entire, beautifully nerved, very smooth, coriaceous, a little recurved. Flowers peduncled, towards the ends of the branches. Peduncle solitary, the length of the petioles, round, one-flowered, below the petiole, smooth. Flower yellow, the same size as in *A. muricata*. Calyx three-parted, almost triangular. Petals three, concave, roundish with a short point, thick, coriaceous, veined on the outside, smooth and paler on the inside, with blood-red spots at the base. The nectary consists of three petals, shorter by half than the three others, narrower, acute, concave, white without, dark blood-red within. Filaments crowded, fixed to the receptacle below the pistil. Anthers oblong, angular, blunt, white. Germs crowded into a convex, green body. Styles scarcely any. Stigmas blunt, pale. Berry heart-shaped, very smooth, with a coriaceous, pulpy rind^m.

It grows wild in soft marshy places in Jamaica; and bears a fine sweet-scented fruit, of no disagreeable flavour; but it is said to be a strong narcotic, and is not eaten on that account. It is called *Alligator Apple*. The wood of this tree is so very soft, even after it is dried, that it is frequently used by the country people instead of corks, to stop up their jugs and calabashes; whence it has now universally obtained the name of *Cork-wood* in Jamaicaⁿ.

It was introduced here in 1778, by Thomas Clarke, M. D.^o

7. The trunk of this tree is seldom bigger than the small of a man's leg, and rises about ten or twelve feet high, having a smooth, greenish-brown bark. In march, when the leaves begin to sprout, its blossoms begin to appear, consisting each of six greenish-white petals. The fruit grows in clusters of three, and sometimes four together; they are at first green, and when ripe yellow, covered with a thin smooth skin, which contains a yellow pulp, of a sweet luscious taste; in the middle of which lie in two rows, twelve seeds, divided by so many thin membranes. All parts of the tree have a rank, if not a fetid smell; and the fruit is relished by few, except negroes. These trees grow usually in low shady swamps, and in a very fat soil^p.

Mr. Miller observes, that this is rather a shrub than a tree, and that the flowers, at least in England, are of a rusty purple colour. He mentions, that the largest plant he had seen, was in the Duke of Argyle's garden at Whitton, near Hounslow,

^a Swartz.
^e Hort. kew.

^b Browne.

^c Swartz.

^d Hort. kew.

^f Swartz.

^g Hort. kew.

^h Swartz.

^m Swartz.

ⁱ Hort. kew.

ⁿ Browne.

^k Linn. suppl.

^o Hort. kew.

^l Hort. kew.

^p Catesby.

which

which produced flowers the beginning of may. It is a native of the Bahama islands, Carolina, Maryland, and Virginia; and the seeds are frequently brought to England, by the title of *Papaw-tree*¹. It was introduced here in 1736, by Peter Collinson, Esq.²

8. This shrub or small tree grows to the height of about sixteen feet, covered with a smooth, greenish bark. Leaves thick, stiff, and shaped like those of the Lemon. The fruit is covered with a smooth, yellowish-green skin; the pulp is of the consistence of a ripe pear, and contains many conic, brown seeds. This is an eatable fruit, very sweet, but somewhat insipid: it is the food of Guanias, and many other wild creatures³. It is a native of North America.

9. This is a middle-sized tree, with spreading branches. Leaves quite entire, alternate, petioled. Flower pale, single on binate peduncles. Petals three, oblong-conical, incurved, erect. Germs superior, uniting, as they ripen, into an oblong-conical berry, five inches long, red and smooth on the outside, filled with a whitish, sweet, eatable pulp, but inferior in flavour to the third sort⁴.

Native of the East-Indies. Cultivated there and in China.

10. The branches are rugged with little dots. The leaves pubescent on both sides, so as to be hoary, and not at all shining⁵.

This, though it has the name of *africana*, is said to be a native of America.

These fruits are much esteemed by the natives of the countries where they grow naturally, are esteemed very cooling and wholesome, and are frequently given to sick persons.]

PROPAGATION AND CULTURE.

The seventh sort will thrive in the open air in England, if it is planted in a warm situation; but the plants should be trained up in pots, and sheltered in winter for two or three years, until they have acquired some strength; then they may be turned out of the pots in the spring, and planted in the full ground, where they are to remain. This sort produced flowers in the curious garden of his grace the duke of Argyle, at Whitton, near Hounslow, where it grew in the open air for some years, as also in the nursery of the late Mr. Gray, near Fulham. The seeds are frequently brought to England from North America, they are much larger than those of the other species, and many plants have been raised in the gardens near London. The shape of the leaves is also different; this casts its leaves in autumn, whereas all the others retain their leaves, never casting them until the spring, when the new leaves come out. The fruit is very different from those of the other species, two or three growing together at their foot-stalks. When the seeds of this sort are sown, they frequently remain a whole year in the ground; therefore the earth in the pots should not be disturbed, where they are sown, if the plants do not come up the first year; and the pots should be sheltered in winter, and the following spring if they are plunged into a new hot-bed, the plants will come up much sooner than those which are sown in the open air, and will have more time to get strength before the winter.

All the other sorts, which are natives of the hot parts of America, or the East Indies, are too tender to live in this country, if they are not preserved in warm stoves; they come up very easily from the seeds which are brought over, if they are fresh; but these seeds must be sown on a good hot-bed, or in pots of light earth, and plunged into a hot bed of tanner's bark in february, which is by much the best time; because when the plants come up early, they will have time to get strength before the cold weather comes on in the autumn.

These plants should be kept in the bark-stove, and carefully managed, with which they will make great

progress: but in warm weather they should have plenty of fresh air admitted to them, for when the air is excluded from them too much, they are apt to grow sickly, and are often attacked by vermin, which will multiply and spread over the whole surface of the leaves, and cause them to decay; but when carefully managed, their leaves will continue green all the winter, and make a very good appearance in the stove at that season.

As these plants advance in their growth, they should be shifted into larger pots; but this must be done with caution, for nothing is more prejudicial to them than over-potting them. They must also constantly remain in the tan-bed, otherwise they will make but little progress, for although they will live in a dry stove, yet they will make little progress, nor will their leaves appear so fine, as when they are preserved in a vigorous growing state; and it is more for the beauty of their leaves, than any hopes of their producing fruit in this country, that they are preserved in stoves: for though some of the sorts have produced flowers in England, yet none have ever shewn their fruit here.

Some of these plants are twelve or fourteen feet high in our gardens, and there were plants of the seventh sort in the garden at Chelsea, which were more than twenty feet high, and produced flowers two or three years. The stove in which these plants are placed, should, during the winter season, be kept to the Ananas heat, marked on the botanical thermometers. The earth should be light and rich in which they are planted, and the tan-bed should be frequently turned over and refreshed. Their waterings must be frequent in summer, but not in too great quantity. In the winter they must have it but seldom, a little once a week in open weather, and, in frost, once in a fortnight or three weeks will be sufficient.

[ANODA. See *Sida*.

ANONA. See *Achras*. *Annona*. *Chrysophyllum*. *Craeva*. *Sloanea*.

ANONIS. See *Glycine*. *Hedysarum*. *Ononis*. *Sophora*.

ANOTTA. See *Bixa*.

ANSERINA. See *Potentilla*.

ANTANISOPHYLLUM. See *Boerhaavia*.

ANTENNARIA. See *Gnaphalium*.

ANTEUPHORBIVM. See *Cacalia*.]

ANTHEMIS. (*Ανθεμης*, *Diosc.* *Ανθεμ*, *floreo*, from its abundance of flowers, or from its luxuriance.)

Lin. gen. 970. *Reich.* 1052. *Schreb.* 1312. *Juss.*

185. *Chamæmelum* *Tourn.* 281. & *Vaill. act.*

gall. 1720. *Gærtn.* *Anthemis* *Mich. gen.* 30.

Bupthalmum *Tourn.* 282.

Class. 19. 2. *Syngenesia* *Polygamia* *Superflua*.

Nat. order of *Compositæ* *Discoideæ*. *Corymbiferae* *Juss.*

GENERIC CHARACTER.

CAL. Common hemispherical: scales linear, subequal.

COR. Compound radiate. Corollules hermaphrodite, tubular, numerous in a convex disk. Females more than five in the ray.

Proper of the hermaphrodite funnel-shaped, five-toothed, erect—of the female ligulate, lanceolate, sometimes three-toothed.

STAM. in the hermaphrodites: *fil.* five, capillary, very short: *anther* cylindrical, tubular.

PIST. in the herm. Germ oblong: *style* filiform, the length of the stamens: *stigmas* two reflex—in the females, germ oblong: *style* filiform, the length of the hermaphr. *stigmas* two revolute.

PER. none. *Calyx* unchanged.

SEEDS solitary, oblong: down margined or none.

REC. chaffy, convex, or conical.

ESSENTIAL CHARACTER.

Rec. chaffy. Down none. Cal. hemispherical, nearly equal. Floscules of the ray more than five.

SPECIES.

* With a discolour or white ray.

1. *Anthemis* *Cota*.

Lin. spec. 1259. *Reich.* 3. 859. *mant.* 474. *syn.* 776. *Mich. gen.* 32.

Chamæmelum *annuum*, &c. *Mor. hist.* 3. f. 6. t. 8. f. 11. for 12. *Tilli pis.* t. 19. f. 2.

Bellis

¹ Miller's figures.

² Hort. kew.

³ Catesby.

⁴ Loureiro.

⁵ Lin. clus.

- Bellis montana*, &c. *Pluk. alm. t. 17. f. 5.*
Chaffs of the flowers rigid, pungent.
2. *Anthemis altissima*. Tall Chamomile.
Lin. spec. 1259. Reich. 3. 860. mant. 474. Gouan. hort. 450. Sauv. monsp. 265. D'Asso aragon. n. 848. Baub. hist. 3. 120. Raii hist. 356. 8. Baub. pin. 135. prodr. 70.
Erect, with leaves pinnate; the bases of the pinnae rough with a reflex toothlet.
3. *Anthemis maritima*. Sea Chamomile.
Lin. spec. 1259. Reich. 3. 860. Hudf. angl. 374. With. 935. Mich. gen. 33. Tilli. pis. t. 19. f. 3. Baub. hist. 3. 122. 1. Raii hist. 355. 5. syn. 186. (Chamæmelum).
Leaves pinnate, toothletted, fleshy, naked, dotted; stem prostrate; calyxes rather tomentose.
4. *Anthemis tomentosa*. Downy Chamomile.
Lin. spec. 1260. syst. 776. Reich. 3. 861. hort. cliff. 415. 3. mant. 474. Gouan. illustr. 70. Fl. dan. t. 685? Vaill. art. par. 1720. n. 319. (Chamæmelum).
Leaves pinnatifid, obtuse, flat, peduncles shaggy, leafy; calyxes tomentose.
5. *Anthemis mixta*. Simple-leaved Chamomile.
Lin. spec. 1260. Reich. 3. 861. Guett. stamp. 2. 347. Gouan. illustr. 71. Mich. gen. 32. t. 30. f. 1. Pluk. alm. t. 17. f. 4.
Chamæmelum annuum ramosum, coronopi folio, flore mixto. Mor. hist. 3. f. 6. t. 18. f. 15.
Ch. lusitanicum latifolium, seu coronopi folio. Breyn. cent. t. 74.
Leaves simple, jagged, toothed.
- [6. *Anthemis alpina*. Alpine Chamomile.
Lin. spec. 1261. syst. 776. Reich. 3. 861. mant. 474. Amæn. 4. 330. Jacqu. austr. 5. t. 30.
Chamæmelum alpinum saxatile perenne, flore albo singulari, calyce nigricante. Tilli. pis. t. 19. f. 1. Segu. ver. 3. p. 282.
Leaves tooth-pinnate, quite entire, linear; stem villose, one-flowered; petals ovate, chaffs sphacelate.
7. *Anthemis chia*. Cut-leaved Chamomile.
Lin. spec. 1260. Reich. 3. 862. hort. cliff. 415. 4.
Chamæmelum chium vernum, folio crosiere, flore magno. Tourn. cor. 37.
Leaves pinnatifid, jagged: peduncles naked, subvillose.]
8. *Anthemis nobilis*. Common or Sweet Chamomile.
Lin. spec. 1260. Reich. 3. 862. mant. 474. mat. med. 189. Hudf. angl. 373. With. 936. Woodv. med. bot. 283. t. 103. Hall. helv. n. 102. Blackw. 298. 1. & 526. Krock. files. n. 1434.
Chamæmelum romanum. Ger. 616. 4. emac. 755. 4. —odoratum. Dod. pempt. 260. 1. —odoratissimum repens. Baub. hist. 3. 118. Raii hist. 353. syn. 185. Pet. brit. t. 19. f. 10.
Leaves pinnate-compound, linear, acute, subvillose.
- [9. *Anthemis arvensis*. Corn Chamomile.
Lin. spec. 1261. Reich. 3. 862. suec. n. 768. Hudf. angl. 373. With. 937. Hall. helv. n. 103. Scop. carn. n. 1091. Pollich. palat. n. 816. Krock. files. n. 1435. Lees herborn. n. 666.
Chamæmelum inodorum. Baub. pin. 135. Raii syn. 184.
Bupthalmum album. Petiv. brit. t. 19. f. 8.
Receptacles conic, chaffs bristle-shaped; seeds crown-margined; leaves thinly downed.
10. *Anthemis austriaca*. Austrian Chamomile.
Lin. syst. 776. Jacq. austr. 5. 22. t. 444.
Chamæmelum Triumphetti. Allion. pedem. n. 680.
Receptacles conic, chaffs oblong, mucronate, seeds naked, leaves bipinnate woolly-villose.
11. *Anthemis Cotula*. Stinking Chamomile or May-weed. Maithes, Maithen, or Mather.
Lin. spec. 1261. Reich. 3. 863. suec. 767. mat. med. 190. Hudf. angl. 373. With. 938. Hall. helv. 104. Curtis lond. 5. 61. Scop. carn. n. 1092. Pollich. pal. n. 817. Lees herborn. n. 667. D'Asso aragon. n. 851. Krock. files. n. 1436.
Chamæmelum foetidum. Baub. pin. 135. Raii hist. 355. 3. syn. 185. Baub. hist. 3. 121. 1. Mor.

- hist. f. 6. t. 12. f. 8, 10. Petiv. brit. t. 19. f. 11.*
Ger. emac. 757. 1. Park. theat. 87. 9.
Receptacles conic, chaffs bristly, seeds naked, leaves smooth.]
12. *Anthemis Pyrethrum*. Spanish Chamomile, or Pel-litory of Spain.
Lin. spec. 1262. Reich. 3. 864. hort. cliff. 414. upf. 263. mat. med. 100. Woodv. med. bot. 286. t. 104. Gouan. hort. 451. Mill. fig. t. 38. Blackw. t. 390. Krock. files. n. 1437.
Chamæmelum specioso flore, radice longa fervida. Shaw. afr. 138.
Pyrethrum flore bellidis. Baub. pin. 148. Raii hist. 353.
P. vulg. officin. Ger. 618. 1. emac. 758. 1. Park. theat. 858. n. 2. 859. f. 2.
Stems simple, one-flowered, decumbent, leaves pinnate multifid.
*** With a concolour or yellow ray.*
13. *Anthemis valentina*. Purple-stalked Chamomile.
Lin. spec. 1262. Reich. 3. 864. hort. cliff. 414. Gouan. hort. 451. Mill. fig. 73.
Bupthalmum creticum cotulae folio. Breyn. cent. t. 75. Dalech. hist. 863. Raii hist. 341. 11.
Stem branching, leaves pubescent, tripinnate, bristle-shaped, calyxes villose, peduncled.
- [14. *Anthemis repanda*. Repand-leaved Chamomile.
Lin. spec. 1262. Reich. 3. 865.
Leaves simple, ovate-lanceolate, repand-crenate.
15. *Anthemis trinervia*. Three-nerve-leaved Chamomile.
Lin. syst. 777. suppl. 378.
Leaves ovate, serrate, three-nerved, opposite, petiolate, receptacle conic.
16. *Anthemis americana*, American Chamomile.
Lin. syst. 777. Reich. 3. 865.
Leaves triternate, peduncles terminal, longer than the branch.]
17. *Anthemis tinctoria*. Yellow Chamomile or Ox-eye.
Lin. spec. 1263. Reich. 3. 865. suec. n. 769. Fl. dan. t. 741. Hudf. angl. 374. With. 938. Pollich. palat. n. 818. Krock. files. n. 1438. Leers herborn. n. 668.
Chrysanthemum foliis tanacetii. Loef. pruss. 47. t. 9. Pet. brit. t. 19. f. 7.
Bupthalmum. Ger. 607. 3. emac. 747. Park. 1370. 10. Baub. hist. 3. 122. 2. Raii hist. 341. 9. syn. 182.
Leaves bipinnate, serrate, tomentose underneath, stem corymbed.
18. *Anthemis arabica*. Arabian Chamomile.
Lin. spec. 1263. Reich. 3. 866. hort. cliff. 413. t. 24. upf. 264. Smith. spicil. 10.
Asteriscus annuus trianthophorus Craffas arabibus dictus. Shaw. afr. 58.
Stem decomposed, calyxes branch-bearing.
- [19. *Anthemis odorata*. Shrubby Chamomile.
Ait. hort. kew. 3. 238.
Leaves pinnatifid at the tip, peduncles elongate, calyxes membranaceous, ray barren.

DESCRIPTIONS, &c.

1. Peduncles very little swelled at top. Calyx contracted, with scales scarcely to the right black at the tips. Disk of the fructiferous flower hemispherical, with a flat calyx, the size of a plum, the largest therefore of the genus*. A native of Italy and Spain; growing in ploughed fields. Annual.
2. Stem many-flowered, almost overtopping the corn, streaked, erect. Peduncles a little swelling out at top. Calyxes smooth. Chaffs broad, subtruncate, terminated by a somewhat stiff bristle, the length of the calyx. Leaves multifid-compound with acuminate teeth; the points pale, resembling spines^b. Annual; and grows wild in the south of France, Italy and Spain. It was cultivated in 1748. by Mr. Miller^c.
3. Stems widely prostrate, smooth, purplish: Leaves pinnate, gashed, naked, sprinkled with hollow dots, towards the base more closely toothed, under the base with a transverse raised purplish line.

* Linn. mant.

b Linn.

c Hort. kew.

Peduncles terminal, solitary, substriated, pubescent, thicker towards the top. The flowers have the smell of Feverfew^a. It grows wild about Montpellier, and in Italy; and flowers in July and August.

4. Stems a foot high, one-flowered, leaves tomentose-filky. The two outer divisions of the corolla larger than the others^b. A native of the coasts of Greece, Italy, and France.

5. The ray of the flowers white, but yellow at the base^c. Annual. Grows wild in Italy and France. It was cultivated in 1731, by Mr. Miller^d.

6. Grows wild in the Tyrolese Alps, Monte Baldo, Tubingen, Piedmont, &c. Perennial.

7. Observed by Tournefort in the isle of Chios. It was cultivated in 1731, by Mr. Miller^e.

8. Root perennial. Stems trailing, hairy. Leaves bipinnate, pinnae rather distant, pinnules sometimes with two or three clefts, pointed, hairy, grayish. Flowers solitary. Calyx hairy, with broad, shining, membranaceous edges. Florets of the circumference somewhat elliptical, either entire, or with two or three teeth; those of the centre yellow^f. Abundant in Cornwall, and in most of the dry commons in Surrey. Flowering in July and August.

The leaves and flowers of *Common Chamomile* have a strong, not ungrateful smell, and a very bitter, nauseous taste. The latter are more bitter and considerably more aromatic than the leaves. The smell as well as the taste is rather improved by careful drying, and does not soon suffer any considerable diminution in keeping^g. An infusion of the flowers is often used as a stomachic, and as an antispasmodic. In large quantities it excites vomiting. The powdered flowers, in large doses, have cured agues, even when the Bark had failed. Both the leaves and flowers possess very considerable antiseptic properties, and are therefore used in antiseptic fomentations and poultices. From their antispasmodic powers they are frequently found to relieve pain, either applied externally, or taken internally^h. In the London Pharmacopoeia, an extract of the flowers is directed: and besides this, they are to be found only in *Decoctum pro Enemate* and *Decoctum pro Fomento*. The single flowers are ordered to be kept, and with good reason, the white florets of the ray, which are multiplied in the double flowers, being almost tasteless: notwithstanding this, double flowers only are to be found in the shops.

9. Root biennial. Stems many, prostrate, diffused. Leaves hoary. Peduncles long, angular and furrowed, pubescent. Scales of the calyx ovate-lanceolate, the inner ones dilated at the tip with a scarious membrane. Chaffs lanceolate, keeled, acuminate. Seeds smooth, somewhat squared, ten-furrowed, crowned at the top. Receptacle ovateⁱ. It is a common weed in corn in most parts of Europe; and flowers in June and July.

Linneus thus distinguishes this from the eleventh species, or *Stinking Mayweed*. The root is biennial. The appearance and stature is the same in both, but the stalks are more diffused in this; the peduncles longer, with only four or five streaks or fine grooves, whereas that has about eight; the leaves are more hoary, and inodorous; the inner scales of the calyx are dilated at the tip and membranaceous, but in *A. Cotula* they are not at all dilated and scarcely membranaceous; the chaffs in this are lanceolate, in that narrow like a bristle; the apex of the seeds in this is crowned with a four-cornered rim, as in *Matricaria Chamomilla*, in that the seeds have no crown, and terminate only in a pore^j.

In plants that have so much resemblance as we find in several of this class, we can scarcely be too minute in discriminating them.

10. Root annual. Stem usually single, upright, scarcely a foot in height, round, branching into a kind of panicle. Leaves bipinnate, short, thickish, subsessile; pinnules minute, converging, lanceolate,

mucronate, quite entire, whitely ciliate when examined with a glass, sessile. Solitary, upright, peduncled flowers terminate the branches. Scales of the hemispheric calyx hairy at their edges. Petals of the ray white, three-toothed, the middle tooth very small; they spread very much, and in the night are turned back. Disk yellow. Chaffs longer than the seeds, not pungent. The stem branches, leaves and calyxes are lanuginosely villose. The leaves, but especially the flowers, have a powerful smell of *Matricaria officinalis*, with something of the Chamomile: the taste is bitter. Native of Austria, by way sides and in corn fields, sometimes covering the fallows. It flowers the whole summer^k.

11. *Stinking Chamomile* or *Mayweed* is an annual plant, the whole of which is extremely fetid and acrid, so as to blister the skin of those who handle it: the acrid matter probably resides in small glands, which are visible only with a microscope. Stem single, upright, somewhat angular, striated, downy, with alternate branches upwards, sometimes almost to the bottom. Leaves alternate, sessile, slightly woolly, bipinnate or tripinnate, midrib keeled underneath, pinnae for the most part branched, flat, pointed, marked on the upper side with impressed dots visible to the naked eye. Peduncles upright, solitary, terminating, eight-streaked, naked, somewhat thicker towards the top. Scales of the calyx pale green, lanceolate, the outer ones blunt, and edged with brown, the keel more deeply coloured. Florets in the ray about thirteen, white without any tendency to green, subovate or elliptic-oblong, almost two lines broad, obtuse, two-ribbed, terminating in three obtuse teeth; the tubular part, and the germ studded with transparent glands, visible to the naked eye. Seeds obovate, bluntly four-cornered, warted at the angles, brown, wrinkled, flat at top, with a prominent hollow point in the centre; before they ripen, crowned with a fleshy herbaceous substance, formed of the tube of the floret. Receptacle subcylindrical, with rigid bristle-shaped chaffs on the upper part, shorter than the florets. The petals vary much in length and breadth; and it is found with double flowers^l. Linneus observes, that the flowers are also sometimes proliiferous; the disk being filled with smaller flowers, which are compound themselves, and have abundance of aphides among them. He adds, that it is a very grateful plant to toads; and from Loefelius, that it drives away fleas, is very disagreeable to bees, and is given as a medicine to sheep infested with the asthma^m.

It has never been much in use as a medicine, nor are its effects well known. Decoctions of it are said to have been used as a bath or fomentation against hysteric suffocations, and hæmorrhoidal pains and swellings. Mr. Ray says, that it has been given internally, with success, in scrophulous casesⁿ.

It is a common weed by way sides, on dunghills, and in corn fields, where it sometimes abounds so much as greatly to diminish the crop.

Mr. Curtis very justly observes, that farmers are not aware of the amazing increase from a single plant of this and some other weeds, which they suffer to exhaust their dunghills, in order to be dispersed afterwards over their fields. It flowers from May to August.

Mr. Curtis has admirably well distinguished this plant from *Matricaria Chamomilla*, which it greatly resembles, by the following circumstances. The whole plant in that puts on a deep green colour, and somewhat shining appearance; this on the contrary assumes a much paler hue, and the stalk is often covered with a kind of woolly substance: the leaves in *Matricaria* are nearly as fine as those of Fennel, which they distantly resemble; in the *Anthemis* they are almost twice as broad, and their points, which in that are simple, in this are often bifid. The radial florets of the *Anthemis* are in general much broader, and somewhat shorter: the disk in

^a Linn. ^c Ibid. ^f Ibid. ^g Hort. kew. ^h Ibid.
ⁱ Woodw. in With. ^k Lewis. ^l Withering. ^m Leers.
ⁿ Linn. succ.

• Jacquin.

^p Curtis. Woodw. M.S. Stokes in Withering.
^q Lin. succ. ^r Lewis.

this is not so prominent, but of a lighter yellow than in *Matricaria*. If the heads of that are bruised, they emit a strong smell, somewhat resembling that of true Chamomile, but not so pleasant; but those of *Anthemis* are intolerably disagreeable; these when handled blister the skin, which those of *Matricaria* do not. The seeds of *Anthemis* are broad, truncate, wrinkled, and deep brown; those of *Matricaria* are much smaller, paler, and different in shape.

12. Stems many, prostrate, usually one-flowered, seldom branching. Root perennial, thick*, running down a foot or more into the ground, about as big as a man's finger, the colour of Horse-radish, white within, of an acrid biting taste. Flower large, the florets of the ray purple on the outside. Mr. Miller says, the first time he raised this plant was in 1732, from seeds picked out of raisins, and the year after the plants produced seeds, which ripened well, and the plants raised from these seeds continued several years, but did not perfect their seeds; so that in the winter of 1753, the old roots being destroyed, he lost the species†. It is a native of the Levant, and the southern parts of Europe; and was cultivated in 1570". The root, on being chewed, excites a glowing heat, and produces a discharge of saliva, which relieves tooth-achs, and rheumatic affections of the face; it is recommended in lethargic complaints and paralyzes of the tongue.

13. It grows to the height of two feet, and when allowed room, throws out many side branches, especially in good land. Stem diffused, purplish. Peduncles swelling at the top. Scales of the calyx villose; but the inner ones scariose, notched, smooth*. Linneus says that his son has observed the corollas of the florets in this species to be awned at the end. Cultivated in 1621, by Mr. John Goodyer†.

This plant has been continued in most of the dispensaries for many ages, and is supposed to be the same which Dioscorides recommends as good for the jaundice, and to restore the skin to a good colour: but of late years, it has been entirely disused in the shops; and whenever Ox-eye has been ordered, the greater Ox-eye Daisy (*Chrysanthemum Leucanthemum*) has been used. This grows naturally in Spain, Portugal, and Provence. The flowers are yellow, but there is a variety with white flowers: both are mentioned by Breynius. There is a third with naked flowers having no rays, which Linneus places in his genus of *Anacyclus*: but all these will rise from the seeds of the same plant, and frequently both radiate and naked flowers appear on the same branch. These plants not only vary in their flowers; but the leaves also are different; some being finely divided, and others having broader segments; and this from the same seeds. Mr. Miller has figured that with yellow flowers, whose leaves are not so finely divided as those of the white; and which is supposed to be the true medical Ox-eye‡.

14. Stems rather simple, erect. Leaves petiolate, alternate, obtuse, scarcely villose. Flowers terminal, subsolitary, globose; calyx not much imbricated: ray narrow; disk convex: seeds four-cornered, crowned with four scales, two of which end in bristles*. A native of Spain and Portugal.

15. Stem erect, subpubescent, simple. Leaves smooth, discolour. Peduncle terminal, pubescent, thickening to the end, one-flowered. Ray ovate-oblong, obtuse, entire: five-flowered. Disk elevated, chaffy. Seeds of the ray and disk obovate, roundish, warty, without any down*. Found in South America, by Mutis.

16. A native of America. According to Swartz (obf. 309.) it is probably the same with *Verbena mulica*.

17. Stem striated, slightly hairy, much branched. Lower leaves pinnate; lower pinnae short, distant, toothed; upper pinnatifid, the midrib broader than the pinnules, which are lanceolate, toothed, slightly

hairy, green above, glaucous underneath; the upper leaves pinnatifid; midrib broad; pinnae irregular, linear-lanceolate, toothed; uppermost leaves sometimes simply toothed, slightly hairy. Long, naked, striated, slightly-hairy peduncles terminate the stem and branches, each bearing one flower. Calyx imbricate with numerous scales; outer of various lengths, inner equal, lanceolate, hairy, with a green dorsal line, and white shining edges. Florets all yellow, those of the radius broad, three-toothed; of the disk numerous, short*. A native of Sweden, Germany, &c. in dry open pastures. Mr. Ray found it near the river Tees, not far from Sogburn, in the bishopric of Durham. Linneus says that the flowers are much used in Gotland in dyeing yellow.

18. Root annual. Stem single, at first upright, little branched, but proliferous, round, striated, purplish, slightly downy, leafy. Leaves scattered, thicker set near the flowers, sessile, pinnatifid or twice pinnatifid, a little fleshy, nearly smooth; segments linear, acute, alternate. One flower terminates the original stem, sessile, of a bright gold colour; from its base spring from two to five branches, curved upwards, leafy, shaped like the stem, each terminated by one flower, and in the same manner becoming proliferous, till the plant, weighed down by its own luxuriance, becomes prostrate. Calyx a little imbricate, brown, downy; scales membranous at the tip, obtuse, lacerated. Radial florets twelve to eighteen, spreading, with about three teeth at the end. Receptacle conical; scales lanceolate, pointed, carinated, bearded at the base. Seeds obovate, striated, brown, entirely destitute of down or crown*. The seeds were bought from Arabia by the late Dr. Shaw, and were distributed to many curious botanists in Italy, France, and England, where some of the plants were raised. [It must have been lost afterwards, for Dr. Smith observes (in 1792), that it is scarcely to be met with in any garden, or even herbarium; and that his figure was drawn from a plant at the Marchioness of Rockingham's in 1790, the seed of which was received from the gardens at Carlfruth the preceding year, by Mr. Lee of Hammer-smith.

It is an ornamental plant, and merits a place among hardy annuals. Its flavour is bitter and aromatic, but far weaker than officinal Chamomile*.

19. Native of the Cape of Good Hope, where it was found by Mr. Francis Masson. It was introduced in 1774; and flowers from april to june†.]

PROPAGATION AND CULTURE.

Some of these plants are annuals, and others perennials, both hardy enough, except the fifteenth and nineteenth, to bear the open air. They may be propagated by seeds sown in the spring, on poor land; and require no other culture but to thin the plants where they are too close, and to keep them clean from weeds. They flower in july, and being generally bushy, require room.

The Common or Sweet Chamomile may be increased by slips planted in the spring a foot asunder, that they may have room to spread, and they will soon cover the ground. It was formerly planted for edges, to cover banks, and for walks. The variety with double flowers is equally hardy, and may be propagated in the same manner.

17. The Yellow Chamomile or Ox-eye may be increased by sowing the seeds on a bed of common earth in the spring; and when the plants are strong enough to remove, they should be transplanted into large open borders, near shrubs, where they may have room to grow, for they require to be three feet distant from other plants. In large open spots they make a pretty variety from june to november, during which time they continue in flower. Some of the flowers are white, others sulphur-coloured, and others are of a deeper yellow. Those which come from the Levant are taller plants, and produce larger flowers; but in other particulars they are the same with the European.

* Linn. † Mill. fig. ‡ Hort. kew. * Linn. † Hort. kew.
* Mill. fig. ‡ Linn. † Linn. suppl. where it is called *A. americana*.

* Woodward M.S. † Smith spicil. ‡ Ibid. † Hort. kew.

18. The seeds of Arabian Chamomile should be sown in autumn, otherwise the seeds are seldom perfected in England.

ANTHERICUM. (Ανθερίκος Theoph. and Diosc. Άνθος ἰνχός, flower of the hedges.)

Lin. gen. n. 422. Reich. 455. Schreb. 570. Gertn. 16. Juss. 52.

Bulbine. Lin. gen. edit. prior. 269.

Phalangium. Tourn. 193.

Class. 6. 1. Hexandria Monogynia.

Nat. order of Coronariae. Asphodeli Juss.

GENERIC CHARACTER.

CAL. none.

COR. Petals six, oblong, obtuse, spreading very much.

STAM. Filaments subulate, erect; anthers small, incumbent, four-furrowed.

PIST. Germ obscurely three-cornered; style simple, the length of the stamens: stigma obtuse, three-cornered.

PER. Capsule ovate, smooth, three-furrowed, three-celled, three-valved.

SEEDS numerous, angular.

OBS. Various species have woolly filaments; in others the petals are not deciduous.

Liliastrum. Tourn. has a bell-shaped corolla.

Anth. calyculatum has the calyx three-toothed, and three stigmas distinct without a style.

The character of the genus is very difficult to ascertain.

ESSENTIAL CHARACTER.

COR. six-petalled, expanding. Capsule ovate.

SPECIES.

* Phalangium. Leaves channelled. Filaments generally smooth.

[1. Anthericum floribundum. Thick-spiked Anthericum.

Ait. hort. kew. 1. 447.

Leaves flat, smooth, linear-lanceolate, acute: scape simple; raceme many-flowered, cylindric, compact: petals spreading: stamens smooth.

2. Anthericum ferotinum,

Lin. spec. 444. syst. p. 330. n. 422. 1. Reich. 2. 61.

mant. 365. Jacqu. austr. 5. t. 38. Hudf. angl. 144.

With. 349. Raii syn. 374. t. 17. f. 1. Hall.

helv. n. 1209. Villars dauph. 2. 266. Baub.

hist. 2. 663. f. 1. (Narcissus).

Bulbocodium alpinum. Mill. dict. Lin. spec. ed. 1.

294.

Pseudo-narcissus gramineo folio. Baub. pin. 51.

prodr. 27.

Leaves flattish, scape one-flowered.

3. Anthericum græcum.

Lin. spec. 444. Reich. 2. 62.

Bulbocodium græcum, myosotidis flore. Tournef.

cor. 50.

Leaves flat, scape simple, flowers corymbed, filaments woolly.

4. Anthericum planifolium.

Lin. syst. 330. Reich. 2. 62. mant. 224.

Leaves flat, scape and filaments woolly.]

5. Anthericum revolutum. Curled-flowered Anthericum.

Lin. spec. 445. syst. 330. Reich. 2. 62. Murr.

prodr. 214. Comm. hort. 1. 67. t. 34. (Pha-

langium.)

Leaves flat, scape branched, corollas revolute.

6. Anthericum ramosum. Branching Anthericum.

Lin. spec. 445. syst. 330. Reich. 2. 62. succ. 289.

Scop. carn. n. 413. Plenck. ic. 269. Jacq.

austr. 2. t. 161. Pollich pal. n. 334. Krock.

filef. n. 527. Villars dauph. 2. 267. Hall. helv.

n. 1208. (Phalangium.) Lob. ic. 47. Camer.

epit. 580. Dod. pempt. 106. Ger. herb. 44. f. 1.

Park. theat. 419. f. 1. parad. 150. 4. t. 151.

f. 3. Baub. hist. 2. 635. f. 1. Raii hist. 1193. 3.

Leaves linear-subulate, flat; scape branched: pedun-

cles solitary: corollas flat: pistils straight.

7. Anthericum elatum. Tall Anthericum.

Ait. hort. kew. 1. 448.

Asphodelus foliis planis, caule ramoso, floribus

sparsis. Mill. fig. 38. t. 56.

Leaves flat, scape branched, peduncles aggregate, corollas flat.

[8. Anthericum triflorum. Three-flowered Anthericum. Ait. hort. kew. 1. 448.

Leaves channelled-sword-shaped, scape simple, bractes remote, three-flowered.

9. Anthericum canaliculatum. Channelled Anthericum. Ait. hort. kew. 1. 448.

Leaves rather fleshy, hairy, sword-shaped-triquetrous, channelled on the narrow side; scape simple.

10. Anthericum Albucoides. Striped-flowered Anthericum.

Ait. hort. kew. 1. 449.

Leaves linear, channelled, smooth, with a cartilaginous edge; scape simple.]

11. Anthericum Liliago. Grass-leaved Anthericum. Lin. spec. 445. syst. 330. Reich. 2. 63. succ.

n. 290. Jacqu. hort. 1. t. 83. Fl. dan. t. 616.

Pollich pal. n. 335. Krock. filef. n. 528. Villars

dauph. 2. 267. Hall. helv. n. 1207. (Phalan-

gium.)

Phalangium flore parvo, non ramosum Baub.

pin. 29. Mor. hist. f. 4. t. 1. f. 10. Ger. herb. 44.

f. 2. Park. parad. 150. 3. t. 151. f. 2. theat. 419.

f. 2. Baub. hist. 2. 635. f. 2. Raii hist. 1193. 2.

Lob. obs. 27. ic. 48. Dod. pempt. 106.

Leaves flat, scape perfectly simple, corollas flat, pistil bending down.

12. Anthericum Liliastrum. Savoy Anthericum or Spider-wort.

Lin. spec. 445. syst. 330. Reich. 2. 63. Villars

dauph. 2. 268.

Hemerocallis Liliastrum. Lin. hort. cliff. 128. spec.

ed. 1. 324. Mill. dict. n. 4.

Hem. floribus patulis secundis. Hall. helv. n. 1230.

Phalangium. Baub. hist. 2. 636. Raii hist. 1192.

Ger. emac. 48. f. 4. Park. par. 150. t. 151. f. 1.

Leaves flat, scape perfectly simple, corollas bell-shaped,

stamens bending down.

[13. Anthericum spirale.

Lin. syst. 330. Reich. 2. 64. mant. 224.

Scape spiral.]

** Bulbine. Leaves fleshy; Filaments bearded.

14. Anthericum frutescens. Shrubby Anthericum.

Lin. spec. 445. Reich. 2. 64.

Phalangium capense caulescens, foliis cepitiis fuc-

cosis, Dill. elth. t. 231. f. 298.

Leaves fleshy, columnar, stem shrubby.

15. Anthericum alooides. Aloe-leaved Anthericum.

Lin. spec. 446. Reich. 2. 64. hort. upf. 83.

Phalangium capense sessile, foliis aloeformibus pul-

posis. Dill. elth. t. 232. f. 299.

Leaves fleshy, subulate, flattish.

16. Anthericum asphodeloides. Glauous-leaved An-

thericum.

Lin. spec. 446. Reich. 2. 65. Jacqu. hort. 2.

t. 181.

Leaves fleshy, subulate, semicolumnar, upright and stiff.

17. Anthericum annuum. Annual Anthericum.

Lin. spec. 446. Reich. 2. 65. hort. upf. 83.

Leaves fleshy, subulate, columnar, scape subracemed.

18. Anthericum hispidum. Hairy-leaved Anthericum.

Lin. spec. 446. Reich. 2. 65.

Leaves fleshy, compressed, hispid.

*** Narthecium. Leaves sword-shaped.

19. Anthericum ossifragum. Lancashire Anthericum or

Asphodel.

Lin. spec. 446. Reich. 2. 65. lapp. 136. succ.

n. 287. Plenck. ic. 270. Fl. dan. t. 42. Relb.

cantab. n. 265. Gmel. fib. 1. 73. t. 18. f. 2.

Krock. filef. n. 529.

Narthecium ossifragum. Weber spicil. 11. Moerb.

E. N. C. 1742. p. 389. t. 5. f. 1. Hudf. angl.

145. With. 351. Lightf. scot. 181.

Phalangium anglicum palustre viridis folio. Raii

syn. 375.

Asphodelus Lancastriae verus. Ger. emac. 96. 2.

f. 3.—luteus palustris. Dod. pempt. 208.

Pseudo-asphodelus palustris vulgaris. Raii hist. 1195.

Baub. hist. 2. 633. 2.

Leaves sword-shaped, filaments woolly.

20. Anthericum

20. *Anthericum calyculatum*.
Lin. spec. 447. *syft.* 331. *Reich.* 2. 65. *Juec.*
n. 288. *lapp.* 139. *t.* 10. *f.* 3. *With.* 350.
Lightf. scot. 181. *ic.* *Gmel. fib.* 1. 73. *t.* 18.
f. 2. *Krock. files.* *n.* 530. *Hall. belv.* *n.* 1205.
Narthecium iridifolium. *Villars dauph.* 2. 225.
Tofieldia palustris. *Huds. angl.* 175.
A. Pseudoasphodelus. *Jacq. vind.* 233. *Fl. dan.*
t. 36.
Phalangium alpinum palustre, iridis folio. *Segu.*
ver. 2. *t.* 14. *Raii syn.* 375. *n.* 2. *hist.* 1195. 3.
Scheuchzeria Pseudo-Asphodelus. *Scop. carn.* *n.* 445.
Leaves sword-shaped, perianths three-lobed, filaments
smooth, flowers three-pistilled.
- [21. *Anthericum japonicum*.
Lin. syft. 331. *Thunb. jap.* 138.
Leaves sword-shaped, convolute, smooth: scape branch-
ing, angled, flowers racemed, nodding.
22. *Anthericum filiforme.* *Thread-leaved Anthericum.*
Ait. hort. kew. 1. 451.
Leaves filiform, rather cylindric, rough: filaments
smooth, petals lanceolate.
From the Supplement, &c.
23. *Anthericum flexifolium.*
Lin. suppl. 201.
Leaves subulate, smooth, flexuose: stem branching.
24. *Anthericum muricatum.*
Lin. suppl. 202.
Leaves fleshy, compressed, muricated, streaked.
25. *Anthericum latifolium.*
Lin. suppl. 202.
Leaves fleshy, wide-sword-shaped, smooth: raceme very
long: stem simple.
26. *Anthericum cauda-felis.*
Lin. suppl. 202.
Leaves channel-sword-shaped, scape simple, raceme ob-
long.
27. *Anthericum triquetrum.*
Lin. suppl. 202.
Leaves filiform, triquetrous, shorter than the simple
scape; raceme ovate.
28. *Anthericum ciliatum.*
Lin. suppl. 202.
Leaves sword-shaped, fleshy-subtriquetrous, ciliate;
scape simple; raceme very long.
29. *Anthericum falcatum.*
Lin. suppl. 202.
Leaves fleshy, sword-shaped-sickled, smooth: stem
branching, racemed.
30. *Anthericum contortum.*
Lin. suppl. 202.
Leaves flat, sword-shaped; stem branching, flowers
very remote.
31. *Anthericum scabrum.*
Lin. suppl. 202.
Leaves triquetrous, serrulate, stem branching, rug-
ged; fruit-bearing peduncles recurved.
32. *Anthericum squameum.*
Lin. suppl. 202.
Scape imbricate with membranous tumid scales.
33. *Anthericum cirratum.*
Forst. flor. *n.* 148.
Leaves lanceolate, flattish; scape panicled, leaves
bearded, bicirrate.
34. *Anthericum Adenantha.*
Forst. flor. *n.* 149.
Leaves linear-ensiform, connate at the base: a gland be-
tween the filament and anther.

DESCRIPTIONS, &c.

1. Native of the Cape of Good Hope, where it was found by Mr. Fr. Masson. Introduced here in 1774. It flowers in march and april^a.

2. The scape has three or four lanceolate, alternate, minute bractes or leaves, sheathing, without a spathe. The flower is inferior. Filaments not woolly^b. The root is an oblong bulb, covered with a net. Many slender leaves proceed from it. Flower-stem three or four inches high. Corolla convergent, petals ovate-lanceolate, white within, dusky red without, marked with spadiceous lines; yellowish

at the base. This is a vernal plant, appearing after the melting of the snows; and growing only on high mountains in Switzerland, Dauphiné, Piedmont, Austria, &c. and on Snowdon, &c. in Wales^c. Perennial, flowering in april and may.

3. Root a bulb. The leaves linear, smooth, almost as long as the scape, which has three or four very short leaves on it. A terminal corymb, of about five flowers; the middle peduncle one-flowered, the side-ones two-flowered. The corolla white, like that of the sixth. The stamens shorter than the corolla, and the style shorter than the stamens^d. From the Levant.

4. Roots thick, oblong, yellowish. Root-leaves linear, flattish, striated, subcarinate, subulate, with the end involute. Scape branching, bractes lanceolate, peduncles subracemose. Flowers red, the size of those in *A. ramosum*. This plant is of the same size with *A. græcum*, but the flowers are less. A native of Portugal, flowering in april^e.]

5. Roots fleshy, and composed of tubers joined at the crown, like those of the *Asphodel*; the stalk rises near two feet high, and branches out on each side; each branch being terminated by a loose spike of flowers, which are white, and the petals are turned backward to their peduncle. [We may add from Chevalier Murray, that the root-leaves are numerous, only one-third of the height of the scape, subulate, channelled at the base, then keeled and flat, striated, an inch and half broad, spreading. Scape four feet high, almost naked, round, smooth, oblique. Bractes five, gibbous at the base, pressed close, subulate, the lower ones larger like the leaves, the upper ones scaly and shrivelling. Corymb terminating, compressed, having six round, long, alternate branches, knotted where the flowers spring forth. Flowers alternate, solitary, or two sometimes three together, on small gray pedicels, thicker at the top, each supported by a little subulate bracte. Corolla inferior; petals lanceolate-ovate, reflex, obtuse, concave at the tip, white except towards the end on the outside, where they are brownish green. Filaments a little shorter than the corolla: anthers erect, oblong, revolute as they wither. The root is so like that of *Hæmanthus puniceus*, that they may easily be mistaken for each other.

It is a native of the Cape of Good Hope, and was cultivated in 1731, by Mr. Miller^f.]

6. Root round, the stalks rise about the same height as the former, sending out many lateral branches in like manner, which are terminated by loose spikes of flowers. [Leaves hard, grassy, none on the scape, which is loosely panicled, with one-flowered peduncles.] Corollas white; petals flat, and not turning back as in the former sort. [The three outer petals narrower than the others, lanceolate and sessile; the three inner oval and petioled. In each angle of the germ a small melliferous pore^g. A native of Sweden, the south of France, Switzerland, Austria, Carniola, &c. The flowers watch from seven in the morning to three or four in the afternoon^h. It was cultivated in 1597, by Gerardⁱ.

7. Roots composed of many tubers, each about the size of a little finger at top, and diminishing gradually to the size of a straw. Leaves seven or eight, nine or ten inches in length, and an inch and half broad in the middle, lessening gradually to both ends; they are smooth and glaucous. Flower-stem about two feet high, dividing into several branches, having a few narrow leaves, generally one at every division of the branch. The flowers form a loose spike, and are white.

This plant has probably been formerly in the Dutch gardens, for there are paintings of it in several flower-pieces, which are supposed to have been done above sixty years^k. However it has been lost for some years in Europe, and has been lately recovered from seeds which were sent from the Cape

^a Haller. ^b Linn. ^c Linn. mant. ^d Hort. kew. ^e Haller.
^f See Memoires de la Soc. de Berne, 1766. ^g Hort. kew.
^h This was said about the year 1755.

of Good Hope to England and Holland. The first seeds received by Mr. Miller were in 1750; and the plants raised from them flowered in 1752, and perfected their seeds. When they are fully blown, which is usually in august and september, they make a pretty variety among other exotic plants¹.

8. Native of the Cape of Good Hope. Introduced in 1782, by George Wynch, Esq. It flowers in november.

9. Scape round, hairy. Raceme many-flowered; peduncles round, smooth, scarcely an inch in length. Bractes lanceolate, acuminate, in the time of flowering shorter than the peduncle, smooth. Petals patulous, white, dirty green on the outside, half an inch long. Filaments subulate, white, shorter than the petals, somewhat hispid; three alternately shorter, less hispid. Style the length of the stamens. Native of the Cape of Good Hope. It flowers in april.

10. Petals yellow, with a green keel, arched at the tip, resembling those of *Albuca*, but differing in having the inner petals patulous, and the filaments not complicate above the base. This and the foregoing were found at the Cape by Mr. Francis Masson. It was introduced in 1788; and flowers in august^m.

11. Roots numerous, round, collected into a tuber crowned with bristles. Leaves from the root many, firm, a foot long, carinated, grassy. Scape erect, eighteen inches high, firm. Spike loose, ten-flowered, peduncles simple. Flower two inches wide; petals in two ranks; the inner widest, petiolate and pure white; the outer have a green line running along beneathⁿ. Jacquin's plant differs from Haller's (n. 1207) in having the petals not petioled, all in one row, without any green line running along beneath^o. It is a native of Italy, Switzerland, Germany, France and Denmark. Cultivated in 1597^p.

12. Root fascicled, with fleshy fibres. It has the corolla of the white Lily^q. Leaves grassy, soft, broader than two lines, the radical ones very long. Scape a foot or eighteen inches high. Spike thick-set with spreading flowers, on simple peduncles. Stipules coloured, ovate-lanceolate. Corolla above an inch in diameter, gradually widening; petals tender and white; ovate, thin, lanceolate, with a reflex point, which is thicker and has a green dot: they are marked with lines, and sweet-scented. Stamens almost as long as the petals, with weak filaments^r. There are two varieties of this, the *Lilium alpinum majus*, and *Lil. alp. minus* of Tournefort. The first rises with a flower-stalk more than a foot and half high; the flowers are much larger, and there is a greater number upon each stalk than in the second sort. There is no essential difference between them, but the first is by much the finest plant, though the second is what I have always observed in the gardens here. I received some roots of the second from Mons. Richard, gardener to the King of France, which continue their difference in the same soil and situation with the first, which flowers earlier in the year; the leaves of this are somewhat like those of the Spiderwort, are pretty firm, and grow upright: the flower-stalks grow about a foot and half high, and have several white flowers at top, shaped like those of the Lily, which hang on one side, and have an agreeable scent; these are but of short duration, seldom continuing in beauty above three or four days; but when the plants are strong, they will produce eight or ten flowers upon each stalk. The French call it St. Bruno's Lily. [It grows wild on the mountains of Switzerland and Savoy; and was cultivated in 1629^s.

13. A plant without leaves^t. Rudiments of them at the bottom sheathing the scape, which is four inches high, filiform, spiral, somewhat scandent, with three or four flowers, small, and from the top of the stem: peduncles straight, three times longer

than the flowers: bractes minute, ovate^u. A native of the Cape of Good Hope.

14. It differs from the fifteenth by rising into a stem and branches, by having the leaves greener, longer, and narrower, with a firmer pulp, and a viscid juice flowing copiously from them when cut, of a greenish yellow colour. In the fifteenth the leaves are paler, grow close, many together, are broader and more translucent, soft and pulpy, they pour out a limpid juice like the white of an egg, only when pressed, and then they are hollow, like those of an onion. The root of the fifteenth is tuberous, whereas in this it is fibrous, and not only the stem, but even the branches put out fibres, which hang down, and when they reach the ground strike root^x. It is a native of the Cape of Good Hope, was cultivated in the Chelsea garden in 1702^y; and was formerly known among the gardeners by the name of Onion-leaved Aloe.

15. It has broad, flat, pulpy leaves, resembling those of some sorts of Aloe, and was therefore formerly by gardeners called *Aloe with flowers of Spiderwort*. The leaves spread open; the flowers are produced on loose spikes, like the former, but are shorter: they are yellow, and appear at different seasons. This and the next species grow close to the ground, never rising with any stalk. [A native of the Cape of Good Hope. Cultivated in 1732, by James Sherard, M. D.^z

16. Leaves scarcely striated, but rough at the edge; more gibbous at the back towards one side^a. They are long, narrow, and pulpy, almost taper, but flattened on their upper side. The flowers are yellow, and grow on long loose spikes, as the former; these appear at different seasons; those of the spring and summer are succeeded by seeds in great plenty, which ripen very well. [A native of the Cape of Good Hope. Cultivated in 1759, by Mr. Miller^b.]

17. This is a low, annual plant, growing close to the ground, having pretty long succulent leaves which are taper; but flattened on their upper side; the flowers grow in loose spikes, which are shorter than either of the other sorts. They are yellow, and succeeded by round seed-vessels, like those of the former sorts; the plants perish soon after their seeds ripen. [A native of the Cape of Good Hope, and cultivated in 1748, by Mr. Miller^c.

18. Root fibrose. Leaves rather fleshy, compressed, striated, half a foot long, recurved, hispid every way with spreading hairs. Scape simple, hispid. Raceme with lanceolate bractes, the length of the pedicels, both hispid. Flowers white with a green keel. Anthers yellow^d. A native of the Cape of Good Hope, introduced by Mr. Francis Masson, in 1774^e.

19. Root creeping, reedy. Leaves closely interwoven; the radical ones incurved, nervose, acute; the stem-leaves alternate, embracing, with a membranaceous edge. Scape simple, erect, columnar, a little rising on one side, smooth, flexuose in the spike. Flowers in a thick spike, alternate, supported by a lanceolate bracte of the length of the peduncle: another linear bracte in the middle of the peduncle. Petals lanceolate-linear, yellow. Filaments in the direction of the petals, yellow, villose with a white wool, smooth at the tip, permanent; anthers orange. Capsules close pressed to the stalk, and forming a cylindrical spike, wrapped up in the permanent corolla, from triangular cylindrical, six-furrowed, the furrows alternately less, awl-shaped, and three-celled^f. It grows wild in the northern countries of Europe on bogs: in Lancashire, and other northern counties: in Cambridge-shire, Norfolk, on Putney-heath, &c. flowering in july and august.

20. An extraordinary liliaceous plant with a perianth; the agreement in appearance with the last species forbids us to make a different genus of it,

¹ Miller's figures. ^m Hort. kew. ⁿ Haller. ^o Jacquin.
^p Ger. herb. ^q Linn. ^r Haller. ^s Park. par.
^t Linn. syst.

^u Linn. mant. ^x Dillen. ^y Hort. kew. ^z Ibid. ^a Linn.
^b Hort. kew. ^c Ibid. ^d Linn. ^e Hort. kew. ^f Weber.

though it differs totally in the fructification—having naked filaments, three stigmas without styles, a sub-globose pericarp, and a three-valved perianth^g. Radical leaves many, hardish, grassy. Flower-stalk simple, leafy below, and terminated by a crowded spike of flowers, becoming long by age and cylindrical. Stipules often purple, ovate-lanceolate. Flowers on very short, simple peduncles. Petals in two rows, spreading, with a greenish line running along the middle^h. It grows wild on the mountains of Lapland, Sweden, Denmark, Siberia, Switzerland, &c. and in several places in Scotland.

21. Leaves drawn very much to a point, coriaceous, erect, a foot long. Scape angular, branching, bracted, flexuose, erect, smooth, the length of the leaves. Flowers in the divisions and subdivisions of the scape, forming a raceme; white, nodding, deciduous: filaments awl-shaped, very short: anthers linear, erect, the length of the corollaⁱ. A native of Japan, China, and Java.

22. Scape filiform, a foot high, shorter than the leaves, rufous at the base, with pale spots. The three outer petals whitish within, green on the outside; the three inner ones white, having a green line on the outside. It is perennial, a native of the Cape of Good Hope; was discovered there by Mr. Francis Masson, and introduced in 1774. It flowers in April^k.

23. Found at the Cape, by Thunberg.

24. Leaves long, extremely rough. Scape two feet high, shaggy at the base, then branching.

25. 26. 27. Found at the Cape, by Thunberg.

28. Leaves very long, fleshy.

29. Leaves flatted, lying on the ground, and sickle-shaped on the side.

30. Corolla contorted.

31. Found at the Cape, by Thunberg.

32. Root tuberous, tubers oblong, tomentose, many, hanging by a thread. Leaves three, radical, grassy. Scape short, surrounded at the base with chaffs, and terminated by a raceme of chaffs, to each of which there is a single pubescent filiform peduncle of the same length, supporting one-flower, with a funnel-shaped corolla. It is a middle plant between the Hyacinth, Ornithogalum and Anthericum: in having a tuberous root it differs from the two first, and from the Scilla. It varies with rough and smooth leaves.

From n. 24. to 32. are natives of the Cape of Good Hope, where all but the last were found by Thunberg^l.

33. A native of New Zealand.

34. A native of New Caledonia^m.

This is a very difficult genus to determine. The nineteenth and twentieth species are so alike as scarcely to be distinguished, and yet they differ essentially in their fructification. The nineteenth is connected with the fourteenth, fifteenth, sixteenth, seventeenth, and eighteenth, by means of its bearded filaments; but differs from them in its pyramidal germ, chaffy seeds, and permanent corolla. The species of the first division differ from those of the second in having smooth filaments, and the habit of the Asphodelⁿ.]

PROPAGATION AND CULTURE.

All these, except the seventeenth, are perennial plants, and may in general be increased by offsets or suckers, taken off during the summer or autumn; and the species which do not throw out these freely, may be propagated by seeds, sown in the spring or autumn, on a bed of light sandy earth, in a warm situation. In autumn, when the leaves decay, they should be carefully taken up, and transplanted into a bed of light earth, at the distance of a foot from each other. If the winter should prove severe, the bed must be covered with straw, peas-haulm, or such light covering, to keep out the frost; or some old-tan from a hot-bed may be spread over the

ground. In this bed they may remain one year; by which time they will be strong enough to flower; therefore the following autumn they should be carefully taken up, so as not to break their roots, and planted in the borders of the flower-garden, where they will last several years, if they are not killed by frost; to prevent which, some rotten tan may be laid over the roots in winter.

The species which come from the Cape of Good Hope require of course some shelter in winter; although some of them will live through a mild season, in a warm situation.

7. The seventh sort must be housed in winter, or placed under a hot-bed frame, where the plants will thrive better than in a common green-house. In winter the plants must have little wet; much moisture, at that season, being apt to rot their roots. This may serve as a direction with regard to the other Cape sorts, for those who have not a dry stove on purpose for them.

12. The twelfth sort is usually propagated by parting the roots, for which autumn is the best season, as it is also for transplanting them; for when they are removed in the spring, they seldom flower the same year, or if they do, it is but weakly. They should not be transplanted oftener than every third year for an increase; and then, if they are divided too much, it will be two years before they flower. This sort, flourishing most in a light loamy soil and an open exposure, should not be planted under the drip of trees; but if it be placed in an eastern aspect, where it may be protected from the sun in the heat of the day, it will continue in beauty longer than when it is more exposed.

19. 20. The nineteenth and twentieth sorts, although they be hardy, yet growing naturally upon bogs, cannot without some difficulty be preserved in gardens; except where bog earth is procured, and they are planted in pots or frames filled with it, and have a constant supply of water.

[ANTHISTIRIA. (*Androstachys*, *Floralia*. An Athenian festival, observed in honour of Bacchus, on the 11th, 12th, and 13th days of the month Anibesterion.)

Lin. fil. gram. gen. p. 38. amen. acad. 10. suppl.

p. 13. Schreb. n. 1567. Juss. 30.

Class. 23. 1. Polygamia Monoecia.

Nat. order of Gramina or Grasses.

GENERIC CHARACTER.

CAL. Glume four-valved, three or four-flowered: valves equal, oblong, flat, blunt, leathery, erect-expanding.

Hermaphrodite floscule sessile: males pedicelled, very like the hermaphrodite.

COR. Glume two-valved: valves lanceolate, acute, awnless: the outer larger.

STAM. Filaments three, short, filiform: anther oblong, erect.

PIST. in the hermaphrodite. Germ oblong; from the base a twisted awn; styles two: stigmas club-shaped, hairy.

PER. none, except the closed calyx.

SEED oblong, smooth, marked with a furrow.

OBS. At first sight it may be distinguished from all the known genera of grasses by its four-valved calyx.

ESSENTIAL CHARACTER.

Cal. cleft at the base into four equal divisions.

SPECIES.

1. Anthistiria ciliata.

Lin. suppl. 113. syst. 123.

Andropogon quadrivalve. Lin. syst. edit. 13. 758.

A. nutans. Lin. mant. 303.

DESCRIPTIONS, &c.

Root annual. Culms many, a foot high, branched, jointed, smooth, nodding a little. Leaves several, alternate, smooth, except that they are scabrous about the edge, and ciliate towards the sheath; which is compressed, striated, keeled, and ciliate on the upper edge. Raceme terminating, leafy, decompound, nodding. Partial racemes also leafy, ciliate. Peduncles lateral, in pairs, straight, filiform^a.

^g Linn. ^h Haller. ⁱ Thunb. ^k Hort. kew. ^l Linn. suppl.
^m Forst. ⁿ Linn.

^a Linn. mant.

A N T

ANTHOCEROS. A genus among the Algæ, in the class Cryptogamia.

ANTHOLYZA. (Ἀνθόζα flower, and λύσσα, madness.)

Lin. gen. 58. Reich. 64. Schreb. 78. Juss. 58.

Class. 3. 1. Triandria Monogynia.

Nat. order of *Eufatæ*. *Irides* Juss.

GENERIC CHARACTER.

CAL. *Spathes* two-valved, alternate, imbricate, separating the flowers, permanent.

COR. *Petal* one, gradually dilated from the tube into a compressed ringent throat. *Upper lip* straight, slender, very long; furnished with two short divisions at the base. *Under lip* shorter, trifid.

STAM. *Filaments* long, slender, under the upper-lip: *anthers* acute.

PIST. *Germ* inferior: *style* filiform; situation and length of the upper stamens: *stigma* trifid, capillary, reflex.

PER. *Capsule* roundish, three-cornered, three-celled, three-valved.

SEEDS many, triangular.

OBS. *This genus, too nearly allied to the Gladiolus, differs in the corollas: some have an inflated, compressed throat; others a funnel-shaped corolla; others the lower lip very short; others the alternate divisions abbreviated; others have a salver-shaped corolla, with a six-parted, equal limb.*

ESSENTIAL CHARACTER.

Cor. tubular, irregular, recurved. Caps. inferior.

SPECIES.

1. *Antholyza ringens*. *Narrow-leaved Antholyza*.

Lin. spec. 54. Reich. 102.

Gladiolus floridus rectum referens coccineus: suprema linea erecta et fistulosa. Breyn. ic. 21. t. 8. f. 1.

Gladiolo æthiopico similis planta angustifolia. Comm. hort. 1. t. 41. Rudb. elyf. 2. p. 237. f. 15.

Lips of the corolla divaricate, throat compressed.

[2. *Antholyza plicata*. *Plaited-leaved Antholyza*.

Linn. suppl. p. 96. syst. 87.

Leaves plaited, stem branching hirsute, corolla ringent, shorter than the stamens.]

3. *Antholyza Cunonia*. *Scarlet-flowered Antholyza*.

Lin. spec. 54. syst. 87. Reich. 102. mant. 320.

Cunonia floribus sessilibus, spathis maximis. Buttn.

Cun. 211. t. 1. Mill. dict. and fig. t. 113.

Gladiolus Cunonia. Gærtn. fruct. 31. t. 11.

Corollas straight, the two outer lobes of the five-parted lip broader and ascending.

[4. *Antholyza æthiopica*. *Broad-leaved Antholyza*.

Lin. spec. 54. Reich. 103.

Gladiolus æthiopicus, flore coccineo. Corn. canad. t. 79. Mor. hist. f. 4. t. 23. f. 1. Rudb. elyf. 2. p. 236. f. 2.

Corollas incurvate, the two alternate lobes of the five-parted lip spreading, larger and lanceolate.]

5. *Antholyza Meriana*. *Red-flowered Antholyza*.

Lin. spec. 54. Reich. 103.

Meriana flore rubello. Trew. Ekret. t. 40.

Watsonia Meriana. Mill. dict. n. 1.—foliis ensiformibus, floribus alternis. Mill. fig. t. 276.

Corollas funnel-shaped, leaves linear.

6. *Antholyza Merianella*. *Dwarf Antholyza*.

Linn. syst. 87. Reich. 103.

Watsonia humilis. Mill. dict. n. 2.—foliis lineari-ensiformibus, tubo floris longissimo. Mill. fig. t. 297. f. 2.

Corollas funnel-shaped, leaves linear.

[7. *Antholyza Lucidor*.

Lin. suppl. p. 96. syst. 88.

Radical leaves with filiform base, broad-awled, furrowed at top: stem simple, leafy, spiked.]

DESCRIPTIONS, &c.

1. This has round, red, bulbous roots, from which arise several rough furrowed leaves, near a foot long, and half an inch broad; between these comes out the flower-stem immediately from the root, which rises two feet high, is hairy, and has several flowers coming out on each side. These are of one leaf, cut into six unequal parts at the top; one of these segments is stretched out much beyond the others, standing erect; the margins are waved,

A N T

and closed together, wrapping up the three stamens. The flowers are red and appear in June, and the seeds ripen in September. [It was cultivated in 1759, by Mr. Miller^a.

2. This differs from the first in its appearance, and especially in not having the stamens so long. It was found at the Cape by Thunberg^b. Introduced in 1774, by Mr. Francis Masson^c.]

3. This has a compressed bulbous root, somewhat like that of Corn Flag, covered with a brown skin, and putting forth fibres with little bulbs at the end; from this arise several narrow sword-shaped leaves, about nine inches long, and a quarter of an inch broad in the middle, terminating in acute points; these have one longitudinal midrib which is prominent, and two longitudinal veins running parallel on each side: they are of a sea-green colour, and appear in autumn, growing in length all the winter; in spring the stalk arises from between the leaves, it is round, strong, and jointed; at each joint is situated a single leaf, which almost embraces the stalk for near three inches from the base, then by the curvature of the stalk it is separated, standing erect: the stalks rise near a foot and a half high, and are generally curved two opposite ways; the upper part of the stalk is terminated by a loose spike of flowers, coming out of large spathes, composed of two oblong concave leaves, terminating in acute points: these are at their first appearance imbricated, but as the stalk increases in length, they are separated; from between these two leaves come out the flowers, each having a slender Saffron-coloured tube near half an inch long, which is then enlarged where the petal is divided, and the upper segment is extended two inches in length, being arched over the stamens and style. This is narrow as far as to the extent of the wings, but above them is enlarged and spread open half an inch in length, and is concave, covering the anthers and stigmas which are extended to that length; the two wings are also narrow at their base, but are enlarged upward in the same manner, ending in concave obtuse points, which are compressed together, and cover the stamens and style. This flower is of a beautiful scarlet colour, and makes a fine appearance, about the latter end of April or beginning of May, which is the season of its flowering. After the flowers decay, the germ becomes an oval smooth capsule, opening in three cells, which are filled with flat bordered seeds.

I received the seeds of this plant from the Cape of Good Hope, where it grows naturally; they succeeded so well in the Chelsea garden, as to produce a great number of plants, which flowered well the third season after they appeared, and continued to produce flowers, and perfect their seeds every year after. [It was cultivated in 1756, by Mr. Miller^d.

4. Corolla tubulous, scarlet: upper lip very large, lanceolate; lower five-parted, the lobes lanceolate, short, three, alternately very short. This and the last border very near on the *Gladiolus*^e. It was cultivated in 1759, by Mr. Miller; and flowers in May and June^f.]

5. Root bulbous, compressed, shaped like a kidney, covered with a fibrous brown skin. Leaves sword-shaped, about a foot long, and an inch broad, ending in points; the two sides have sharp edges, but the middle is thicker, and has a prominent midrib; they are of a dark green colour, and rise immediately from the root. The stalk comes out from the root between the leaves, and rises a foot and a half high toward the upper part. The flowers are produced from the side, standing alternately at about an inch and a half distance from each other; they have each a spatha or sheath composed of two leaves which are joined at their base, where they are broad, but gradually lessen to their points. Before the flowers appear, they are of the same green colour

^a Hort. kew.

^b Linn. suppl.

^c Hort. kew.

^d Ibid.

^e Linn.

^f Hort. kew.

with the stalk, and are divided but a small part of their length, inclosing the flower, but afterward they are split almost to the bottom, and wither before the flowers decay, becoming dry, and wrap round the seed-vessel. The tube of the flower is an inch and a half long, narrow at the base, and a little curved, swelling much larger the upper half. The rim is divided into six obtuse segments which spread open, and are nearly equal; the flower is of a copper red colour on the outside, but of a deeper red within; it has three stamens a little longer than the petal, they are incurved, and are terminated by oblong anthers of a dark brown colour, which are fastened in the middle to the apex of the stamens, lying prostrate. At the bottom of the tube of the petal is situated an oval three-cornered germ, supporting a slender style a little longer than the stamens, crowned by three bifid reflex stigmas. The flowers generally appear in april or may, and the seeds ripen in july.

The seeds of this, and also some of the sorts of *Ixia*, were sent me by my friend Dr. Job Baister, F. R. S. of Kirkzee, which succeeded in the Chelsea Garden, in 1756, where many of them have since produced their beautiful flowers.

[Dr. Trew named this plant *Meriana*, in honour of Sybilla Merian, the celebrated female Dutch botanist: but Mr. Miller had before given this and the following species the name of *Watsonia*, from the late Sir William Watson: they are not however deemed sufficiently different from the other *Antholyzas* to form a distinct genus.]

6. Root bulbous. Culm a foot and half high, polished, columnar. Leaves alternate, three or four, sheathing, sword-shaped, streaked, pubescent, beyond the sheaths short. Flowers three, alternate, in the same row, sessile. Glumes bivalve, lanceolate. Corolla salver-shaped: tube bent, purplish, longer than the border, which is six-parted and equal; the divisions ovate, acutish, yellow. Stamens rising, the length of the corolla. Anthers linear, incumbent. Style filiform. Stigmas three, filiform. The foregoing differs in appearance, but the limits separating them from *Gladiolus* and *Ixia* do not assist us. The flowers in this are pale red, in the former deep red^f. The seeds were brought from the Cape of Good Hope, by Captain Hutchinson, of the Godolphin Indiaman, in the year 1754. It is of humbler growth than the fifth; the leaves of this are rarely more than six inches long, but are full as broad as those of the fifth, and of a lighter green colour: the flower-stalk rises between the leaves, about nine inches high, supporting four or five flowers sitting close thereto. The flowers are larger, but of the same colour with the fifth, and are later in flowering.

[7. Root bulbous. Leaves at the base of the culm, awl-shaped, narrowed at the base, as it were into a long petiole. Scape columnar, a foot and half high, spiked, with sessile, alternate flowers. Spathes bivalve, purplish. Flowers oblong, a little bent, purple above, cut into six lanceolate parts, a little unequal and erect. Anthers linear. Style the length of the stamens and corolla. Stigma trifid^g. All the species of *Antholyza* are natives of the Cape of Good Hope.]

PROPAGATION AND CULTURE.

The *Antholyzas* are propagated by offsets, which the bulbous roots send forth in pretty great plenty; or by seeds, which are sometimes perfected in Europe. These seeds should be sown soon after they are ripe; for if they are kept out of the ground till the following spring, they often miscarry, or at least remain a year in the ground before they grow. If the seeds are sown in pots of light earth, and plunged into an old bed of tan which has lost its heat, and shaded in the middle of the day in hot weather, the seeds will come up the following winter; therefore they must be kept covered with glasses to screen them from cold, otherwise the young plants will be destroyed. These may remain in the pots two years,

if the plants are not too close, by which time they will have strength enough to be planted each into a separate small pot filled with light earth. The time for transplanting these roots is in july or august, when their leaves are decayed. In summer the pots may be placed in the open air, but in winter they must be removed, and placed under a hot-bed frame, for they are not very tender; but where any damp arises, it is very apt to occasion a mouldiness upon their leaves. The roots shoot up in autumn, and the flowers begin to appear in may; the seeds ripen in august, and soon after their leaves and stalks decay; the roots may then be taken up, and kept six weeks or two months out of the ground, so that they may be easily transported from one country to another at that time. These flowers are ornamental when they appear, and being plants which require little culture, deserve a place in every good garden.

3. The third species is too tender to thrive in the open air in England, the roots must therefore be planted in pots filled with light earth, and may remain in the open air till october, when they must be removed into shelter, either into an airy glass-case, or placed under a hot-bed frame, where the leaves will keep growing all winter, and in the spring the stalks arise and flower. During the winter season, the plants will require a little water when the weather is mild, once a week, but it must not be given in great quantities, especially in cold weather; in the spring they should be watered oftener; and when the flowers are past, the pots should be removed into the open air to perfect their seeds, which will ripen the latter end of june, soon after which the stalks will decay to the root, and remain inactive till september. When the stalks are decayed, the roots may be taken out of the ground, and kept in a dry room till the end of august, when they should be planted again.

This plant is easily propagated by offsets, which it sends out in great plenty, or by sowing the seeds in pots about the middle of august; they should be placed in a situation where they may enjoy the morning sun, and in dry weather should be gently watered; in september the pots may be removed to a warmer situation, and in october they must be placed under a frame, where they may be protected from frost and hard rains, but in mild weather enjoy the free air. The plants will appear in october, and continue growing all the winter, and in june their leaves will decay; then they may be taken up, and four or five roots may be planted in each pot, till they have grown another year, when they may be each put into a separate pot. These seedling plants must be sheltered in the same manner as the old roots in winter, and the third year they will flower.

5. 6. The fifth and sixth sorts are propagated by offsets from the root, in the same manner as the *Crocus* or *Gladiolus*, and are produced in pretty great plenty; the time for transplanting the roots is in august, soon after the stalks decay; the larger roots must be each put into a separate pot filled with light fresh earth, and may be placed in the open air till toward the end of september, when the leaves will begin to appear above ground, at which time it will be proper to remove them into shelter; for as the plants are natives of a warm country, they will require some shelter from the frost, at least hitherto they have been so managed; for until the roots are become more common, it would be imprudent to venture them abroad in winter; though they may probably be hardy enough to resist the cold of our ordinary winters, when planted in a warm border and a dry soil, at least with a little shelter in hard frosts; for those plants which have been placed in an open airy glass-case, have succeeded better than those which have been in the stove; and the flowers have been much stronger, and of longer duration, though those in the stove have flowered a month earlier; but these have been so much drawn, as not to produce seeds; whereas those which have been treated pretty

^f Linn. syst.

^g Linn. suppl.

pretty hardily, and had plenty of air, have seldom failed.

The best way of treating these roots, is to plunge the pots into an old bed of tanner's bark, which has lost its heat some time in october; this bed should be covered with a frame, the glasses of which should be drawn off every day in mild weather, that they may enjoy as much free air as possible, to prevent their drawing up weak; but they must be covered in bad weather, and screened from frost. The latter end of march, when they begin to put out their flower-stalks, the pots should be removed to an airy glass-case, where they may stand to flower, and when the flowers are decayed, they should be placed in the open air to perfect their seeds.

The offsets and small roots may be planted three or four in a pot, according to their size, and should have the same treatment as the larger roots the first year, and by that time twelvemonth they will be strong enough to flower, and should have separate pots.

ANTHORA. See *Aconitum*.

ANTHOSPERMUM. (*Ἀνθος* and *σπέρμα*, Flower-feed.)

Lin. gen. n. 1164. Reich. 1276. Schreb. 1501.

Juss. 197. Tournefortia Ponted. epist. 11.

Class. 23. 2. Polygamia Dioecia; or rather Dioecia tetrandria.

Nat. order of *Stellate*. *Rubiaceæ* Juss.

GENERIC CHARACTER.

* Male.

CAL. *Perianth* one-leaved, conical, quadrifid beyond the middle: *divisions* ovate-oblong, revolute, obtuse, a little coloured.

COR. none, unless you so name the calyx.

STAM. *Filaments* four, capillary, erect, the length of the calyx, inserted into the receptacle: *anthers* twin, oblong, four-cornered, obtuse, erect.

* Female.

CAL. and COR. as in the male.

PIST. *Germ* inferior, ovate, four-cornered: *styles* two recurved: *stigmas* simple.

OBS. Linneus had not seen the fruit.

Character from Pontedera.

Flower one-petalled, funnel-shaped, fitting on the calyx, with the mouth slightly gashed. The calyx changes into a roundish angular fruit big with eight oblong seeds, and two connected ones. *Whether he mistook the calyx for the fruit, and the anthers for the seeds, or whether he had seen the real fruit, future inspection must determine.*

ESSENTIAL CHARACTER.

Cal. four-parted. Cor. none. Stam. four. Pist. two. Germ inferior. Male and Female in the same, or a distinct plant.

OBS. All the species are dioecious without any hermaphrodite flowers. Thunb.

SPECIES.

1. *Anthospermum æthiopicum*. *Amber Tree*.

Lin. spec. 1511. syst. 919. Reich. 4. 358. hort. cliff. 455. t. 27.

Frutex africanus ambram spirans. Pluk. phyt. t. 183. f. 1. Walth. hort. 24. t. 9.

Leaves polished.

[2. *Anthospermum ciliare*.

Lin. spec. 1512. Reich. 4. 359.

Clinopodium africanum, &c. Pluk. mant. 5. t. 244. f. 5.

Leaves ciliated along the keel, and edge.

3. *Anthospermum herbaceum*.

Lin. suppl. p. 440. syst. 919.

Leaves six, polished; stem herbaceous.

DESCRIPTIONS, &c.

1. The male flowers are borne on one plant, and the hermaphrodite flowers on another^a.] The beauty of this shrub is in its small evergreen leaves, which grow as close as heath; and being bruised between the fingers, emit a very fragrant odour.

[2. Root perennial, woody. Many branches scarcely dividing. Leaves narrow, lanceolate. Flow-

^a Linn. syst.

ers axillary, sessile. Calyxes four-parted. Stamens four^b.

3. This has the appearance of a *Galium*. The stalks are herbaceous, diffused, roundish, red, smooth: the branches opposite. Leaves in whorls, sessile, lanceolate, smooth, one-nerved. Flowers axillary^c. All these plants are natives of the Cape of Good Hope.

Thunberg observes, that all the *Anthospermums* are dioecious without any hermaphrodite; which is expressly contrary to Linneus's and Miller's observation, on the first species.]

PROPAGATION AND CULTURE.

These plants may be easily propagated by cuttings during any of the summer months, in a border of light earth; they will take root in six weeks time, provided they are watered and shaded as the season may require: or if these cuttings are planted in pots, and plunged into a very moderate hot-bed, they will take root sooner, and there will be a greater certainty of their growing. Afterward they should be taken up, with a ball of earth to their roots, and planted into pots filled with light sandy earth, and may be exposed to the open air until october; at which time they should be removed into the conservatory, where they should be placed as free as possible from being over-hung with other plants; and, during the winter season, they must be refreshed with water, but should not have too much given them each time; and should have as much air admitted to them as the weather will permit, for if they are kept too close, they will be subject to grow mouldy, and generally decay soon after; so that if the house is damp, it will be difficult to preserve these plants through the winter.

They must frequently be renewed by cuttings, for the old plants seldom continue above three or four years.

All those which were formerly in the gardens (of the first species) were male plants, which, being propagated by cuttings, had been continued, so that no seeds were ever produced in England, until I received some seeds from the Cape of Good Hope, from which I raised many plants of both sexes, and a few among them with hermaphrodite flowers, which produced seeds; and from them many plants were raised.

[Plukenet mentions, that the first sort grew from seed in Bishop Compton's garden at Fulham, in 1692. This, and the second sort, may also be raised from layers.]

ANTHOXANTHON. See *Rumex maritimus*.

[ANTHOXANTHUM. (*Ἀνθος* and *ξανθος*, Yellow flower.)

Lin. gen. 42. Reich. 46. Schreb. 58. Juss. 29.

Class. 2. 2. Diandria Digynia.

Nat. order of Gramina or Grasses.

Engl. Vernal Grass. Fr. *Flouve*.

GENERIC CHARACTER.

CAL. Glume one-flowered, two-valved; valves ovate, acuminate, concave: the inner one larger.

COR. Glume one-flowered, two-valved, the length of the greater valve in the calyx: each valve emitting an awn from the lower part of the back; one of them jointed.

Neclary two-leaved, very slender, cylindric: leaflets subovate, embracing.

STAM. *Filaments* two, capillary, very long: *anthers* oblong, forked at both ends.

PIST. *Germ* oblong: *styles* two, filiform: *stigmas* simple.

PER. Glume of the corolla grows to the seed.

SEED one, acuminate at both ends, roundish.

ESSENTIAL CHARACTER.

Cal. Glume two-valved, one-flowered. Cor. Glume two-valved, acuminate. Seed one.

SPECIES.

1. *Anthoxanthum odoratum*. *Sweet Vernal Grass*.

Lin. spec. 40. Reich. 1. 74. succ. n. 33. Hudf.

^b Linneus.

^c Ibid.

angl. 11. *Witber.* arr. 25. t. 2. f. 1. *Curtis*
lond. 1. 4. *Stilling. misc.* t. 1. *Schreb. gram.*
 t. 5. *Fl. rust.* 23. *Mus. rust.* 4. 2. 3. *Mill.*
illustr. Fl. dan. t. 666. *Hall. belv. n.* 1491.
 (Avena.) *Scop. carn. n.* 38. *Pollich pal. n.* 29.
Neck. gallob. 16. *Leers herb. n.* 25. *Krock.*
filef. n. 47. *Scheuch. agr.* 88. *Monti* 57. *ic.* 84.
Baub. pin. 3. 3. *Baub. hist.* 2. 466. 1. *Raii*
hist. 1268. 1. *syn.* 398. (Gr. vernal.) *Mor.*
hist. f. 8. t. 7. f. 25.

Spike oblong ovate; flowers longer than the awn, on short peduncles.

2. *Anthoxanthum indicum.*

Lin. spec. 40. *Reich.* 1. 75. *fl. zeyl. n.* 25: *Pluk.*
alm. t. 119. f. 1.

Spike linear, flowers sessile shorter than the awn.

3. *Anthoxanthum crinitum.*

Lin. suppl. 90. *syn.* 73.

Panicle spike-form cylindrical awned, the awns long spreading loose.

DESCRIPTIONS, &c.

1. Root perennial, odorous. Culms at first oblique, then erect, cylindrical, smooth, when magnified appearing scored with green lines, from six or eight inches to a foot or more in height, having two or three, sometimes four, shining joints on each. Root-leaves many, downy on their upper surface. Stem-leaves one at each joint, a little rugged on both sides, with a blunt membrane at the base finely notched. Sheaths striated and smooth, except the lower ones, which are somewhat villose and reddish. The spike or rather spike-like panicle is oblong-ovate and loose: the peduncles in bundles, very short, somewhat branched, upright, before and after flowering contracted closer, the lower ones more remote^d.

This is easily distinguished from all our wild Grasses: for besides its having only two stamens, in common with others of the genus, and each spicule containing only one flower; one valve of the calyx is small and membranous, the other large, inclosing the fructification, both pointed, and smooth or sometimes having soft white hairs scattered over them; they are also sprinkled over with minute yellow dots, similar to those of *Black Currants*, whence possibly its peculiar scent. Corolla as short or shorter than the smaller valve of the calyx, covered on the outside to near the top with stiff brown hairs lying flat: valves equal or nearly so, cloven at the end, each having an awn; that from the outer valve straight, shorter than the calyx, from the middle of the back, or near the top; that on the inner valve springing from the base or near it, at first straight, and a little longer than the calyx; but as the seed ripens, the top is generally bent horizontally inward. The nectary resembles the corolla of a *Poa*, and is smooth; it is composed of two little shining ovate valves, of different sizes, closely embracing the germ, and scarcely to be observed, unless when the anthers are protruding from between them, for as soon as these are excluded, they close again on the germ, and form a coat to the seed; the outer valve is oblong-roundish, yellowish-brown, membranaceous at the edge, the inner is membranaceous and as narrow again as the other. Anthers purple. Filaments short, at the first opening of the corolla, but afterwards very long. Stigmas woolly^e.

Haller makes the *Anthoxanthum* one of his two-flowered *Avenas*; but Dr. Stokes observes, that it is a genus truly distinct; that it has the awn of *Avena*, the corolla of *Poa*, and the double one of *Phalaris*; and that in a natural arrangement it should stand between *Poa* and *Avena*.

The usual colour of the spike is a pale yellow, whence its generic name *Anthoxanthum*. From the sweetness both of the flowers and leaves, which it imparts to new-mown hay, it has derived its specific or trivial name *odoratum*, or *sweet-scented*. From the earliness of its flowering, it has acquired its other English name of *Vernal* or *Spring-grass*.

^d Leers.

^e Curtis. Leers. With. Stokes.

It grows on almost any kind of soil, but it seems to prefer that which is moderately dry. In a rich soil it is said that the leaves have a great tendency to curl. It is common in pastures; and also in woods, where the spikes are usually slender and loose. Towards the middle of May it is in full bloom; and about the middle of June the seed is ripe, and may easily be separated by rubbing: this grass however is not very abundant in seed.

Mr. Stillingfleet remarks, that from its being found on such pastures as sheep are fond of, and whence excellent mutton comes, it is most likely to be a good grass for sheep-pastures: that he has found it on all grounds, from the most sandy and dry to the most stiff and moist, and even in bogs: that it is very plentiful in the best meadows about London, as about Hampstead and Hendon: and that it is very easy to gather.

Mr. Curtis recommends it for its earliness, its readiness to grow in any soil or situation, and for its agreeable scent; in which it approaches the *Schoenanthus* and other odoriferous grasses of the East-Indies. It retains the odour for a long time; and Boccone says, that a distilled water is prepared from it, as the vehicle of some perfumes.

It might probably be cultivated to considerable advantage, for in good meadows it grows to a reasonable height, and forms a thick tuft of tender succulent leaves at bottom, though in point of crop it is not so productive as some other grasses. Cattle of all sorts seem to be fond of it. Mr. Curtis suggests, that probably *Poa trivialis* or common Meadow, with *Festuca elatior* or meadow Fescue, joined to this Grass, would form an excellent mixture for laying down meadows.

2. Culm a foot high, jointed, ascending. Leaves broad, short. Spike very narrow, thin. Each valve of the calyx ends in a long awn^f. Native of the East-Indies.

3. High and smooth. Panicle long, close so as to resemble a spike. A long, simple, spreading, soft, loose awn to the corolla. Native of New Zealand^g.

PROPAGATION AND CULTURE.

See GRASS.

ANTHOXANTHUM aculeatum. See *Cryptsis*.

paniculatum. See *Festuca spadicea*.

ANTHRISCUS. See *Chærophylloides*. *Scandix*.]

ANTHYLLIS. (Ανθύλλης *Diosc.* Ανθήλη, *flos evadens* in lanuginem, or *floris lanugo*: a downy flower.)

Lin. gen. 864. *Reich.* 936. *Schreb.* 1174. *Gærtn.*
 t. 145. *Juss.* 355. *Vulneraria Tourn.* 211.

Erinacea Ejusd. *Barba Jovis Ejusd.* 419.

Class. 17. 4. *Diadelphia Decandria*.

Nat. order of Papilionaceæ or Leguminosæ.

GENERIC CHARACTER.

CAL. Perianth one-leafed, ovate-oblong, swelling, villose: the mouth five-toothed, unequal, permanent.

COR. papilionaceous: banner longer, the sides reflex, claw the length of the calyx: wings oblong, shorter than the banner: keel compressed, the length of the wings, and similar to them.

STAM. Filaments connate, rising: anthers simple.

PIST. Germ oblong: style simple, ascending: stigma obtuse.

PER. Legume roundish, concealed within the calyx, very small, bivalve.

SEEDS one or two.

ESSENTIAL CHARACTER.

Cal. swelling. *Legume* roundish, concealed.

SPECIES.

* Herbaceous.

1. *Anthyllis tetraphylla.* Four-leaved *Anthyllis* or *Kidney Vetch*.

Lin. spec. 1011. *Reich.* 3. 433. *hort. ups.* 221.

cliff. 371. 3. *Gærtn. fruct.* 2. 307. *Sauv. monsp.*

227. *Mill. fig. t.* 41. f. 1. *Curtis mag. t.* 108.

Riwin. tetr. t. 18. f. 2. *Park. theat.* 1094. 3.

^f Linn. zeyl.

^g Linn. suppl.

- Trifolium halicacabum*. Cam. hort. t. 47. Baub. hist. 2. 361. f. 2. Raii hist. 922.
Lotus pentaphyllos vesicaria. Baub. pin. 332.
 Leaves pinnate with four lobes, flowers lateral.
2. *Anthyllis Vulneraria*. Common Ladies' finger or Kidney Vetch.
 Lin. spec. 1012. syst. 654. Reich. 3. 433. succ. n. 638. hort. cliff. 371. 2. Hudf. angl. 313. Wiltb. 765. Pollich palat. n. 671. Neck. gallob. 303. Rivin. t. 18. f. 1. Ger. 1060. 1. emac. 1240. 1. Park. 1093. 1. Baub. hist. 2. 362. Raii hist. 922. 2. syn. 325. 1.
 α. *Anthyllis rustica*. Mill. dict. n. 3.
Vulneraria Anthyllis. Scop. carn. n. 879. Hall. belv. n. 398.
 β. *Vulneraria lupina*, flore coccineo. Dill. elth. 431. t. 320. f. 413. Raii syn. 325. 2. hist. 922. 3.
Anth. Vulneraria. Mill. dict. n. 2.
 γ. *Vulneraria rustica*, flore albo. Tournef. inst. 291.
 Leaves pinnate, unequal: head double.
3. *Anthyllis montana*. Mountain Anthyllis or Kidney Vetch.
 Lin. spec. 1012. Reich. 3. 434. Jacqu. austr. 4. 17. t. 334.
Vulneraria foliis pinnatis æqualibus, sub umbella palmatis. Sauv. monsp. 237. Hall. belv. n. 397. Scop. carn. n. 880.
Barba Jovis pumila villosa, flore globofo purpureo. Garid. aix. 55. t. 13. Quer. bisp. 3. t. 50.
Astragalus incanus tomentosus, pallido globofo flore, italicus. Barr. ic. t. 722.
Astr. purpureus. Dalech. hist. 1347.—monspelianno candidior, &c. Baub. hist. 2. 339.
 Leaves pinnate, equal; head terminal, one-ranked, flowers oblique.
4. *Anthyllis cornicina*.
 Lin. spec. 1012. syst. 654. Reich. 3. 434. Lamarck dict. 1. p. 203. Cavan. bisp. n. 42. t. 39. f. 2.
 Leaves pinnate, unequal; heads solitary.
- [5. *Anthyllis lotoides*.
 Lin. spec. 1012. Reich. 3. 435. Lamarck ibid. n. 4. Cavan. bisp. n. 43. t. 40.
 Leaves three-parted; calyxes prismatic, fascicled, the length of the legumes.
6. *Anthyllis Gerardi*.
 Lin. syst. 654. Reich. 3. 435. mant. 100. Ger. prov. 490. t. 18.
 Leaves pinnate, unequal, peduncles lateral, longer than the leaf, heads leafless.
7. *Anthyllis quinqueflora*. Five-flowered Anthyllis.
 Lin. suppl. p. 325. syst. 654.
 Leaves ternate, linear; head five-flowered.
8. *Anthyllis involucrata*.
 Lin. syst. 654. Reich. 3. 435. mant. 265.
Ononis involucrata. Berg. cap. 213.
 Sub-herbaceous; leaves ternate, petiolate, stipuled, sword-shaped; flowers in a head.
 ** Shrubby.
9. *Anthyllis linifolia*.
 Lin. syst. 654. Reich. 3. 436. mant. 265.
 Leaves ternate, sessile, sword-shaped; flowers in a head.]
10. *Anthyllis Barba Jovis*. Silvery Anthyllis or Jupiter's Beard.
 Lin. spec. 1013. Reich. 3. 436. hort. cliff. 371. 1. upf. 221. Sauv. monsp. 237. Mill. fig. t. 41. f. 2. Gært. fruct. 2. 308.
Barba Jovis. Baub. pin. 397. Baub. hist. 1. 385. Rivin. tetr. t. 4. f. 1.
 Leaves pinnate, equal, tomentose; flowers in a head.
11. *Anthyllis heterophylla*.
 Lin. spec. 1013. Reich. 3. 436.
 Leaves pinnate, the floral leaves ternate.
- [12. *Anthyllis visciflora*.
 Lin. suppl. p. 325. syst. 654.
 Leaves digitate-pinnate, calyxes shaggy.]
13. *Anthyllis cytisoides*. Doreny-leaved Anthyllis.
 Lin. spec. 1013. Reich. 3. 436. Gouan hort. 362. illustr. 47.
Cytisus. 6. Clus. hist. 1. p. 96.
Spartium latifolium parvo flore. Barr. ic. 1182.

- Leaves ternate, unequal; calyxes woolly, lateral.
14. *Anthyllis hermanniæ*. Lavender-leaved Anthyllis.
 Lin. spec. 1014. Reich. 3. 437.
Barba Jovis cretica. Rivin. tetr. t. 4. f. 2.
Spartium spinosum. Alp. exot. t. 26.
 Leaves ternate, sub-peduncled, calyxes naked.
15. *Anthyllis Erinacea*. Prickly Anthyllis.
 Lin. spec. 1014. Reich. 3. 437.
Erinacea. Clus. hist. 1. p. 107. bisp. t. 214.
 Spinose, leaves simple.
- [16. *Anthyllis tragacanthoides*.
 Billard. ic. syr. 2. 16. t. 9. Rautw. itin. 281.
 Mor. hist. app. f. 2. t. 25.
Tragacanthæ alterum genus. Dalech. hist. app. p. 32. vol. 2.
 Shrubby: leaves pinnate tomentose, petioles spinescent, flowers in racemes.
17. *Anthyllis indica*.
 Loureiro cochinch. 429.
 Shrubby: leaves pinnate equal smooth: racemes oblong subterminating.]

DESCRIPTIONS, &c.

1. This is an annual plant with trailing branches, which spread flat on the ground. The leaves grow by fours at each joint; or rather, as Linneus expresses it, they are pinnate with four leaflets instead of five, the lowest leaflets wanting its opposite. The flowers come out in clusters on the sides of the stalks, having large swelling calyxes, out of which the extreme parts of the petals do but just appear; these are of a yellow colour, and are succeeded by short pods inclosed within the calyx. [This species has the stamens really diadelphous, and not all connate, as in most of the others^b.]

It is a native of the south of France, Spain, Portugal, Italy and Sicily, where it is a weed in their arable land. It flowers with us in July, and ripens its seeds in September. [It was cultivated in 1640, by Parkinson;ⁱ] but the flowers having little beauty, this plant is seldom permitted to have a place, except in botanic gardens.

2. [Stems round, pubescent. The leaves have five or six pairs of leaflets, pubescent with hairs close to the surface. Flowers sessile, about twenty in a head. Calyx membranaceous, contracted at the mouth and bilabiate. Wings folded in with the keel, and longer than it; their claws very long. Bractes under the heads subpalmate; at the base of the peduncles bristle-shaped^k.]

Linneus observes, that in Oeland, where the soil is a red calcareous clay, the flowers of *Anthyllis Vulneraria* are red; but that in Gotland, where the soil is white, the flowers also are white: ours are yellow.] Mr. Miller affirms, that having cultivated them many years, he found that they never altered from seeds: that the leaves of the yellow-flowering Kidney-Vetch are much narrower than those of the red, and have generally one or two pairs of leaflets more in each; that the heads of flowers are single in this, whereas the red has double heads; and that the root is perennial in our wild sort, whereas the other seldom lasts longer in gardens than two years, although on poor land it will sometimes continue three years.

[It is a native of most parts of Europe, and flowers from May to July.

β. The Scarlet-flowering Kidney-Vetch, is also found wild in several parts of Europe.] Mr. Miller received the seeds from Spain and Portugal; [Mr. Ray says, that it is common in Italy; and we have it in Wales, both in Pembrokeshire, where it was first found by Edw. Llwyd, and the isle of Anglesea, where Dillenius observed it; also in the isle of Man.

The *Anthyllis Vulneraria* is recommended as an excellent pasturage for sheep; and Mr. Young informs us, that it abounds greatly in the best meadows of the Pyrenees: at the same time he says, that the produce is not large^l. With us the whole

^b Linneus.ⁱ Hort. kew.^k Relb. cant.^l Annals, vol. 15. p. 584.

plant is dry, and looked upon as astringent. This, however, is owing to its affecting dry calcareous soils: cultivated in a rich soil, it would doubtless become more succulent, though it would probably never rival several other leguminous plants. It has been confounded, by agricultural writers, with Bird's-foot Trefoil (*Lotus Corniculata*), and with Liquorice-Vetch (*Astragalus glycyphyllos*).

3. Root perennial. Stem shrubby, simple, scarcely a foot long, prostrate. Leaves pinnate, silky and hoary on both sides: leaflets from ten to twenty pairs, either sessile or on very short petioles, oblong-lanceolate, acute, small and quite entire. Peduncles erect or nearly so, villose, three or four inches in length, ending in a single close head of flowers, immediately under which is an involucre consisting usually of about five leaves, cut into narrow-lanceolate acute hoary segments, the length of the flowers, and from two to nine in number. Calyx funnel-shaped, not inflated; the tube green; the segments subulate, nearly equal, longer than the tube, erect, purple, with long hairs; the two upper ones rather less deeply cut than the other three. Standard of the corolla obovate, obtuse, entire, pointing sideways, pale with red-purple streaks, spreading at top, converging below, and ending abruptly in a narrow claw; wings flesh-coloured streaked with purple, obtuse, erect: keel ovate, very small, with a very slender double claw, blood-red at the tip, the rest pale greenish. Filaments diadelphous. Germ linear, cylindric, smooth: style subulate, bowed inwards. Legume smooth, the length of the calyx, containing few seeds of which one only ripens, in July^m. Native of the south of France, Switzerland, Austria, Carniola, Italy, and Spain.

4. Stems herbaceous, round, very hairy, as is also the whole plant, seldom erect but almost always prostrate. Leaves alternate, consisting of five or seven pinnules, which are unequal the upper one being longest, and sessile. Stipules resembling the pinnules, but shorter. Flowers about ten in a head, which is leafy at the base. Corolla pale yellow, a little longer than the calyx; banner plaited, entire, sickle-shaped below on both sides, with a very sharp claw; keel furnished with two bristles at bottom. Filaments truly diadelphous. Germ oblong-bowed. Legume short, bent into a semicircle, with the outer rim membranaceous. Seeds ovate, frequently four. It is annual, and flowers in May and Juneⁿ.

Linneus adds, that the stem is branching, seven or eight inches high. Peduncles axillary, the length of the leaves. Heads of flowers both lateral and terminating, round, hairy.]

According to Miller, when it flowers early in the summer, it commonly decays soon after the seeds are ripe; whereas those plants which flower later in the season, and do not perfect seeds, will abide another year.

[Native of Spain.]

5. This is a hairy, procumbent plant. Stems herbaceous, round, half a foot high, somewhat erect when they flower. Leaves alternate, distant, ternate; leaflets ovate, villose, dark green, soft. Stipules two, like the leaflets. Flowers frequently nine in a head. Common peduncles axillary, solitary, longer than the leaf. At the base of the head there is a single ternate leaf without stipules. Calyx villose, with a prismatic tube, pale yellow, ending in five reddish bristles, four on the banner, and the fifth below the keel. Corolla of a full sulphur colour: banner ovate, channelled, with the border bent back on each side, and covering the wings and keel, which are shorter; the claw is the length of the calyx and tapers gradually: wings and keel concave, and coalescent from their base to the tip of the calyx, so that the corolla consists of two petals only: a short little membrane surrounds the base of it. Legume bowed, roundish, a little longer than the calyx, brown. Seeds ovate, ten or near that

number. Caspar Bauhin calls it a *Lotus*; and Lamarck is of opinion that it rather belongs to that genus^o. Bauhin observes, that it has crooked pods resembling crow's or raven's claws^p. The foregoing species having pods of the same shape, induced Linneus to give it the trivial name of *cornicina*.

Linneus remarks, that the side leaflets are united at the base into one wedge-shaped leaf, and that the middle one is subsessile; that the head has only five or six flowers; that the tenth stamen is distinct; that it has so much the habit of the other species as not to merit being made a distinct genus; and that it is an annual plant. Native of Spain.

6. Stems many, prostrate, smooth. Leaves alternately pinnate, sublinear. Stipules the size of the leaves. Annual. Grows wild on the sea-shores of Provence^q.

7. Height seven inches, branching, rising. Leaves petiolate; lobes obtuse, hairy. Peduncles terminal, two inches long. Flowers subpedicelled. Bractes three, lanceolate, the length of the flowers. Calyx hairy. Corollas yellow. The tenth stamen separate^r. A native of the Cape of Good Hope.

8. Murray hesitates whether this may not be the same with *Ononis* 14^s. The sister of *A. fruticosa*, but the folioles shorter. Stem herbaceous procumbent, shaggy, a foot high. Branches erect, simple, floriferous. Leaflets lanceolate, hairy: stipules of the same size with them. Heads roundish, involucred, with two three-parted bractes, scarcely longer than the flowers, which are yellow^t. A native of the Cape of Good Hope.

9. Stem eight feet high, shrubby, round, equal: branchlets hoary. Leaves remote: leaflets sword-shaped or long lanceolate, nearly equal, scarcely pubescent, narrower at the base: no stipules. Heads terminal, subgeminat, peduncled, roundish, involucred, with various ternate bractes, white with down, the length of the flowers which are yellow: calyxes sessile, white with down^u.]

10. The tenth species is the *Barba Jovis*, or *Jupiter's Beard*, by many called *Silver Bush*, from the whiteness of its leaves. It is a shrub which often grows ten or twelve feet high, and divides into many lateral branches, with winged leaves, composed of an equal number of narrow leaflets, which are very white and hairy; the flowers are produced at the extremities of the branches, collected into small heads: these are of a bright yellow colour, and appear in June; sometimes they are succeeded by short woolly pods, containing two or three kidney-shaped seeds; which, except the season proves warm, do not ripen in this country. [A native of the south of France, Spain, Portugal, Italy and the East. It was cultivated in 1640^x.

11. An under-shrub, procumbent, round, hoary, sub-pubescent. Leaves have eight pairs of leaflets, with an odd one, lanceolate, acute, silky. Bractes sessile, remote, lanceolate, rather obtuse. Peduncles short, terminated with three leaflets, and usually with two flowers, which are sessile, and minute^y.] These are not succeeded by seeds in this country. Grows naturally in Portugal and Spain.

[12. Stems seven inches long, prostrate. Leaves petiolate, leaflets linear, ovate, smooth, unequal; two sessile opposite; three petiolate, between the two others; the side ones ternate; the middle one pinnate; with five lobes. Peduncles leafless, the length of the leaves. Head five or six-flowered. Calyxes viscidous. Corollas yellow, twice as long as the calyx^z. Observed at the Cape of Good Hope by Sparrman.]

13. Is a low shrub, seldom rising above two feet high, but sends out many slender branches, with hoary leaves, which are sometimes single, but generally have three oval leaflets, the middle one being longer than the other two; the flowers are yellow.

^o Cavanilles

^p Pin. 332.

^q Linn. mant.

^r Linn. suppl.

^s Linn. fyft.

^t Linn. mant.

^u Ibid.

^x Park. theatr.

^y Linneus.

^z Linn. suppl.

^m Jaquin and Haller.

ⁿ Cavanilles.

low, and come out from the side of the branches, three or four joined together, having woolly calyxes; but these are rarely succeeded by seeds in England. [According to Linneus the branches are wand-like, as in the Spartiums, round, nappy, white. Leaves subsessile, elliptic-lanceolate, soft, nerves rising, the middle one double the size of the other two, and petiolate; the lower ones often simple. Flowers axillary, sessile, usually two. Calyxes oblong, cylindric, white-villose. Corollas yellow: banner reflex on the sides, and emarginate at the tip. All the stamens connate. A native of Spain and about Montpellier. Cultivated in 1759, by Mr. Miller^a.]

14. This shrub grows five or six feet high, the branches are garnished with oblong, ternate leaves; the flowers, which are yellow, are produced in small clusters on the side of the branches; these appear in July and August, but are not succeeded by seeds in this country. [Calyxes scarcely swelling, but the habit the same with the foregoing. Flowers four, on separate very short peduncles. Branches ending in a spine^b.] Grows naturally in Greece, Crete, and also in Palestine: this was formerly in some of the English gardens, but the severe winter of 1739-40 destroyed most (if not all the plants) in this country, since which time I have not seen it.

15. The height of this shrub is nine or ten feet, and it has the appearance of one sort of Gorse or Whin. [It is covered with spines; at the origin of the branches, an ovate scale; leaves oblong-ovate, nappy, three generally next the flowers^c. It grows naturally in Spain and Portugal; and was cultivated in 1759, by Mr. Miller^d.]

16. Stem shrubby, a span high. Leaflets twenty-two to thirty-two, ovate, acute, sessile, tomentose. Stipules entire. Flowers purple, sessile, on a common axillary peduncle, longer than the leaves. Calyx supported by a scale, the two lateral leaflets stipulaceous, filiform, tomentose; when adult purple-veined. Banner of the corolla reflex-compressed, scarcely longer than the wings and keel; wings semicordate, with a filiform oblong claw; keel bowed in a little, cleft at the base. Filaments diadelphous, bowing inwards. Germ somewhat villose; style scarcely longer than the stamens; stigma globose. Legume subovate, flattened above, somewhat villose. Seeds three or four, kidney-shaped. Native of Mount Lebanon^e.

17. A large shrub, with an upright stem, and scandent, unarmed branches. Leaves unequally pinnate; leaflets ovate, quite entire. Calyx red. Corolla white. Legume short, with two kidney-shaped seeds. Native of the mountains of Cochinchina^f.]

PROPAGATION AND CULTURE.

1. The seeds should be sown on a bed of light earth in April, where the plants are to remain, and will require no other care, but to thin them to the distance of two feet, and to keep them clean from weeds. Or if they are permitted to scatter on the ground, they will come up with the first warmth of spring.

2. The second and following herbaceous species may also be propagated by seeds, sown either in the autumn or spring: those which are sown in the autumn, will rise the following spring, and more certainly grow, than those which are sown in the spring, which seldom grow the same year. When the plants come up, they must be kept clean from weeds, and where they are too close together, they must be thinned. The following autumn, they should be transplanted to the places where they are to remain.

10. The tenth, and several other of the shrubby sorts may be propagated either by seeds or cuttings; if by seeds, they should be sown in the autumn, in pots filled with light earth, and placed under a frame in winter, to protect them from frost. The follow-

^a Hort. kew.

^d Hort. kew.

^b Lin. spec.

^c Billardiere.

^e Ibid.

^f Loureiro.

ing spring the plants will rise, and when they are strong enough to remove, they should be each planted in a small pot, filled with light earth, and placed in the shade, till they have taken new root; after which, they may be put along with other hardy exotic plants, in a sheltered situation, till October, when they must be removed into shelter. These plants are always housed in winter, yet some of them will live abroad three or four years, when they are planted against a wall with a south-west aspect. They may also be propagated by cuttings, which may be planted during any of the summer months, observing to water and shade them till they have taken root; when they should be planted in pots, and treated in the same manner as those which are raised from seed.

11. and 14. May be propagated by cuttings, in the same manner as the tenth.

15. Will live in the open air in mild winters, but hard frost will destroy it. It is propagated by seeds only.

ANTHYLLIS. See *Arenaria*. *Aspalathus*. *Camporosma*. *Cressa*. *Ebenus*. *Polycarpon*. *Polycnemum*. *Salsola*. *Teucrium*.

ANTHYLLIS valentina. See *Frankenia*.

ANTHYLLOIDES. See *Salsola*.

ANTICHOLERICA. See *Sophora*.

[ANTICHÖRUS. (In the accented catalogue of names given by the Lichfield Society, the accent is placed on the antepenultima, as if it were derived from *χῆρος*; but if it be derived from *χῆρος*, then it should be placed on the penultima.)]

Lin. gen. Reich. n. 508. Schreb. 640. Juss. 290.

Class. 8. 2. Octandria Monogynia.

Nat. order of *Columniferae*.—*Tiliaceae* Juss.

GENERIC CHARACTER.

CAL. *Perianth* four-leaved, very much expanded; leaflets lanceolate, acuminate, deciduous.

COR. *Petals* four, obovate, obtuse, the length of the calyx.

STAM. *Filaments* setaceous, erect, shorter than the corolla: *anthers* roundish.

PIST. *Germ* superior, ovate: *style* cylindric, the length of the stamens: *stigma* obtuse.

PER. *Capsule* subulate, four-celled, four-valved.

SEEDS very many, truncate, placed over each other in four rows.

ESSENTIAL CHARACTER.

Cal. four-leaved. Pet. four. Caps. superior, subulate, four-celled, four-valved. Seeds very many.

SPECIES.

1. *Antichorus depressus*.

Lin. syst. 359. Reich. 2. 154. mant. 64.

DESCRIPTION, &c.

It resembles the *Corchorus*, and is a small procumbent annual plant. Stems round, three or four inches long, alternately branching, growing close to the ground. Leaves alternate, petioled, oval, grossly ferrate, smooth, somewhat plaited. Stipules subulate. Flowers axillary, two together, opposite, on very short thickish peduncles, yellow. Bractes two, on the upper side of the peduncle. Fruits nodding, closely reflected under the stem. A native of Arabia^g.]

[ANTIDESMA. (From *αντι* pro and *δεσμός*, *vinculum*. Excellent for making ropes.)]

Lin. gen. n. 1110. Reich. 1216. Schreb. 1518.

Gartn. 39. Burm. Juss. 443.

Class. 22. 5. Dioecia Pentandria.

GENERIC CHARACTER.

* Male.

CAL. *Perianth* five-leaved: leaflets oblongish, concave.

COR. none.

STAM. *Filaments* five, capillary, longer than the calyx, equal: *anthers* roundish, semibifid.

* Female.

CAL. as in the male, permanent.

COR. none.

^g Lin. mant.

PIST.

Pist. Germ superior, ovate; style none; stigmas five, obtuse.

Per. Drupe roundish, one-celled, crowned with the stigmas, and having a furrowed shell.

Seed none.

ESSENTIAL CHARACTER.

MALE. Cal. five-leaved. Cor. none. Anthers femibifid.

FEMALE. Cal. five-leaved. Cor. none. Stigmas five. Berry cylindric, one-seeded.

SPECIES.

1. *Antidesma alexiteria*.

Lin. spec. 1455. *Reich.* 4. 249. *fl. zeyl.* n. 357. *Arbor indica*, &c. *Pluk. amalth.* t. 339. f. 1. *Noela-tali.* *Rheed. mal.* 4. t. 56. *Raii hist.* 1606. (male.) *Pet. mus.* 621. *Raii dendr.* 27.

2. *Antidesma acida*.

Retz. obs. 5. p. 30. n. 87. *Leaves obovate, spikes solitary.*

3. *Antidesma scandens*.

Loureiro cochinch. 617. *Leaves palmate serrate, stem climbing.*

DESCRIPTIONS, &c.

1. It is a middle-sized tree, with leaves resembling those of the lemon. Flowers in racemes. Fruit red, and acid like the barberry. Common in Malabar, is an evergreen, and continues to bear fruit to the age of seventy years; the fruit is esteemed for its pleasant cooling qualities. A decoction of the leaves is reputed to be an antidote against the bite of serpents. The bark is used for making ropes^b.]

2. Spikes of flowers solitary, either axillary or terminating very short lateral branches. Calyx five-toothed. The female flowers have commonly three reflex styles. Native of the East-Indies^c.

3. Stem shrubby, long, branched, climbing without tendrils, having no spines. Leaves smooth, petioled, scattered. Filaments of the male flowers short, terminated by erect anthers, gaping at the tip. Native of China near Canton^k.

ANTIRRHEA. See *Cunninghamia*.]

ANTIRRHINUM. (*Αντίρρινον* *Theophr.* and *Diosc.* *ἀντί ἰσχυρῆς*, and *πὺν νᾶσος* *Lin.* *Quod fructu sit vituli narium simile.* *Ray.*)

Lin. gen. n. 750. *Reich.* 808. *Schreb.* 1007. *Tournef.* 75. *Gertn.* 53. *Juss.* 120. *Mill. dict.* *Linaria* and *Afarina* *Tourn.* 76. *Juss.* 120. *Mill. dict.* *Elatine* *Dill. gen.* 6. *Dodartia* *Mill. dict.*

Snap-dragon. Calves-snout. Toad-flax.

Class. 14. 2. *Didynamia Angiospermia.*

Nat. order of *Perfonatæ*.

GENERIC CHARACTER.

CAL. Perianth five-parted, permanent: divisions oblong, the two lower more gaping.

COR. monopetalous, ringent: tube oblong, gibbous; limb bilabiate: upper lip bifid, reflex on the sides; lower trifid, obtuse: palate convex, usually closed by a prominency between the lips, produced from the under lip; the throat being concave beneath. *Nectary* at the base of the corolla produced downwards, prominent.

STAM. Filaments four inclosed under the upper lip, nearly of the same length with the corolla, yet two are shorter: anthers converging.

Pist. Germ roundish: style simple, of the length and in the situation of the stamens: stigma obtuse.

PER. Capsule roundish, obtuse, two-celled, of different form and aperture in the different species.

SEEDS very many. *Receptacles* reniform, solitary, affixed to the partition.

OBS. *Nectary* and *Pericarp* very different in this genus. *Linaria* T. has a long, subulate *nectary*; a capsule gaping equally.

Antirrhinum T. has an obtuse *nectary*, scarcely prominent; a capsule gaping obliquely at the top, unequal at the base.

Elatine *Dill.* has a subulate *nectary*; the capsule in gaping deposits a fold on each side.

^b Hort, mal,

^c Retz,

^k Loureiro,

A. bellidifolium and *canadense*, have an open mouth without any palate.

Some species have the rudiment of a fifth stamen, which is barren.

ESSENTIAL CHARACTER.

Cal. five-leaved. **Cor.** with the base produced downwards and nectariferous. **Caps.** two-celled.

SPECIES.

* *Leaves angular.*

1. *Antirrhinum Cymbalaria.* Ivy-leaved Toad-flax.

Lin. spec. 851. *syft.* 554. *Reich.* 3. 125. *hort. cliff.* 323. 1. *upf.* 175. *Huds. angl.* 271. *With.* 645. *Pollich pal.* n. 589. *Scop. carn.* n. 270. *Hall. helv.* n. 339. *Curtis lond.* 1. 45.

Linaria Cymbalaria. *Mill. dict.*

Lin. hederaceo folio glabro, seu Cymbalaria vulgaris. *Tournef. inst.* 169. *Garid. aix.* 287. *Gouan. monsp.* p. 100. *Villars dauph.* 2. 434. *Rivin. mon.* t. 86. 2. *Mor. hist. f.* 5. t. 14. f. 30. *Ger. emac.* 529. 6. *Park.* 682. 1. *Matth.* 1184. *Lob. obs.* 337. 2. *ic.* 1. 615. 1. *Baub. hist.* 3. 685. *Raii hist.* 759. 36.

Leaves heart-shaped, five-lobed, alternate; stalks procumbent.

[2. *Antirrhinum pilosum.* Hairy-leaved Toad-flax.

Lin. syft. 554. *Reich.* 3. 125. *mant.* 249. *Jacqu. obs.* 2. p. 28. t. 48.

Cymbalaria alpina. *Tournef. inst.* 169.

Leaves kidney-shaped, very hairy, alternate; stalks procumbent.

3. *Antirrhinum Elatine.* Sharp-pointed Toad-flax or *Fluellin*.

Lin. spec. 851. *Reich.* 3. 126. *hort. cliff.* 323. 3. *upf.* 175. *Huds. angl.* 271. *With.* 646. *Pollich pal.* n. 590. *Hall. helv.* n. 340. *Scop. carn.* n. 772. *Fl. dan.* 426. *Curtis lond.* 1. t. 46. *Krock. files.* n. 987. *Villars dauph.* 2. 434.

Linaria Elatine. *Mill. dict.* *Raii hist.* 759. 35.

Elatine folio acuminato in basi auriculato, flore luteo. *Baub. pin.* 253. *Mor. hist. f.* 5. t. 14. f. 28. *Blackw. t.* 170.

Elatine altera. *Ger.* 501. 2. *emac.* 625. 2. *Dod. pempt.* 42.

Elat. folio acuminato. *Park.* 553. 2.

β. *Elat. folio acuminato flore cœruleo.* *Baub. pin.* 253. 3.

Leaves hastate, alternate; stalks procumbent.

4. *Antirrhinum spurium.* Round-leaved Toad-flax or *Fluellin*.

Lin. spec. 851. *Reich.* 3. 126. *hort. cliff.* 323. 4. *upf.* 175. *Huds. angl.* 272. *With.* 646. *Pollich palat.* n. 591. *Hall. helv.* n. 341. *Curtis lond.* 3. 37. *Krock. files.* n. 988. t. 25. *Villars dauph.* 2. 434. *Lour. cochinch.* 383.

Linaria spuria. *Mill. dict.*

Elatine folio subrotundo. *Baub. pin.* 252. *Park.* 553. 1. *Mor. hist. f.* 5. t. 14. f. 27. *Rivin.* t. 86. 1. *Raii hist.* 759. 34.

Veronica foemina seu Elatine. *Ger.* 501. 1. *emac.* 625. 1. *Dod. pempt.* 42. *Cam. epit.* 462.

Leaves ovate, alternate; stalks procumbent.

[5. *Antirrhinum cirrhosum.* Tendrilled Toad-flax.

Lin. syft. 554. *Reich.* 3. 126. *mant.* 249. *Jacqu. hort.* t. 82.

Linaria. *Till. pis. t.* 38. f. 2.

Leaves hastate, alternate; stems spreading; petioles every where tendrilled.

6. *Antirrhinum ægyptiacum.* Egyptian Toad-flax.

Lin. syft. 555. *spec.* 851. *Reich.* 3. 127.

Leaves hastate, alternate; stem erect, very branching, peduncles stiffish.

** *Leaves opposite.*

7. *Antirrhinum triphyllum.* Three-leaved Toad-flax.

Lin. spec. 852. *Reich.* 3. 127. *hort. cliff.* 324. 5. *upf.* 174. *Sauv. monsp.* 165. *Murr. prodr.* 163. *Gertn. fruct.* 1. 249.

Linaria triphylla. *Mill. dict.* *Raii hist.* 752. 3. *Park. theat.* 457. n. 3. *Baub. hist.* 3. 458. f. 3. *Sabb. hort. rom.* 3. t. 4.

Lin. sicula latifolia triphylla. *Bocc. sic.* 44. t. 22. *hispanica.* *Clus. hist.* 1. 320.

Leaves ternate, ovate.

[8. *Antirrhinum*

- [8. *Antirrhinum triornithophorum*.
Lin. spec. 853. *Reich.* 3. 127. *hort. cliff.* 324. 6.
Linaria americana maxima purpureo flore. *Herm. lugdb.* t. 377. *Raii hist.* 1884.
Lin. flore purpureo americana. *Riv. mon.* 84. 1.
Leaves in fours, lanceolate: stem erect, branching; flowers peduncled.]
9. *Antirrhinum purpureum*. Purple Toad-flax.
Lin. spec. 853. *syft.* 555. *Reich.* 3. 128. *mant.* 416. *hort. upf.* 174. *cliff.* 498. 13. *Curtis mag.* t. 99. *Gertn. fruct.* 1. 249.
Linaria purpurea. *Mill. dict.*—magna *Baub. hist.* 3. 460. f. 1. *Raii hist.* 756. 19.—odorata *Baub. pin.* 213. 10.—altera *Dod. pempt.* 183. *Ger. emac.* 551. 3.
Lin. flore purpureo minore. *Riv. mon.* t. 85. f. 1.
Leaves quaternate, linear: flower-bearing stem erect, spiked.]
- [10. *Antirrhinum vericolor*. Spiked-flowered Toad-flax.
Lin. syft. 555. *Jacqu. miscell.* 2. p. 336. *icon. rar.* t. 116.
Ant. linarioides. *Lin. spec.* 853. *Reich.* 3. 140.
Leaves linear-lanceolate: the lower ones ternate; stem erect, spiked.]
11. *Antirrhinum repens*. Creeping Toad-flax.
Lin. spec. 854. *Reich.* 3. 128. *Gnett. stamp.* 2. p. 204. *Huds. angl.* 273. *With.* 647. *Allion. pedem.* n. 235.
Linaria repens. *Mill. dict.*
Lin. angustifolia flore cinereo striato. *Dill. elth.* t. 163. f. 197.
L. cœrulea fol. brevioribus & angustioribus. *Raii syn.* * 282.
Leaves linear, crowded, below quaternate; calyxes equalling the capsule.]
12. *Antirrhinum monspessulanum*. Montpellier Toad-flax.
Lin. spec. 854. *syft.* 555. *Reich.* 3. 128. *Huds. angl.* 272. *With.* 647. *Sauv. monsp.* 47. *Villars dauph.* 2. 436.
Linaria monspessulana. *Mill. dict.*
Lin. capillaceo folio, odora. *Baub. pin.* 213. *prod.* 106. n. 4. *Dill. elth.* 199.
Lin. caryophyllata albicans. *Park. theat.* 458. n. 5.
Lin. odorata monspessulana. *Baub. hist.* 3. p. 459. 1. (good.) *Raii. syn.* * 282. *hist.* 756. 20.
Leaves linear-filiform succulent, scattered, crowded; stem erect; spur shorter than the calyx.]
- [13. *Antirrhinum spartheum*. Branching Toad-flax.
Lin. spec. 854. *Reich.* 3. 129. *Curt. mag.* t. 200. *Cavan. bisp.* 19. n. 30. t. 32.
Leaves awl-shaped, channelled, fleshy; the lower ones ternate; stem panicled, and corollas very smooth.]
14. *Antirrhinum bipunctatum*. Dotted-flowered Toad-flax.
Lin. spec. 853. *Reich.* 3. 129. *Sauv. monsp.* 165. *Cavan. bisp.* n. 31. t. 33. f. 1.
Linaria lutea parva annua. *Baub. hist.* 3. 457. *Raii hist.* 755. 12.
Lin. lutea moravica Clusii. *Park. theat.* 462. n. 6.
Leaves linear, smooth: the lower ones quaternate; stem erect, panicled: flowers spike-headed.]
15. *Antirrhinum triste*. Dark-flowered Toad-flax.
Lin. spec. 853. *syft.* 555. *Reich.* 3. 130. *hort. cliff.* 498. 14. *Curtis magaz.* 74.
Linaria tristis. *Mill. dict.* fig. t. 166. f. 1.
Lin. tristis hispanica. *Dill. elth.* 201. t. 164. f. 199.
Lin. hispanica procumbens. *Mart. dec.* 35. f. 2.
Leaves linear, scattered, the inferior ones opposite; nectaries awl-shaped; flowers subsessile.]
- [16. *Antirrhinum supinum*. Procumbent Toad-flax.
Lin. spec. 856. *syft.* 556. *Reich.* 3. 130. *mant.* 417. *Sauv. monsp.* 48. *Villars dauph.* 2. 438.
Linaria hispanica 5. *Clus. hist.* 1. p. 321.—pumila *hispanica.* *Park. theat.* 460. f. 1. *Raii hist.* 754. 8.
Leaves subquaternate, linear; stalk diffused; flowers racemed, spur straight.]
17. *Antirrhinum arvense*. Yellow Corn Toad-flax.
Lin. spec. 855. *Reich.* 3. 130. *hort. upf.* 174. *Huds. angl.* 273. *With.* 647. *Pollich pal.*

- n. 593. *Leers herb.* n. 490. *Krock. files.* n. 989.
Linaria arvensis cœrulea. *Baub. pin.* 213. *prod.* 107. n. 5. *Dill. elth.* t. 163. f. 198. *Raii hist.* 756. n. 21.
Leaves sublinear, the lower ones quaternate; calyxes hairy, viscid; flowers spiked, stem erect.]
18. *Antirrhinum pelisserianum*. Violet-coloured Toad-flax.
Lin. spec. 855. *Reich.* 3. 131. *mant.* 416. *Gnett. stamp.* 2. p. 204. *Villars dauph.* 2. 436. *Sauv. monsp.* 166. *Sabb. rom.* 3. t. 4.
Linaria annua, &c. *Vaill. par.* 118. *Magn. monsp.* 159. t. 158. *Barrel. ic.* 1162.
Lin. pelisseriana. *Mill. dict.*
Stem-leaves linear, alternate; root-leaves lanceolate, ternate; flowers corymbed.]
- [19. *Antirrhinum saxatile*. Rock Toad-flax.
Lin. spec. 855. *syft.* 556. *Reich.* 3. 131. *mant.* 416. *Amæn.* 4. 277.
Linaria maritima minima viscosa, foliis hirsutis, floribus luteis. *Mor. hist.* 2. p. 499.
Leaves lanceolate-linear, scattered, villose, the inferior quaternate; stem decumbent; flowers spiked.]
20. *Antirrhinum viscosum*. Clammy Snap-dragon.
Lin. spec. 855. *Reich.* 3. 132. *Amæn.* 4. 319.
Root-leaves quaternate, lanceolate; stem-leaves linear, alternate; calyxes villose, approximating the stem.]
21. *Antirrhinum multicaule*. Many-stalked Toad-flax.
Lin. spec. 856. *Reich.* 3. 132. *hort. cliff.* 324. 7.
Linaria multicaulis. *Mill. dict.*
Lin. ficula multicaulis, molluginis folio. *Bocc. sic.* 38. t. 19. f. 1. *Raii hist.* 753. 5.
Leaves quinate, linear, fleshy: flowers beaded.]
- [22. *Antirrhinum glaucum*.
Lin. spec. 856. *Reich.* 3. 132. *Amæn.* 4. 277. *Cavan. bisp.* n. 32. t. 33. f. 2.
Linaria foliis confertis linearibus carnosiss. *Hall. Goett.* 306.
Lin. maritima, foliis succulentis. *Buxb. cent.* 4. p. 23. t. 37.
Leaves quaternate, awl-shaped, fleshy; stems erect; flowers spiked.]
23. *Antirrhinum alpinum*. Alpine Toad-flax.
Lin. spec. 856. *syft.* 556. *Reich.* 3. 132. *mant.* 417. *Curtis mag.* p. 205. t. 207. *Sauv. monsp.* 165. *Jacqu. austr.* 1. t. 58. *Hall. belv.* n. 338. *Scop. carn.* n. 767. *Krock. files.* n. 991. *Villars dauph.* 2. 438.
Linaria alpina. *Mill. dict.*
Lin. 3. stiriaca. *Clus. hist.* 1. p. 322.
Lin. quadrifolia supina. *Baub. pin.* 213. *Ger. emac.* 553. 8.—alpina *Park. theat.* 461. f. 5.—purpurea parva *Baub. hist.* 460. f. 2. *Raii hist.* 757.
Leaves quaternate, linear-lanceolate, sea-green; stem diffuse; flowers racemed, with a straight spur.]
- [24. *Antirrhinum bicornis*. Horned Toad-flax.
Lin. spec. 856. *Reich.* 3. 133. *Amæn.* 6. p. 88. *Burm. afr.* 211. t. 75. f. 3. (*Linaria*).
Leaves opposite, ovate-oblong, serrate; stem erect, flowers racemed, capsules two-horned.]
25. *Antirrhinum villosum*.
Lin. spec. 852. *Reich.* 3. 133. *Barr. ic.* 597.
All the leaves opposite, ovate, villose; stems simple; flowers opposite, lateral.]
26. *Antirrhinum organifolium*.
Lin. spec. 852. *Reich.* 3. 133. *Pluk. alm.* t. 137. f. 1.
Leaves mostly opposite, oblong; flowers alternate.]
27. *Antirrhinum pinnatum*.
Lin. syft. 556. *suppl.* 280.
Leaves opposite, pinnatifid; stem erect, flowers racemed.]
- *** Leaves alternate.
28. *Antirrhinum minus*. Lesser Toad-flax.
Lin. spec. 852. *Reich.* 3. 134. *hort. cliff.* 324. 10. *fuec.* 558. *Gertn. fruct.* 1. 249. *Huds. angl.* 272. *With.* 648. *Curtis lond.* 5. 7. *Hall. belv.* n. 335. *Fl. dan.* t. 502. *Pollich pal.* n. 592. *Scop. carn.* n. 769. *Krock. files.* n. 990. *Riv. mon.* 85. 2.

- Ant. minimum repens. *Ger. emac.* 549. 5.
 Ant. arvense minus. *Baub. pin.* 212. 6. *Raii hist.* 760. 37.—minimum. *Baub. hist.* 3. 465. 1.
 Ant. sylvestre minimum. *Park.* 1334. 2.
 Ant. tertium. *Camer. epit.* 922. *Lob. ic.* 406. 1. *Matth.* 1198.
 Leaves mostly alternate, lanceolate, obtuse: stem very much branched, diffuse.
29. Antirrhinum dalmaticum.
Lin. spec. 857. *Reich.* 3. 134.
 Linaria dalmatica. *Mill. dict.*
 Lin. maxima foliis lauri dalmatica. *Baub. hist.* 3. 458. f. 2. *Buxb. cent.* 1. p. 95. t. 24.—latifolia dalmatica. *Park. theat.* 456. n. 1. *Raii hist.* 754. 9.
 Leaves alternate, heart-shaped, stem-clasping.
30. Antirrhinum hirtum. Hairy Toad-flax.
Lin. spec. 857. *Reich.* 3. 134. *Jacqu. misc.* 2. p. 334. *icon. rar.* 117. *Gouan illustr.* 38. 3.
 Linaria villosa. *Mill. dict.* n. 10.
 Leaves lanceolate, shaggy: flowers spiked, the upper leaf of the calyx largest.
31. Antirrhinum genistifolium. Broom-leaved Toad-flax.
Lin. spec. 858. *Reich.* 3. 135. *Jacqu. austr.* 3. t. 244. *Hall. belv. n.* 337. *Allion. pedem.* n. 243. *Krock. fles.* n. 992. *Villars dauph.* 2. 439.
 Linaria genistæ folio glauco, flore luteo. *Herm. par. app.* 9. *Dill. eltb.* t. 164. f. 200. *Raii suppl.* 391.
 Lin. pannonica 1. *Clus. hist.* 1. p. 321.
 Lin. genistifolia. *Mill. dict.* n. 14.
 Leaves lanceolate, acuminate: panicle wand-like, flexuose.
- [32. Antirrhinum junceum. Rush-stalked Toad-flax.
Lin. spec. 858. *Reich.* 3. 135. *amæn.* 4. 277. *D'Allo aragon.* n. 564.
 Leaves linear, alternate: stem panicled, wand-like; flowers racemed.]
33. Antirrhinum Linaria. Common Yellow Toad-flax.
Lin. spec. 858. *Reich.* 3. 135. *mat. med.* 155. *succ.* 557. *Gært. fruct.* 1. 248. *Huds. angl.* 273. *With.* 648. *Lightf. scot.* 328. *Hall. belv. n.* 336. *Curtis lond.* 1. t. 47. *Pollich pal.* n. 594. *Scop. carn. n.* 768. *Allion. ped. n.* 242. *Krock. fles.* n. 993. *Villars dauph.* 2. 439. *Lour. coch.* 383.
 Linaria lutea vulgaris. *Ger.* 440. *emac.* 550. 1. *Raii hist.* 752. 1. *Baub. hist.* 3. 456. 2.
 Lin. vulgaris. *Mill. dict.* n. 1. *Park.* 458. 1. *Blackw. t.* 115. *Rivin. t.* 83. f. 1. *Mor. hist.* f. 5. t. 12. f. 10. *Dod. pempt.* 183. 1. *Lob. obs.* 222. 2. *ic.* 1. 406. 2.
 Leaves lanceolate-linear, crowded; stem erect: spikes terminal, sessile; flowers imbricate.
- [34. Antirrhinum linifolium.
Lin. spec. 858. *Reich.* 3. 136.
 Linaria constantinopolitana, &c. *Tournef. cor.* 9. *Buxb. cent.* 1. p. 16. t. 25. f. 2. (bad.)
 Leaves lanceolate, three-nerved, flowers racemed, peduncles distant shorter than the bracte.]
35. Antirrhinum chalepense. White-flowered Toad-flax.
Lin. spec. 859. *Reich.* 3. 136. *hort. upf.* 174. *Gouan. illustr.* 38. 4.
 Linaria chalepensis. *Mill. dict.* n. 12. *Mor. hist.* f. 5. t. 35. f. 9.
 Lin. annua, &c. *Triumf. obs.* t. 87. f. 2. *Raii hist.* 1884.
 Lin. flosc. albis. *Rivin. t.* 83. f. 2.
 Leaves linear-lanceolate, alternate; flowers in racemes; calyxes longer than the corolla; stem erect.
- [36. Antirrhinum reflexum.
Lin. spec. 857. *Reich.* 3. 137.
 Linaria pusilla, &c. *Raii hist.* 755. n. 15.
 Leaves ovate, smooth; peduncles axillary, fruitbearing, elongate, recurved; stem procumbent.
37. Antirrhinum pedunculatum.
Lin. spec. 857. *Reich.* 3. 137.
 Leaves linear, remote; flowers panicled; peduncles longer than the leaf, stiff and upright.
38. Antirrhinum Lagopodioides.
Linn. suppl. 279. *syst.* 557.
 Leaves scattered, soft, recurved at the tip; spikes ovate, villose.
 **** Leaves none.
39. Antirrhinum aphyllum.
Lin. suppl. p. 280. *syst.* 557.
 A capillary scape.]
 ***** Corollas gaping or tailless.
40. Antirrhinum majus. Great Toad-flax or Snap-dragon.
Lin. spec. 859. *Reich.* 3. 137. *hort. upf.* 175. *cliff.* 324. 12. *mat. med.* 156. *Gært. fruct.* 1. 249. *Huds. angl.* 274. *With.* 650. *Hall. belv. n.* 333. *Rivin. mon. t.* 82. f. 1. *Scop. carn. n.* 773. *Krock. fles.* n. 994. *Villars dauph.* 2. 440. *Raii hist.* 760. 1, 2. *Dod. pempt.* 182. *Baub. hist.* 3. 462. *Ger. herb.* 438. 1, 2. *É* 439. 3. *emac.* 549. 1, 2, 3. *Park. par.* 269. t. 267. f. 5.
 α. Ant. majus, rotundiore folio. *Baub. pin.* 211.
 A. latifolium. *Mill. dict.* n. 4. *Raii hist.* 760. n. 2. Common Snap-dragon.
 β. Ant. majus alterum, folio longiore. *Baub. pin.* 211. *Mill. dict.* n. 3. *fig. t.* 42. *Berg. phyt.* 2. t. 19. *Raii hist.* 760. 1. Long-leaved Snap-dragon.
 γ. Floribus ruberrimis: palato aureo-punctato. Scarlet-flowered Snap-dragon.
 δ. floribus plenis. Double-flowered Snap-dragon. Corollas tailless, flowers in spikes, calyxes rounded.
41. Antirrhinum Orontium. Small Toad-flax or Calves Snout.
Lin. spec. 860. *Reich.* 3. 138. *hort. upf.* 176. *cliff.* 324. 11. *succ.* 559. *Gært. fruct.* 1. 249. *Huds. angl.* 274. *With.* 650. *Curtis lond.* 4. 45. *Hall. belv. n.* 334. *Scop. carn. n.* 774. *Gouan. monsp. p.* 101. n. 9. *Pollich pal.* n. 595. *Rivin. mon. t.* 82. 2. *Krock. fles.* n. 995. *Villars dauph.* 2. 441.
 Ant. angustifolium sylvestre. *Baub. hist.* 3. 464. *Raii syn.* 383. *hist.* 760. *Best. eyf. æst.* 1. t. 9. f. 3.
 Ant. minus. *Ger. emac.* 549. 4.
 Ant. sylvestre medium. *Park.* 1334. 1.
 Corollas tailless, flowers subspiked, calyxes longer than the corolla.
- [42. Antirrhinum papilionaceum.
Lin. syst. 557. *Reich.* 3. 138. *mant.* 86.
 Corollas tailless, flowers axillary, calyxes papilionaceous, leaves fleshy.]
43. Antirrhinum Asarina. Heart-leaved Toad-flax.
Lin. spec. 860. *Reich.* 3. 139. *hort. cliff.* 323. 2.
 Hedera faxatilis. *Ger. emac.* 856. 2. *Raii hist.* 567.
 Asarina procumbens. *Mill. dict.*
 Asarina. *Lob. ic.* 601. *Baub. hist.* 3. 856. *Mor. hist.* 3. 432. n. 1. f. 11. t. 21. f. 1. *Sabb. hort. rom.* 3. t. 3.
 Corollas tailless, leaves opposite, heart-shaped, crenate; stems procumbent.
- [44. Antirrhinum molle. Woolly-leaved Toad-flax or Snap-dragon.
Lin. spec. 860. *Reich.* 3. 139. *Lour. cochinch.* 383.
 Corollas tailless, leaves opposite, ovate, tomentose, stems procumbent.
45. Antirrhinum unilabiatum.
Lin. syst. 558. *suppl.* 279.
 Corollas tailless, with two calluses; leaves alternate; pinnate; stem panicled.]
 ***** Corollas gaping.
46. Antirrhinum bellidifolium. Daisy-leaved Toad-flax.
Lin. spec. 860. *Reich.* 3. 139. *hort. cliff.* 498. 15. *syst.* 558. *mant.* 417. *Sauv. monsp.* 67. *Gouan. illustr.* p. 39. *Hall. belv. n.* 342. *Villars dauph.* 2. 442.
 Linaria bellidis folio. *Baub. pin.* 212. *prodr.* t. 106. *Raii hist.* 758. n. 32. *Baub. hist.* 3. 459. f. 2.
 Linaria purpurea odorata. *Ger. herb.* 440. *emac.* 550. 2. *Park. parad.* 267. f. 3.

Dodartia Linaria. Mill. dict.

Root-leaves tongue-shaped, toothed, marked with lines ;
stem-leaves parted, quite entire.

- [47. *Antirrhinum canadense.* Canada Toad-flax.
Lin. spec. 861. Reich. 3. 140. Gron. virg. 67. 94.
Leaves linear, alternate, lower lip spreading out flat.
New Species.

48. *Antirrhinum micranthum.* Small-flowered Toad-flax.

Cavan. hisp. 51. n. 77. t. 69. f. 3.

Stem herbaceous upright, lower leaves in fours, upper ones alternate, flowers very small, spur short interior.

49. *Antirrhinum reticulatum.* Reticulate Toad-flax.
Smith ic. rar. fasc. 1. t. 2.

Leaves linear channelled scattered, those on the radical shoots generally in fives, calyx hairy, flower-stalks shorter than the bractes.

50. *Antirrhinum pygmæum.* Dwarf Toad-flax.

Gouan. illustr. 37. 1. Mich. pis. t. 38. f. 2. Mor. hist. 2. 503. (Linaria.)

Leaves sagittate, peduncles capillaceous.

51. *Antirrhinum ærugineum.*

Gouan. illustr. 38. 2. D'Asso aragon. n. 563.

Linaria tenuifolia æruginei coloris. Baub. pin. 212.

— *hispanica secunda.* Clus. hist. 1. 320.

Lower leaves in fours linear, flowers in racemes, the upper leaflet of the calyx twice as long as the rest.

52. *Antirrhinum hexandrum.*

Forst. fl. austr. n. 235.

Leaves opposite cordate-ovate serrate, peduncles axillary one-flowered.

DESCRIPTIONS, &c.

1. Root perennial, fibrose, inserting itself so into the crevices of walls and rocks as scarcely to be eradicated. Stalks numerous, growing in a tuft, creeping at bottom, branched, round, purplish and stringy. Leaves roundish, shining, somewhat fleshy, some opposite, others alternate, frequently purplish: lobes of the lower ones blunt, upper acute, the smallest only three-lobed. Petioles long, grooved above. Peduncles from the axils, one-flowered, round, a little longer than the petioles. Tube of the corolla short: the upper lip purple with two deeper veins; segments of the lower whitish; the palate yellow; the mouth or entrance into the tube villose and saffron-coloured. Nectary purple, conical, the length of the calyx. Germ purple. Capsule wrinkled, opening at top into several segments. Seeds black, roundish, wrinkled like the nut of the walnut. The whole plant is smooth, and has a disagreeable smell^a. It varies with a white flower^b. Linneus has a fancy that this plant might be produced from the impregnation of *Antirrhinum Elatine* by the pollen of *Campanula hederæfolia*. It grows wild on old walls at Basil, Baden, and many other towns of Switzerland, where however, Haller says, it was unknown in the time of Cherler. In Germany, as at Heidelberg: Haerlem in Holland: also about Paris, and most of the towns in the south of France. It is a native of Italy; from whence it came to us, according to Miller, and is now common on the walls in and near London, that are within reach of the Thames; as on the Temple walls, &c. and on those of the physic garden at Chelsea; whence it probably originated about London. Dr. Richardson remarked it in the quarries about Darford in Yorkshire: and it has long grown upon the walls about the old manor-house at Dry Drayton in Cambridgeshire; also at Burleigh by Stamford, &c. Johnson (in Gerard) calls it *Italian Bastard Navelwort*, and does not hint at its being wild in his time. Parkinson, a few years after says, that it groweth naturally in divers places of our land. It is one of the plants adapted to the ornament of rock-work, which it will cover, if moist, with a thick-tapestry; and flowers from June to October.

2. The leaves are kidney-shaped, the edge divided into nine or ten obtuse, crenulate lobes. This

is found on the Alps, and is of the same size with the foregoing, of which Linneus supposed it to be the daughter; but the whole is very hairy^c.

3. Root annual, whitish. Stems numerous, round, a little branched, in the young plants nearly upright, in the old ones trailing, frequently two feet long or more. Leaves petiolate, the lower ones roundish and opposite, the next indented and alternate, those which follow, mostly hastate. Peduncles axillary, alternate, single, pendulous. Calycine leaflets much pointed. Corolla yellow: tube very short: segments of the upper lip purple underneath. Nectary subulate, the length of the segments of the calyx. Valves of the capsule on falling off leave a large hole, in each side of the capsule. Seeds black, and wrinkled: from eight to ten in each cavity. The whole plant is hairy. It is more bitter than the other sorts, and the expressed juice of the plant; or the distilled water, is affirmed to check foul ulcers^d. It varies with blue flowers^e. This grows wild in corn-fields, in Italy, Carniola, Switzerland, France, Germany, and England; flowering with us from July to October.

4. This differs from the last, in having all the leaves ovate, or roundish, sometimes slightly toothed; and the spur shorter than the body of the corolla^f. The upper lip is yellow; the under purple. It is rather a larger plant; the stems are more branched, and the leaves are more hairy. It is found among corn, and flowers at the same season with the foregoing. Ramspeck and Stehelin observe, that the same remarkable variation occurs in the flowers of this species, as in that of the *Linaria*. (33.) and Hudson makes the same remark both of this and the foregoing species. It grows wild in the fields of Germany, England, France, and Italy. Linneus makes it a question, whether this species might not be produced from the impregnation of *A. Cymbalaria* by the pollen of *A. Elatine*.

5. Stems filiform, very branching, purple, thinly pubescent, rather stiff. Leaves petiolate, the petioles embracing the next branches like tendrils. Peduncles lateral, axillary, capillary, stiff, longer than the leaves, purple, one-flowered. Capsule globose. Calyx shorter than the capsule and narrower^g. Corollas blueish with a whitish palate, spotted with purple^h. According to Linneus, this is the daughter of *A. Elatine*, with the corolla six times less, the leaves four times less, not hairy: calyxes shorter; spur straightⁱ. A native of Egypt. Annual. Introduced in 1777, by Joseph Nich. de Jacquin, M. D.^k

6. This resembles the third species. Stems wand-like, scarcely pubescent. Leaves heart-shaped, the angles of the lower one with two teeth on each side; of the upper with one only. Corollas like those of the *Elatine*, yellow, without the dark spot, but with a purplish, dotted palate. Upper lip emarginate, pale. Spur blueish, recurved, the length of the flower. The peduncles, when the flowers are off, grow stiff, like spines^l. This is an Egyptian plant, as its name implies. Introduced in 1771, by M. Richard^m.]

7. This is an annual plant, which rises with an upright branching stalk near a foot and half high, with oval, smooth, gray leaves, placed often by threes, and sometimes by pairs opposite at the joints; the flowers grow in short spikes at the top of the stalks; they are shaped like those of the common sort, but have not such long tubes: they are yellow, with saffron-coloured chaps. This sort flowers in July and August, the seeds ripen in the autumn, and the plants soon after decay. It grows naturally about Valentia and in Sicily. There is a variety of this, *Linaria tryphilla cærulea* of Bauhins pinax. (p. 212.) whose flowers have a purple standard and spur, which make a pretty appearance in a garden. The leaves of this are longer than those of the yellow. Mr. Miller also mentions a third variety, which he makes

^c Jacq. ^d Curtis. ^e Bauh. pin. 253. and Ray hist. 759.

^f Woodward, M. S. ^g Linn. mant. ^h Linn. syst. ⁱ Linn. mant.

^k Hort. kew. ^l Linn. syst. ^m Hort. kew.

a distinct species, under the name of *Linaria lufitanica*. It has spear-shaped, smooth leaves, placed sometimes by fours round the stalk, and at others by opposite pairs; the stalks are terminated by large purple flowers with long spurs, standing upon foot-stalks. This grows naturally in Spain and Portugal. It flowers in July, but seldom ripens seeds in England. [This species was cultivated in 1640ⁿ.

8. The upper lip of the corolla is arched. The plant is the height of a man^o. Leaves five, four, or three; sessile. Flowers purple, and very large^p. A native of Portugal and America.

9. Root perennial. Stem two feet high, round, smooth. Leaves smooth, marked with three nerves underneath, spreading, alternate: the lower verticillate. Racemes terminal, simple, erect, long; with pedicels longer than the flower. Calyx minute. Corolla all purple, paler without, with the palate pubescent at the edge: spur the length of the corolla, bending outwards^a. Capsule subglobular. Seeds three-sided-angular, or a little compressed; the angles acute, margined, smooth, vermicularly wrinkled between them; colour of smoke^r. Native of Italy. Ray remarked it about Naples, and particularly at the foot of Vesuvius. It was cultivated in 1648, in the Oxford garden, and flowers from July to September^s.

10. It resembles common Toad-flax, (n. 33.) but the stems are narrower. Flowers racemose, the upper lip whitish, not yellow; in other respects very like those of the Toad-flax^t. A native of the southern countries of Europe. Introduced in 1777, by Monf. Thouin^u.]

11. This has a perennial root, from which arise several stalks near two feet high, which branch out on every side, with narrow leaves growing in clusters towards the bottom, but upwards they are sometimes by pairs, and at others single. The flowers are produced in loose spikes at the end of the stalks; they are of a pale blue colour, appear in June and July, and the seeds ripen in autumn. [The flowers have no scent^x. According to Allioni, this differs but little from the next. The flower of that is rather less, and besides two bearded yellow lines, which run along the throat on the lower lip, it has two distinct yellow spots at the origin of the beard. In this, the flower is every where striated with purple lines: the branches are also more wand-like and crowded. The leaves are rather less in the following species^y. A native of Italy, France, and England: as in Hertfordshire, and about Henley in Oxfordshire.]

12. This has a perennial root, from which arise many branching stalks near two feet high, with very narrow leaves growing in clusters, and of a grayish colour. The flowers are produced in loose spikes at the end of the branches; they are of a pale blue, and have a sweet smell. These appear in June; and there is often a succession of flowers on the plants till winter. [Bractes lanceolate, one at the base of each peduncle. Corolla pale blue, with darker spots: spur nearly as long as the body of the corolla. Calyx very small, segments acute^z. In its wild state it is seldom more than a foot high, and scarcely ever branches: the flowers are larger, and smell very sweet in the mountains, smaller and without scent in the plains. Hudson thinks this does not differ specifically from the foregoing. It grows wild about Montpellier, and other places in the south of France; and near Penryn in Cornwall. Cultivated in 1748, by Mr. Miller^a.

13. Stem a foot high, quite smooth, panicled, erect, but not very stiff, with wand-like branches. Primordial leaves, before the stalk shoots up, ternate, oblong; the rest alternate, awl-shaped, channelled, smooth, fleshy, straight. Flowers racemose: calyxes smooth; (rather somewhat villose) corollas yellow; palate smooth, with a tinge of red in the retuse elevation of the palate. It differs from the

next species in having pedunculate flowers, three times greater; and in the whole plant being much larger^b. According to Mr. Curtis, it is a hardy annual of small stature, flowering most part of the summer; and deserves to be more generally cultivated. Some regard it as a biennial, but as seeds of it sown in the spring flower in the ensuing summer, and as the plant dies when it has ripened its seeds; there appears more propriety in considering it as an annual. It will flower earlier if the seeds are sown in autumn: The upper part of the stalk, as well as the leaves of the calyx are beset with viscidous hairs, in which respect it does not perfectly accord with Linneus's description^c. Cavanilles however affirms, that the stems and the whole plant are smooth. Found in Spain, by Loeffing; very common about Madrid, in a dry sandy soil, flowering in May and June. Introduced in 1772, by M. Richard^d.

14. Stem seven inches high, (from four to eight inches, glaucous, *Cavan.*) with stiff branches standing at right angles with it. Leaves lanceolate, sessile, flat, spreading, scarcely fleshy, almost smooth. Flowers subspliked, few, sessile, (about five, on short peduncles, *Cavan.*) Corollas yellow, (white, according to Cavanilles) with two tawney spots in the smooth palate toward the upper lip; which is two-parted, folded back, lanceolate and erect^e. Inner part of the throat yellow, brown spots on the lower lip; spur long, pale purple^f. It grows wild in the corn fields of France, Spain, and Italy; flowering in May and June. Annual. Introduced in 1777, by M. Thouin^g.

15. Stems several, smooth, eight or nine inches long, usually decumbent. Leaves rather fleshy, convex, glaucous. Head before flowering, like the *arvense*, (n. 17); the calyx and bractes only pubescent. Corolla the colour of *Lotus jacobæus*; (very dark purple) with the spur streaked: it often varies of an ash, yellow, or lighter purple. Mr. Curtis describes it as of a fine rich brown inclining to purple. Capsule shaped like the human skull^h. A native of Spain.] Introduced in 1727, by Sir Charles Wager, from Gibraltar seeds. It flowers during most of the summer months.

16. [It has the spur reflex. Leaves almost filiform, as in the *Sparteum*, (n. 13.) but the racemes stiff and straight: upper leaf of the calyx longer than the othersⁱ. It is like the former, but the stem not smooth^k. A native of France and Spain, growing in sandy grounds. Cultivated in 1728, by Mr. Miller^l.

17. Flowers in loose spikes, sessile, with a reflex bract, very small, spur recurved. Leaves smooth^m. Stems several, a span high, seldom rising to a foot, upright, branched. Grows wild in the sandy corn-fields of Italy, France, Germany, and England: annual; flowering with us in July and August. It varies in the colour of its flowers, blue and yellow.

18. Root annual. Stem six or eight inches high, erect, round, very smooth, branching a little. Leaves very remote, rather fleshy, smooth; the radical or lower ones three or four together. Flowers in a head, or corymb, small: calyx erect, not close, but with distant divisions. Corolla purple, with a white palate marked with obscure veins, purple; the upper lip longest: spur straight, as long or longer than the corollaⁿ. A native of France and Italy. Cultivated in 1640^o.

19. Root perennial. Stems ascending. Leaves acute, pubescent, viscid, spreading at the tip. Calyx villose: corolla full yellow, with two orange spots on the palate, and two at the opening of the corolla^p. A native of Spain.

20. An erect plant the stature of n. 18. but the flowers the size of n. 33^q. A native of Spain. Annual. Introduced in 1786, by M. Thouin^r.]

21. This is an annual plant, from whose root

^a Park. theatr. ^o Linn. ^p Herm. ^q Lin. mant. ^r Gærtner. ^s Hort. kew. ^t Linn. ^u Hort. kew. ^x Linn. ^y Allion. ped. ^z Woodw. M. S. ^a Hort. kew.

^b Lin. spec. ^c Curt. mag. 200. ^d Hort. kew. ^e Linn. ^f Linn. spec. ^g Linn. syst. ^h Cavanilles. ⁱ Hort. kew. ^j Linn. ^k Linn. ^l Linn. ^m Linn. spec. ⁿ Linn. ^o Park. theatr. ^p Hort. kew. ^q Linn. ^r Linn. ^s Linn. mant. ^t Linn. ^u Hort. kew.

arise many stalks which are lax, rushy, very slender, and about a foot high: on their lower part, they have five very narrow, linear, obtuse leaves at each joint, but upwards they are sometimes by pairs and sometimes single: the stalks are divided into many small branches, with little yellow flowers, coming out singly, at a distance from each other: these appear in July and the seeds ripen in August. There are two varieties, one with a deep yellow, and the other with a sulphur-coloured flower. A native of Sicily [and the Levant. It was cultivated in 1731, by Mr. Miller^a.

22. An annual plant, the spur streaked with blue. It is very nearly allied to the foregoing^t. Stems round, branched. Leaves linear, oblong, thick, almost awl-shaped, glaucous; the lower ones in fours, the upper alternate, nearly equal to the internodes. Corolla yellow, with the spur paler, but smaller than in *A. bipunctatum*^u. Native of the south of Europe and the Levant.

23. Root perennial. Stems slender, branching at bottom, growing thicker towards the top, from two to seven inches long, ascending, round and smooth. Leaves quite entire, without veins, and thick, the lowest smaller, and in fours; the upper ones solitary, or two opposite, or sometimes three. Flowers in a close raceme at the ends of the stalks: they are very elegant, of a fine violet purple colour, with a rich gold-colour in the middle; and are in bloom most part of the summer. Native of the Alps, in moist rocky places. It has a bitter disagreeable taste^x.

24. Stem herbaceous, smooth, a foot and half high, square, branched: lower leaves ovate-oblong; upper lanceolate, smooth, sessile, deeply and remotely serrate: racemes terminal: flowers blue, with a yellow mouth; spur short. Capsule ovate, compressed, bifid, with the lobes divaricate^y. A native of the Cape of Good Hope, annual, and introduced in 1774, by Mr. Francis Masson^z.

25. Leaves minute, shorter than the peduncles. The whole plant very thickly haired^a. Observed in Spain by Alstroemer. Perennial. Introduced in 1786, by Sir Francis Drake, Bart.^b It is not the *Linaria villosa* of Miller: this being described with white flowers, whereas his have them yellow.

26. A polymorphous plant, varying with ovate and lanceolate leaves. Perhaps produced from the twenty-eighth, from which it is distinguished by woody branches; by all the stem-leaves being opposite, the floriferous ones alternate: the flowers of this are twice the size of the other^c. Annual. Growing wild on the Pyrenees, and near Marseilles. Introduced in 1785, by Lee and Kennedy^d.

27. Found at the Cape, by Thunberg.

28. The lowest leaves, for three pairs only, opposite^e. The whole plant is soft, villose, and viscid. Flowers from the axils on simple peduncles. Leaves of the calyx long, narrow. Corolla small, with a bent spur, half the length of the flower; tube and upper lip violet; beard and chin whitish: throat closed with an orange pile of hairs. Capsule oval, opening with two holes^f. Annual, growing wild in corn-fields, dry pastures, on walls, &c. in most parts of Europe, and flowering from June to September.]

29. This rises with a strong woody stalk, three feet high, having smooth, spear-shaped leaves, placed alternately, and sitting close to the stalk. The flowers are produced at the end of the branches in short loose spikes; these are of a deep yellow colour, much larger than those of the common sort, and stand upon short foot-stalks. It flowers in July, but the seeds very rarely ripen in England, so that the plants are seldom seen in any gardens here. [According to Linneus, the flowers proceed from the axils of the leaves, are solitary and peduncled. A native of Crete, also of Armenia, whence it was known to Caspar Bauhin, in 1594.]

30. This is an annual plant, which rises with a single stalk, about a foot and half high, with hairy, spear-shaped leaves, sitting close to the stalk, and placed alternately. The flowers grow on the top of the stalks in loose spikes; they are of a pale yellow colour, with a few dark stripes, and the chaps are of a gold colour; the upper segment of the calyx is much larger than the lower. The flowers are as large as those of the common sort; they appear in July, and the seeds will in warm seasons ripen in autumn in England. [According to Linneus, this has a few, simple stems, seven inches high, not branching. Leaves like those of Lavender. Flowers in a close spike, of the colour and size of the common Toad-flax, (n. 33:) the upper leaf of the calyx twice as large as the rest. A native of Spain. Mr. Miller affirms that he received the seeds of it from Dr. Ortega of Madrid; in the Kew catalogue it is said to have been introduced in 1777, by Mr. John Hyacinth de Magellan.]

31. This is a biennial (perennial) plant, which rises with an upright, branching stalk from three to four feet high, having spear-shaped, alternate leaves, ending in acute points, and of a grayish colour. The flowers are produced at the end of the branches, in loose panicles; they are of a bright yellow colour. [According to Allioni the leaves are fleshy, long, elliptic-lanceolate, firm, with three nerves underneath. Stems diffusely branching, with the branches almost horizontal and subdividing. Flower like that of Toad-flax, (n. 33.) only yellow where that is whitish, and rather smaller. The principal difference between them is, that in the common sort, the stem is upright, branching only towards the top; the branches erect, generally simple, the leaves linear, and glaucous underneath. He thinks this difference is trifling, and such as may be only owing to a difference of soil. It is a native of Siberia, Lower Austria, Switzerland, Dauphiné, and Piedmont. Cultivated in 1732, by James Sheppard, M. D.^g

32. Height half a yard. Stems round, rush-like, smooth. Lower leaves generally opposite, upper alternate. Segments of the calyx nearly equal. Spur short. Upper lip of the corolla white with blue streaks; lower pale yellow^h. Found in Spain by Loeffling. Introduced in 1780, by M. Thouinⁱ.

33. Root perennial, hard, woody, creeping. Stems several, from one to two feet high, full of leaves, round and smooth. Leaves pointed, smooth, blueish, growing without order. Flowers yellow, with the palate orange, villose; in a thick terminal spike. Nectary long, awl-shaped. Upper segment of the calyx a little longer than the rest; the two lower ones gaping widest. Capsule cylindric, splitting at top into several equal divisions^k. It grows wild in Europe on banks by road-sides, and in dry pastures; flowering from June to August. In Worcestershire it is called *Butter and eggs*. Gerard names it Wild Flaxe, Tode Flaxe, and Flax-weede. It has these appellations from the similitude of the leaves to those of Flax. It abounds in an acrid oil, that is almost empyreumatic. Given inwardly, it excites a nausea, purges, and provokes urine. It is recommended in hydropical cases, but Haller and others do not much approve of it. The juice mixed with milk, is a poison to flies. The distilled water or juice of the plant, put into the eyes, is said to take away inflammations: but it is most approved, used as a cataplasm, with lard, in the piles^l.

It has frequently two or more spurs to one flower. In Sweden it has been found with a regular corolla, five nectaries, and five stamens. It is plain that this is only a monstrous variety, because the plant differs in no other respect from the common one, because it never produces seed; and because flowers of both kinds have been found on the same stem. This beautiful monster has been observed by Leers, &c. in Germany, and by Mr. Hudson near London:

^a Hort. kew. ^t Linn. ^u Cavanilles. ^x Jacquin. ^y Linn. amæn.
^z Hort. kew. ^a Linn. spec. ^b Hort. kew. ^c Linn. spec.
^d Hort. kew. ^e Linn. spec. ^f Haller.

^g Hort. kew. ^h D'Affo. ⁱ Hort. kew. ^k Curtis.
^l Ray, Haller, Curtis, Allioni, &c.

It is figured in Knip. cent. 9. n. 9. The genus has evidently a tendency towards this variation, since it has been remarked also in the first, third, and fourth species. In the *Amœnitates academicæ*, vol. 1. there is a dissertation on this variety, under the name of *Peloria*, with a figure.

34. Stems round, erect, smooth; branches alternate. Leaves remote, smooth, very sharply pointed. Raceme straight, long. Bractes lanceolate, often longer than the flower. Peduncles the length of the spur. Calyxes acute, short; corollas yellow, with the palate villose within: spur long, the length of the flower^m. On the sea-coasts of Italy. Perennial.]

35. This is an annual plant, which rises with a branching stalk, two feet high, having very narrow lanceolate leaves placed alternately. The flowers are produced singly all along the branches the greatest part of their length; they are small, white, and have very long spurs. This flowers in July, and the seeds ripen in autumn. Grows naturally in Sicily, [Italy, and near Montpellier. It was cultivated in 1680, in the Oxford gardenⁿ.

36. Root annual. Stems filiform, procumbent, six or seven inches high. Leaves sub-petiolate, remote, sometimes alternate, sometimes two opposite, sometimes three or four together, blueish, of the shape of those of Knot-grass, but less. Peduncles solitary, one-flowered, the length of the leaves; but after the time of flowering twice as long, and bent towards the ground. Calyx acuminate; corolla white, with a yellow mouth, and very long slender spur, equalling the length of the flower. Capsule globose, opening before the seed is ripe^o. Common in vineyards and gardens about Messina, flowering in May and June; and found in Barbary, by Brander.

37. Stems six or seven inches high, woody and very branching. Leaves lanceolate, smooth, like those of Knot-grass. Peduncles straight and stiff, three times as long as the leaves. Calyx smooth. Corollas yellow, streaked on the outside with blue^p. Observed in Spain, by Alstroemer.

38. Stems herbaceous, scarcely a foot high, erect, soft, with alternate branches towards the top. Leaves lanceolate-linear, erect, with reflex edges, soft and pale. Spikes terminal and solitary. Calyxes crowded, equal, like those of *Lagopus*. Corollas small, yellow; upper lip pale: the palate has two orange spots within^q. A native of Siberia.

39. This is a very singular plant, and has no appearance of an herb, but would rather be taken for a *Splachnum* (a kind of moss) and is not bigger than that. It has not even any radical leaves^r. Found near the Cape of Good Hope, by Thunberg.

40. Root biennial. Stem from a foot or eighteen inches to two and even three feet in height, upright, round, solid, smooth at bottom, but pubescent higher up. Leaves lanceolate or ovate, blunt, the lower mostly opposite, the upper inclined to be alternate. Flowers in a spike, pointing one way, large and handsome, on a very short, hairy peduncle, supported by a short, concave, acuminate bract^s. Nectary obtuse, scarcely prominent. Capsule obliquely opening at top, unequal at the base^t: vulgarly compared in shape to a calf's head. The tops of the stalks and the calyxes are usually viscid.

Linneus makes two varieties of this species: α . with the stem erect, and ovate leaves. β . with the stem diffused and wand-like, the leaves lanceolate. The varieties are set down here from the catalogue of the royal garden at Kew. Miller has made four species out of this. 1. *Antirrhinum majus*, n. 3. which is our variety β . 2. *A. latifolium*, n. 4. which is our variety α . The leaves of this, he says, are much broader, the flowers larger, and the spikes longer. He received the seeds from the islands of the Archipelago; and it is much more

specious than the first. 3. *A. italicum*, n. 5. with long, narrow, hairy leaves, large flowers, and a shorter spike. 4. *A. siculum*. Annual; seldom more than a foot high; leaves very narrow and smooth; flowers white with a dark bottom, coming out single from the axils on long peduncles.

The differences in the colour of the flowers are endless. The most known are red, yellow, purple, white; red with white or yellow mouths, white and red, yellow and red, yellow and white, purple and white, purple with yellow mouths figured by Miller, t. 42, scarlet dotted with gold-colour, &c. The flowers are also sometimes double; and there is a variety with variegated leaves. [Native of the southern countries of Europe, in hedges and on rocks and ruins. With us on walls, on Dover cliffs, between Northfleet and Gravesend, &c. but not originally of this country. It flowers in June and July.

In Russia they express an oil from the seeds, little inferior to oil of olives^u.

41. This resembles the great Snap-dragon in many respects. The stem is erect, hairy, and branching, but seldom more than a foot high. Leaves lanceolate, very entire. Flowers few, scattered, sessile, or on very short peduncles, axillary. Calyx very wide, the two lower leaves straighter, and less than the others; all lengthening after the falling of the flower. Corollas bright-purple, with a little yellow (sometimes white:) spur very short. The capsule opens with three holes, the first of which is in the upper cell, and has three scales standing up below: in the lower cell are two scales on one side, and one on the other^x. This capsule is much shorter than the calyx, and when it opens resembles the skull of an ape. It is a poisonous plant^y: and is sufficiently distinguished from the great Snap-dragon, in being smaller and annual, and by having long pointed leaves to the calyx. A native of England, and most parts of Europe, growing in corn-fields, and vineyards, especially in a light soil. It flowers in July and August.

42. Leaves alternate, on short petioles, ovate, or obovate, quite entire. Flowers solitary on short peduncles. Calyx five-leaved, the upper leaf largest, heart-shaped, almost the length of the corolla; the others sub-lanceolate, half the length of the corolla: upper lip of the corolla bifid, with the edges reflex on the sides; the lower broader, trifid, nearly equal^z. A native of Persia.]

43. This is a low, trailing, annual plant; the branches extend little more than a foot each way, and are weak, so that unless they are supported, they lie upon the ground; these have leaves like those of Ground-ivy, which grow by pairs; at the wings of the leaves the flowers come out singly on each side the stalk; they are shaped like those of Snap-dragon, but have a long tube; are of a worn-out purple colour at the top, but below of an herbaceous colour. These come out in June, and the seeds ripen in September. [According to Linneus, the stems are prostrate, hanging down. Leaves obtusely lobate, or deeply crenate, hairy. It is a native of Italy and the south of France; and was cultivated in 1699, by Jacob Bobart^a.

44. This has the stems prostrate, brittle. Stem-leaves opposite, very soft. Peduncles longer than the calyx. Corollas villose, white with a yellow palate; the upper lip streaked with red^b. A native of Spain. Cultivated in 1748, by Mr. Miller^c.

45. Found near the Cape, by Thunberg.]

46. This is a biennial, or at most a triennial plant, which frequently perishes soon after the seeds are ripe. [Stem erect, two feet high, branching, terminated with a long thin spike. Stem-leaves small and three-parted, sometimes five-parted, very different from the broad, serrate, radical ones. Bractes one-flowered, linear, long, sometimes trifid. Flowers very small, on short peduncles, in a very

^m Linn. spec. ⁿ Hort. kew. ^o Linn. Ray. ^p Linn. spec.
^q Linn. suppl. ^r Ibid. ^s Ray hist. ^t Lin. gen.

^u Villars dauph.

^x Haller.

^y Linn.

^z Linn. mant.

^a Hort. kew.

^b Linn. spec.

^c Hort. kew.

long raceme, containing frequently an hundred flowers. Segments of the calyx almost capillary. Corolla blue, nodding, quinquefid, two of the divisions erect, three nodding; throat open without any palate: spur short, bent back; anthers reflex, dark blue^d. Habit different from that of the *Antirrhina*, hence Ray determined it not to be a genuine species of *Linaria*. Miller makes it a species of *Dodartia*^e. A native of Spain, Italy, and the south of France: also found near Geneva by M. de Saussure. It was cultivated in 1629^f.

47. Root fibrose, annual. Stem erect, filiform, a foot high, scarcely branching. Leaves remote, smooth. Raceme terminal, with few flowers, placed alternately, and on peduncles. Calyx sharp: upper lip of the corolla short, reflex; lower larger, spreading, hanging down: spur awl-shaped. A native of Virginia and Canada^g.

48. Root annual. Stems upright, wand-like, round, glaucous, red near the base, naked towards the top, very smooth, as is also the whole plant. Leaves ovate-lanceolate, acute, sessile, obscurely three-nerved. Flowers distant, solitary, subsessile, axillary, terminating the stem. Calyx deeply five-parted, with linear-spatulate, ciliate segments. Corolla least of all the species, a little longer than the calyx, blue with a white palate; upper lip bifid, erect, lower trifid. Capsule globose-ovate, opening at top into six segments. Seeds numerous, kidney-shaped, compressed, surrounded with a little black membrane. Native of Spain near Madrid. It flowers there in march and april^h. Cavanilles is of opinion that this is different from Linneus's *A. arvense*, which has a posterior spur and revolute leaves.

49. Root perennial, branched. Stems herbaceous, erect, branched, leafy, round, glaucous, smooth. Radical shoots prostrate, leafy, short. Leaves on the stem rather obtuse, entire, naked, glaucous; those on the radical shoots shorter and more obtuse, in whorls, five together, sometimes four or six, very rarely alternate in the lower part of the shoot. Flowers racemose, terminating the stem and branches, variable in colour, very beautiful but without scent. Peduncles alternate, simple, single-flowered, moderately spreading, hairy, a little viscid. Bractes solitary, spreading, reaching to the top of the calyx, lanceolate, hairy, sometimes membranaceous at the edge. Calyx-leaves unequal, lanceolate, pointed, keeled, membranaceous on the edge, a little viscid. Corolla thrice as long as the calyx: spur conical, acute, a little curved, twice the length of the peduncle, pale yellow streaked: upper lip erect; segments acute, divaricate, streaked, before expansion purple, then blood-red, afterwards violet-coloured, paler and downy on the back: lower lip short, deep red, the middle segment smallest: palate large, two-lobed, bright yellow beautifully reticulated with red veins, smooth externally, but marked on the inside with two hairy lines running along the throat. Stigma bifid, acute. Capsule twin, smooth, pale brown, shorter than the calyx. Seeds numerous, small, angular, black, rugged.

This species may be thus distinguished from *A. junceum* and *viscosum*, which have also whorled leaves on the radical shoots. *A. junceum* is much smaller than the other two, and almost entirely smooth: bractes smooth, and only one-third the length of the peduncle; calyx very slightly downy; corolla yellow with an orange-coloured palate; leaves scarcely more than three in each whorl.—*A. viscosum* is very like our plant in habit, as well as in the hairiness of its calyxes and peduncles; but it is distinguished by its filiform peduncles, pressed close to the stem, and twice as long as the bractes: the corolla also is entirely deep yellow.

It was discovered in Algiers by Professor Desfontaines of Paris, who sent it to the royal garden, whence the seeds were communicated to Dr. Smith, by Monsieur Thouinⁱ. Mr. Fairbairn raised several plants from them at Chelsea, in 1788.

^d Haller, and Linneus. ^e Linn. spec. ^f Park. par. ^g Linneus.
^h Cavanilles. ⁱ Smith rar.

50. This has the appearance of *Convolvulus arvensis*, but is much smaller. Stems wand-like prostrate, very slender, smooth and weak, with alternate, remote, filiform branches, bent this way and that. Leaves scarcely half an inch long, and a third of an inch broad. Petioles nearly equal to the leaves. Peduncles axillary, solitary, one-flowered, capillary, patulous, twice or three times as long as the leaves. Calyxes only half the size of a grain of Millet, with acute segments. Corolla yellow, twice as large as the calyx. Spur length of the corolla, acute, recurved, yellow. Capsule globose^k.

51. This is an annual plant, with the appearance of *A. supinum*, from which however it differs very much, besides being of double the size. Stems several, wand-like, glaucous, almost erect. The primary leaves, both next the ground, and at the bottom of the stem; linear-lanceolate, smooth, glaucous, short, in fours; those above are crowded, and at top alternate; the nearer they approach to the flowers the sharper and longer they are. There are two and sometimes three short, alternate branches on the top of the stem. Raceme terminating, thick, on a long, naked peduncle, connecting about thirty flowers: pedicels very short, hispid. Calyxes obtuse, villose, and viscid as in *A. arvense* & *supinum*, and of the same size. Corollas yellow, twice as large as in *A. supinum*; the upper and lower lip blueish violet colour; the palate rough, with crowded yellow hairs; the spur the length of the flower, scarcely recurved, variegated above with violet-coloured streaks. The colour of the corolla probably varies, for according to Casp. Bauhin it is *arugineus*, or the colour of verdigrise; and D'Affo describes it as of a very dark purple, *atro-purpureus*. Capsules globose, only half the size of those in *A. supinum*, which is remarkable, the flowers being twice as big. This species varies into what Linneus called *Peloria*, with from one to five spurs in different flowers on the same plant. It is a native of Spain^l.

52. Native of the island of Otaheite in the South Seas.

Mr. Miller has separated *Linaria* from *Antirrhinum* on account of some difference in the spur of the nectary. The former has its name from the similitude of the leaves to those of *Linum* or *Flax*. Hence also our English names *Flax-weed* and *Toad-flax*. Dr. Stokes objects to the latter, as contrary to the Linnean rules for the construction of generic names; and accordingly *Snail-dragon* is adopted in the Botanical Arrangement of British Plants. This appellation has the same origin with the Latin one, and is taken from the shape of the flower. Hence also the common yellow Toad-flax is called *Calves-snout*.]

PROPAGATION AND CULTURE.

1. *Ivy-leaved Toad-flax* will thrive in any soil or situation, so that where it is once established, it will be difficult to root out, for the seeds will get into any joints of walls, &c. and there grow and propagate themselves plentifully. The stalks also put out roots at their joints, and thus spread themselves to a great distance.

3. 4. The seeds ripen in autumn, and should be sown, or permitted to scatter, at that time: if they are sown in the spring, they seldom grow the same year. They are weeds in corn-fields, but are rarely seen among spring-sown corn, in those lands where they commonly grow.

7. The seeds of *Three-leaved Toad-flax* should be sown in the spring, on the borders of the flower-garden, where they are designed to remain; and when the plants come up, they should be thinned where they are too close, and kept clean from weeds. If some of the seeds are sown in autumn upon a warm dry border, the plants will live through the winter, unless the frost proves very severe; and will grow larger, flower earlier, and afford good seeds.

The broad-leaved Portugal variety is more tender, and should have a dry soil and warm situation.

^k Gouan, illust. ^l Ibid.

It is adviseable to keep some of the plants in pots, that they may be removed into shelter in frosty weather. This may also be propagated by parting the roots.

9—12. The seeds of these ripen in the autumn, and if permitted to scatter, will produce plenty of young plants, without any farther care: they prefer a dry soil, and when they get upon old walls, they will come up, and continue much longer there than in the ground. They may also be increased by parting the roots.

13. May be sown in spring, in the same manner as other hardy annuals; but it will flower earlier if raised in the autumn.

15. Is easily propagated by cuttings, in any of the summer months; if watered and shaded, they will soon take root, and may be afterwards planted in pots, filled with fresh, light undunged earth. These must be removed into shelter in winter, but must have as much free air as possible in mild weather, and be only protected from severe cold: if they are placed therefore under a hot-bed frame, the plants will succeed much better than in a green-house, where they are apt to be drawn up too much.

18. The seeds ripen in the autumn, at which time they should be sown.

21. This also is propagated by seeds, which if permitted to scatter will come up without care, and produce flowers early in summer.

23. [May be propagated by cuttings, as well as seeds, which are not very plentifully produced with us. It succeeds best in a pot, or on rock-work; and is apt to be lost, like other small alpine plants, for want of proper treatment and care. It is elegant, and flowers during most of the summer^m.]

29. It is propagated by seeds, which should be sown early in the spring upon a border of light earth; and when the plants come up and are fit to remove, some of them should be planted in pots filled with light sandy earth, and placed in the shade till they have taken new root; then they may be exposed with other hardy exotic plants till the end of october, when they should be put into a common hot-bed frame, where they may be protected from hard frost; but in mild weather they should enjoy the free air, for these plants only require to be protected from hard frost, for in mild winters they will live abroad without shelter, if they are upon a dry soil; therefore a part of them may be planted on a warm border of poor sandy soil, where they will live through our common winters very well; and those plants which grow in rubbish and are stunted, will endure much more cold than the others.

30. The seeds should be sown in the spring, upon a border of light earth, where the plants are designed to remain; and when they come up, they must be treated as *A. triphyllum*, n. 7.

31—35. If the seeds be permitted to scatter, the plants will come up the following spring, and require no other care, but to thin them, and keep them clean from weeds.

33. *Common Toad-flax* is seldom cultivated in gardens; for it is a very troublesome plant to keep within bounds, the roots being very apt to spread. The flowers however make a pretty appearance, a few plants therefore might be allowed a place, especially if the roots were confined in pots.

40. All the varieties of *Snap-dragon* are raised from seeds, which should be sown in a dry soil, not too rich, either in april or may; and in july the plants may be planted out into large borders, where they will flower the spring following; or they may be sown early in the spring, for flowering the same autumn, but then they are not so likely to endure the winter; and if the autumn prove bad, they will not perfect their seeds. Any of the sorts may be continued, by planting cuttings in the summer months, which will easily take root.

They are all pretty ornaments in a garden, and requiring very little culture, are rendered more ac-

ceptable. They are hardy plants, and will resist the cold of our winters extremely well, especially if they are planted on a dry, gravelly, or sandy soil: for when they are planted in a rich moist soil, they will grow very luxuriant for a time, but are very subject to rot in autumn or winter; and are much more susceptible of cold, than when they are in a dry, hungry, rocky soil; these plants will grow amongst stones, or the joints of old walls, where they may be placed so as to render some abject part of a garden very agreeable, for they will continue in flower several months; and if the seeds are permitted to shed, there will be a continual supply of young plants, without any trouble.

Wherever these plants are designed to grow on walls, or on a rocky barren soil, the seeds should be sown the beginning of march, where they are designed to remain; for if the plants are first raised in a better soil, and afterward transplanted into those places, they seldom succeed well. When the plants are come up, they will require no other culture but to keep them clear from weeds; and where they come up too thick, to pull some of them out, so as to give them room to grow. In july they will begin to flower, and will continue flowering till the frost prevents them. Those plants which grow on walls, will have strong woody stems, which will continue two or three years or more, and are rarely hurt by frost.

The variety with striped leaves is propagated by slips and cuttings, which readily take root any time in the spring or summer.

41. and 28. Are seldom admitted into gardens; they are both annual plants, which come up from scattered seeds.

43. The seeds should be sown soon after they are ripe, or permitted to scatter; for when they are sown in the spring they seldom grow. They should not be transplanted, and require no other care but to keep them clean from weeds, and thin them where they grow too close. As there is not much beauty in this species, two or three plants will be enough in a garden, for the sake of variety.

46. This is propagated by seeds, which should be sown in autumn soon after they are ripe upon a border of light earth, where they are designed to remain. When the plants appear the following spring, they must be thinned, and kept clear from weeds, which is all the culture they require: the second year they will flower and seed, after which the plants usually decay; when the seeds are sown in the spring, the plants never come up the same year.

[*ANTITRAGUS*. See *Crypsis*.

APACTIS. (*Απακτος*, *abductus*, from *απαγω*.)

Thunb. jap. 11. Diff. 66. Schreb. gen. n. 808. Juss. 432.

Class. 11. 1. Dodecandria Monogynia.

GENERIC CHARACTER.

CAL. none.

COR. four-petalled. *Petals* roundish, crenate, concave, unequal: two opposite broader.

STAM. *Filaments* from sixteen to twenty.

PIST. *Germ* superior: *style* one.

ESSENTIAL CHARACTER.

Cor. four-petalled. Cal. none.

SPECIES.

1. *Apactis japonica*. *Thunb. jap. 191. Lin. syst. 442.*

DESCRIPTION.

A tree erect and very branching. Branches alternate, round, scabrous with dots, erect: branchlets similar, the last frequent. Leaves on the branchlets alternate, petiolate, ovate, acute, serrate, entire at the base, nerved, smooth, paler underneath, an inch long. Petioles half round, furrowed, a quarter of an inch in length. The flowers in racemes at the ends of the branchlets. Racemes usually ovate, as they advance becoming more oblong. Peduncle and pedicels villose-scabrous^a.

APALATOA. See *Cyclas*.]

^a Thunberg.

^m Curtis magaz.

[APARGIA. (The name of a plant in Theophrastus, from *αργος* or *αργιος*, white.)

Lin. gen. Schreb. 1232. Scop. hist. nat. n. 363.
Virca Adans. Scop. hist. nat. n. 361. Gærtn.
t. 159. Leontodon Scop. carn. gen. 318. Hedypnois
Huds. angl. 340. Taraxaconoides. Vaill. A. G.
1721. 21.

Class. 19. 1. Syngenesia Polygamia Æqualis.

Nat. order of Compositæ Semiflosculosæ. Cichoraceæ
Juss.

GENERIC CHARACTER.

CAL. Common imbricate, oblong: scales several, linear,
parallel, unequal, longitudinal, incumbent.

COR. Compound, imbricate, uniform; corollæ herma-
phrodite, numerous, equal.

Proper monopetalous, ligulate, linear, truncate, five-
toothed.

STAM. Filaments five, capillary, very short. Anthers
cylindric, tubular.

PIST. Germ subovate. Style filiform, length of the
stamens. Stigmas two, recurved.

PER. none. Calyx oblong, straight.

SEEDS solitary, oblong, striated. Down sessile, (in the
central seeds somewhat stiped,) plumose; rays
chaffy beneath.

REC. naked, subvillose.

OBS. Besides the feathery rays of the down, in most spe-
cies are observed others, which are accessory, very
short, and only subplumose or capillary.

ESSENTIAL CHARACTER.

Cal. subimbricate, with linear, parallel, unequal
scales. Down plumose, subsessile. Recept. naked,
subvillose.

SPECIES.

1. Apargia hispida.

Leontodon hispidum. Lin. spec. 1124. Reich. 3.
634. hort. cliff. 386. fl. suec. n. 694. Wither.
arr. 842. Curtis lond. 5. 56. Scop. carn. n. 977.
Pollich pal. n. 737. Fl. dan. t. 862.

L. protheiforme D. Villars dauph. 88.

Hedypnois hispidum. Huds. angl. 340.

Virca Adans. Scop. hist. nat. n. 361.

Picris. Hall. belv. n. 25. Sauv. monsp. 388.

Taraxaconoides perennis & vulgaris. Vaill. act.
1721. p. 232.

Hieracium asperum flore magno dentis leonis. Bauh.
pin. 127. prodr. 66.

H. dentis leonis fol. hirsutum. Ger. emac. 303. 6.

H. caule aphylo hirsutum. Bauh. hist. 2. 1037.

H. asperum fol. & flor. dentis leonis bulbosi. Park.
theat. 788. 4. 789. 798. 5, 8.

Dens leonis hirsutus, &c. Raii syn. 171. 3. Pet.
t. 11. f. 9, 10.

The whole calyx upright; leaves lanceolate toothed,
hispid with forked bristles; scape one-flowered,
naked.

2. Apargia hirta.

Leontodon hirtum. Lin. spec. 1123. syst. 715.
Curtis lond. n. 66. Scop. carn. n. 978. Leers
herborn. n. 606. Ger. prov. 165. Villars dauph. 82.

Crepis hirta. Lin. spec. ed. 1. 799.

Picris hirta. Allion. pedem. n. 765.

Hedypnois hispidum β. Huds. angl. 340.

Leont. hisp. β. Wither. arr. 843.

Taraxaconoides perennis hispida coronopi folio.
Vaill. act. 1721. p. 178.

Dens leonis parvus hirsutus, caule aphylo. Mor.
hist. f. 7. t. 7. f. 14.

Hieracium pumilum saxatile asperum præmorsa ra-
dice. Bauh. pin. 128. prodr. 66. fig. Raii syn. 167.
Park. theat. 798. f. 5.

H. parvum hirtum caule aphylo. Bauh. hist. 2.
1038. Raii hist. 246. 9.

The whole calyx upright, smoothish; leaves toothed,
rough with hairs which are undivided; scape smooth,
without any floral leaf: outer seeds without down.

3. Apargia danubialis.

Scop. hist. nat. n. 363. carn. n. 983.

Leontodon danubiale. Jacqu. vind. 270.

L. hastile. Jacqu. austr. 2. t. 164. Lin. syst. 715.

L. protheiforme. Villars dauph. 87. t. 24.

Vireia hastilis. Gærtn. fruct. 2. 365.

Picris danubialis. Allion. pedem. n. 768. t. 70. f. 3.
Hall. belv. n. 26.

The whole calyx upright, smooth; leaves toothed,
smooth; scape one-flowered, almost naked.

4. Apargia tuberosa.

Leontodon tuberosum. Lin. spec. 1123. Reich. 3.
633. Gouan. monsp. 411.

Taraxaconoides chondrillæ folio hirsuto, asphodeli
radice. Vaill. act. 1721. p. 170.

Dens leonis asphodeli bulbulis. Bauh. pin. 126.

Chondrilla altera dioscoridis monspeliensium. Lob.
ic. 232.

Calyx acute hirsute, leaves runcinate scabrous.

5. Apargia autumnalis.

Leontodon autumnale. Lin. spec. 1123. Reich. 3.

633. fl. suec. n. 695. Wither. arr. 840. Lightf.

scot. 433. Relb. cant. n. 567. Scop. carn. n. 981.

Pollich pal. n. 736. Leers herborn. n. 604. Gouan.

illustr. 56. Krock. siles. n. 1268. Hall. belv.

n. 28. (Picris.)

Hedypnois autumnale. Huds. angl. 341.

H. autumnalis. Villars dauph. 77.

Hieracium Chondrillæ folio glabro radice succisa,
majus. Bauh. pin. 127 & minus. 128.

H. minus. Fuchs. hist. 320. Dod. 639. 4. Matth.
766.—præmorsa radice. Bauh. hist. 2. 1031.

Park. theat. 794. 4. Raii hist. 230. 1. syn. 164.—

f. leporinum. Ger. emac. 296. 2. Pet. brit. t. 12.
f. 1.

Apargia Dalech. Lugd. 562.

β. Hieracium præmorsum laciniatum. Petiv. t. 12.
f. 2.

γ. H. fol. acuto minus. Petiv. t. 12. f. 3.

δ. H. fol. obtuso minus. Petiv. t. 12. f. 4.

Stem branched almost naked, peduncles scaly, leaves
lanceolate toothed, quite entire smooth.

6. Apargia pyrenaica.

Hedypnois pyrenaica. Villars dauph. 77.

Picris saxatilis. Allion. pedem. n. 766. t. 14. f. 4.
Hall. belv. n. 25. β.

Leontodon pyrenaicum. Gouan. illustr. 55. t. 22.
f. 1, 2.

L. alpinum. Jacqu. austr. 1. t. 93. Lin. syst. 715.

Peduncles scaly, leaves lanceolate with very few teeth,
calyxes villose, root end-bitten.

7. Apargia Taraxaci.

Hedypnois Taraxaci. Villars dauph. 80. t. 26.

H. autumnale α. Huds. angl. 341.

Picris Taraxaci. Allion. pedem. n. 769. t. 31. f. 1.
Hall. belv. n. 27.

Hieracium Taraxaci. Lin. spec. 1125. Reich. 3.
637. mant. 458. Retz. obs. 4. 30. t. 2. Wither.

arr. 845. Lightf. scot. 435.

H. alterum minus. Raii hist. 246. 10.

Peduncles somewhat scaly at top, leaves entire or pin-
natifid smooth, calyx woolly, root end-bitten.

DESCRIPTIONS, &c.

These plants have been separated from the genus
Leontodon, on account of an essential difference in
the calyx, down, and receptacle. Vaillant named
them Taraxaconoides, from their similitude to the
Taraxacum or Dandelion, with which Linneus has
placed them. Mr. Hudson adopted an old name
Hedypnois, from the Greek *ἡδύπνοος*, breathing a
pleasant odour. Schreber has preferred the ancient
name Apargia, explained above.

1. Linneus says, that his plant has a linear bracte
below the flower, which is not in the next species;
that the florets of the circumference are greenish on
the outside; and that the down is sessile and plu-
mose. According to Scopoli, the involucre (or ca-
lyx) is imbricate and augmented at the base; the
down sessile and compound; the pits of the recep-
tacle margined, or surrounded with a lacerated
membrane^a.

Our English plant has the root end-bitten; the
stem from six to sixteen inches high; the leaves pec-
tioled, lanceolate, toothed, rough and somewhat
hoary with hairs, which sometimes have two or three
points, and sometimes are simple. Calyx imbricate,

^a Hist. nat. n. 361.

cate, slightly hairy, the hairs simple, long and white; the segments of the calyx acute. Florets with a few hairs at the bottom of the border. Down longer than the tube of the florets, sessile, white, with eleven large rays just longer than the seed, with as many intermediate ones. Seeds slender, rough, as long as the down^b. It is very common in meadows and pastures, where it flowers earlier than the other Hawkweeds, namely in May. The old writers call it *Rough Dandelion* or *Dandelion Hawkweed*^c.

Monf. Villars has taken much pains to settle the synonyms of this and the other species, and to extricate them from the confusion under which they labour; with what success, I have not leisure to determine. He has united *Leontodon hispidum* and *hastile* of Linneus, *L. danubiale* of Jacquin, and some others, in one species, which he has named *Leontodon protuberans*. They have all, he says, perennial, oblique roots, almost creeping, end-bitten, and furnished with equal fibres; leaves couchant, toothed, sinuated, pinnatifid, more or less enlarged at the end; the hairs usually forked, like the letter y, but sometimes simple; scapes two or three, channelled, bending at bottom, having one scale above the middle, and two or three smaller, blackish ones near the calyx: which enlarges suddenly, is truncate at the base, has but few scales, and is almost cylindric; florets spread out, large, greenish or reddish beneath, and of a bright yellow above; seeds russet-coloured, streaked, oblong; down or egret sessile, having a tinge of russet, brittle, plumose, with about ten simple hairs, shorter than the feathered ones, interposed between them, all united at the base; the receptacle has small inequalities in form of scales, separating the seeds at the base, but scarcely visible^d.

He remarks that *Leontodon hispidum* is the most common; that the leaves are rough, of a green colour though they are covered with hairs, and varying extremely both in form and size.

The flowers open at four in the morning, and close at three in the afternoon^e.

2. This very much resembles the foregoing, but yet it is different. Peduncles and calyxes less hispid, nay almost smooth. Leaves stiffish, as it were dry to the touch, the central parts very much curled when dry, the segments oblique; the hairs undivided at the tip. Calyx nodding before flowering, channelled when the seeds are ripe; the outermost scales dilated on each side at the base, with a fold between. Florets of the circumference yellow underneath, not greenish. Down plumose^f.

Leers distinguishes this from the foregoing thus. Root end-bitten. Leaves yellowish green, longer and more crowded, when dry waved and crumpled; hairs mostly simple, but if examined with a glass some will be found cloven at the point; teeth shorter, slanting upwards, not downwards, as in *L. hispidum*. Scape smooth, not so obviously streaked; without any bracte. Flower smaller. Calyx smooth, except a few hairs at the base: scales thirteen, lanceolate, flattish, with as many very small ones on the outside, dilated at the base, and pressed close at top. Florets of the ray equal in number to the scales of the calyx, livid underneath, and at length yellow; the stigmas not projecting beyond the anthers: seeds thickish, whitish, scarcely rough, crowned with a short many-toothed calycle, instead of an egret. Inner florets only half the size of these: the stigmas rolled back. Seeds slender, brownish, rough: egret sessile; but in the innermost on a very short stipe; rays thirteen, lanceolate at the base, plumose outwards, with as many shorter, simple ones, placed between them.

It is thus described by Villars. Root perennial, thick, covered with blackish pellicles, deep, sometimes end-bitten, but imperfectly, and always with few, long, thick fibres. Hence proceeds a bunch

or two of hard leaves, from an inch to two inches in length, having two or three lateral sinuses, deep, almost triangular, between which are as many projections, either triangular or obtusely three-lobed at the end, waved and crumpled on the upper surface; often reddish beneath; the hairs on them are white, simple, thick, pointed and distinct. Scapes from two to five, straight, little hairy, from six to eight inches seldom a foot in height; terminated by one middle-sized flower, which hangs down before it opens; calyx almost smooth, becoming nearly cylindric as it advances to maturity; florets red underneath; seeds rough, oblong; egret sessile, plumose, white; receptacle moderately alveolate.

Villars is of opinion, that *L. hirtum* of Scopoli is not the same plant with his. Mr. Hudson's plant, which he gives as a variety of *L. hispidum*, is thought by some not to be *L. hirtum* of Linneus and other foreign writers. Mr. Curtis however has described and figured the true plant. The whole of it, he says, is much smaller than the first species; the leaves spread more on the ground, and are of a darker colour; the flower-stalks are more numerous, less upright, not only nodding at top, but often irregularly curled, especially in the young ones; beset with long crooked hairs, particularly towards the bottom; never furnished with small scales; the flower-buds and flowers themselves much smaller in proportion, more resembling those of the fifth sort; the uppermost leaves of the calyx smooth, and at the point and edges of a deep purple or blackish colour. The bristles vary much in this and the foregoing species; but this may certainly be distinguished by the outer seeds being destitute of down. The two plants cultivated in the same soil and situation continue widely different; and are rarely met with wild on the same spot. I dare not affirm that all who have described it, intended the same plant, and therefore I have kept their descriptions distinct.

According to Linneus this is a native of Germany, Switzerland, France, Spain, &c. Villars confines it to the south of Europe, in hot, dry, rocky places: and Leers affirms that he found it in marshy meadows, flowering in July. Mr. Curtis informs us that it is frequent on Hampstead-heath; Barnes-common, and other commons about London.

3. This species resembles the foregoing very much in habit and stature, but the whole of it is always shining, and not a single bristle is to be seen upon it, even with the microscope, whereas *L. hirtum* abounds in simple bristles. The leaves are sometimes so deeply toothed as to approach those of *L. Taraxacum* or common Dandelion. The scape has a small stipule or two on it, and next the calyx it is slightly scaly. It is found in meadows in the islands on the Danube; and flowers in June^g.

4. Leaves bluntish, the lateral segments entire, not toothed, but curved towards the base. Scape one-flowered, a little hairy; but the calyx more so. Native of Tuscany and the south of France, in meadows^h.

5. Root perennial, the second or third year dying at the end, and thus appearing as if bitten off. Stems upright or ascending, frequently marked here and there with purplish blotches, slightly scored, smooth, twice and sometimes thrice the length of the leaves, according to the soil; in a barren one only a span high, somewhat branched, and the leaves notched; but in a rich soil two feet high, with the stem much branched. Leaves couchant, linear or linear-lanceolate, with bluntish teeth, some pointing forwards others backwards. Peduncles thickening upwards, mostly forked, with lanceolate, keeled scales, pressed close, resembling the outer scales of the calyx; which is obovate, beset with tapering, long, blackish or brown hairs, and a small quantity of cottony down, the outer scales much shorter, upright. Florets yellow on both sides, the tubular part a little hairy. Style and stigmas beset on the

^b With. Stokes, Woodw. M.S.

^c Linneus.

^e Ray syn.

^f Ibid.

^d Dauph. 92.

^g Jacqu. vind.

^h Linn. spec.

upper part with very short, fine, white, bristly hairs. Seeds compressed, streaked, surmounted with an egret about the length of the seed, rather longer than the tube of the floret, plumose with extremely fine hairs, brownish white, which colour readily distinguishes it from *Hypochaeris radicata*, and others of the same tribe, which flower in the meadows at the same time. On the seeds of the circumference it is sessile, but those of the centre are sometimes on a short stipe¹.

Linneus remarks, that the flowers open at seven in the morning, and close at three in the afternoon. It is difficult, he says, to determine, under what genus it should be placed; since it differs from *Scorzonera* in its sessile egret, from *Crepis* in its simple, imbricate calyx, from *Leontodon* in its sessile plumose egret^k.

This species is subject to many variations: having the leaves smooth, or hairy; toothed, sinuate-toothed, or pinnatifid, with the teeth quite entire; the calyx smooth or hirsute; the stem simple or branched, with one, two, three or more flowers, naked or scaly^l.

It is common in pastures, flowering from July to October. According to the observations in the *Amœnitates Academicæ*, horses, goats, and swine eat it, but cows and sheep refuse it. Our old English writers name it *Yellow Devil's-bit*, *small hare's Hawkweed*, or *small Hawkweed with bitten roots*.

6. Root perennial, oblique, end-bitten. Leaves petioled, entire, lanceolate and blunt, spatulate, sinuate, and as it were gnawn at the base, but in the rest of their contour more slightly sinuate, or merely toothed: commonly smooth, but sometimes hairy, and even white with the simple hairs that cover them. Scape straight, smooth and even, from two to four or five inches in length, firm, a little scored, naked and green (sometimes purplish) at bottom, ash-coloured, hairy, and covered with scales at top. Calyx ash-coloured, more or less hairy, and exactly funnel-shaped. Florets bright yellow on both sides, but darkest on the upper surface: they are less in number and narrower than in *Leontodon bispidum*. Seeds oblong, terminated by a sessile, plumose egret. Receptacle quite naked, with a small degree of convexity^m. It differs from all the Linnean species, except *L. autumnale*, which it resembles very much, in having the peduncles very much swollen and scalyⁿ. Native of the south of Europe.

7. Root perennial, oblique, almost creeping, end-bitten, large, with strong fibres, longer than the plant itself. Primordial leaves oblong, entire, blunt: secondary toothed, becoming insensibly pointed and pinnatifid; they are smooth, reddish and dusky. Scape oblique, bowed down the length of the leaves (before flowering-time); at top dilating into a conical calyx which spreads very little; it has some scales at the base concealed by the thick russet-coloured hairs which cover the whole calyx. Florets moderately large, not spreading much, yellow. Seeds oblong, angular, greenish-white, crowned by a sessile egret composed of eighteen, equal, feathered rays, which are very white, and a little dilated at their base. Receptacle quite naked, without any vestige of cells, such as are in the first species^o.

Linneus, who placed it in the genus *Hieracium*, doubts whether it be a mule plant, or a new species. The leaves are so much like those of *L. autumnale*, and the stem and flowers so exactly resembling those of *H. alpinum*, that if the stem and flower of the latter were added to the leaves of the former, it would be a fair specimen of the plant before us. The leaves are lanceolate, smooth and toothed; some of the teeth shorter, others longish, often bent forwards. Scape with a few minute rudiments of leaves, thickening towards the flower, swelling at the end like the calyx, covered with brown hairs. It is entirely different from *L. aureum*, the calyx

being very much imbricated, which can hardly be said of that or *L. autumnale*^p.

This plant was gathered in 1753, in the mountains of Lapland, by Dan. Ch. Solander, L.L.D. It has since been observed in several parts of the south of Europe, in mountainous situations; and with us, both in Wales and Scotland. It flowers in July.

Perhaps there may be other species which belong properly to this genus. Mr. Hudson has inserted *Crepis tetorum & biennis*, and *Picris hieracioides* under his genus *Hedypnois*. I was unwilling either to make too many innovations, or wholly to omit this new genus adopted by Schreber. They are mostly common weeds in pastures, and not of much known use.

APARINE. See *Asperugo*, *Galium*, *Sherardia*, *Valantia*, *Utricularia*.

APARINES. See *Ammannia*.

APATE. See *Lactuca*.

APEIBA. See *Aubletia*.

APHACA. See *Lathyrus*.]

[APHANES. (Ἀφανής, not apparent; from its diminutive size.)

Lin. gen. n. 166. Reich. 178. Schreb. 223.

Gärtn. 73. Juss. 337.

Percepier. Dill. gen. 3.

Class. 4. 2. Tetrandria Digynia, or, Monandria Monogynia.

Nat. order of *Senticosæ*. *Rosaceæ* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, tubular, permanent; mouth flat, eight-parted, (four-parted S.)

COR. none.

STAM. Filaments four, (or one) erect, subulate, very small, placed on the mouth of the calyx: anthers roundish, or, one twin.

PIST. Germ ovate: style filiform, the length of the stamens, inserted into the base of the germ: stigma headed.

PER. none. Calyx containing the seeds in the bottom, converging at the mouth.

SEEDS ovate, acuminate, compressed, the length of the style.

OBS. It approaches very near to *Alchemilla*—differing only in having two styles and two seeds. G. or, one stamen, one style and one seed. Schreb. gen. 821.

ESSENTIAL CHARACTER.

Cal. eight-cleft. Cor. none. Seeds two, (or one,) naked.

SPECIES.

1. *Aphanes arvensis*. Parsley-piert.

Lin. spec. 179. Syst. 167. Reich. 350. succ.

n. 143. Gärtn. fruct. 1. 346. Hudf. angl. 72.

With. 167. Gron. virg. 17. Hall. belv. n. 1569.

Scop. carn. n. 175. Leers herb. n. 122. Villars

dauph. 2. 310. Krock. fles. n. 249. t. 35.

Alchemilla Aphanes. With. 163.—*minima montana*. Col. ecphr. 146. t. 148.

Chærophyllon nonnihil similis. Baub. pin. 152. Mor. hist. f. 2. t. 20. f. 4. Petiv. t. 9. f. 12.

Percepier anglorum. Ger. emac. 1594. Baub. hist. 3. 2. 74. 3. Raii syn. 159. hist. 209.

Polygonum felinoides. Park. 449.

DESCRIPTION, &c.

Stems many, slender, leafy, four inches long, round. Leaves roundish, three-parted, deeply lacinate: the lower ones petiolate; the upper ones sessile, hoary beneath. Flowers herbaceous, axillary^a. Calyx cut into eight segments. It varies with one pistil and seed^b; some botanists say it is always so. Hudson gives it one pistil and two seeds. Haller says it has often two seeds; and Leers that it never has that number. According to Gärtner, it has only one seed, in the gardens usually, but in the wild plant constantly: and therefore does not deserve to be separated from the genus *Alchemilla*.—Villars affirms that the calyx is only four-cleft, and that there is one pistil and one seed. It is a native of Europe, growing in fallow-fields and dry pastures: annual: flowering from May to August.—*Parsley-piert* is a strange corruption from the

¹ With. and Stokes. ^k Linn. succ. ^l Hudson. ^m Villars. ⁿ Gouan. ^o Villars.

A P H

French *Percepier*, which name it acquired from its supposed lithontriptic qualities.]

APHYLLANTES. See *Globularia*.

[APHYLLANTHES. (*ἄφυλλος ἄνθος*, *A flower without leaves*.)

Lin. gen. n. 408. Reich. 441. Schreb. 556.

Tournef. 430. Juss. 44.

Class. 6. 1. Hexandria Monogynia.

Nat. order of *Tripetaloidæ*. Junci Juss.

GENERIC CHARACTER.

CAL. *Glumes* univalve, lanceolate, several, imbricate.

COR. *Petals* six, ovate, spreading in the border: *claws* slender, erect, converging into a tube.

STAM. *Filaments* setaceous, shorter than the corolla, inserted into the throat: *anthers* oblong.

PIST. *Germ* superior, three-cornered, turbinate. *Style* filiform, the length of the stamens: *stigmas* three, oblong.

PER. *Capsule* turbinate, triangular, trilocular.

SEEDS ovate.

OBS. *It differs from Juncus in the corolla only.*

ESSENTIAL CHARACTER.

Cor. six-petalled. Filam. inserted into the throat of the corolla. Caps. superior. Glume of the calyx univalve, imbricate.

SPECIES.

1. *Aphyllanthes monspeliensis*.

Lin. spec. 422. Reich. 2. 28. hort. cliff. 493.

Sauv. monsp. 8. Lob. adv. 190. Bauh. hist. 3.

p. 336.

Caryophyllus cæruleus monspeliensium. Bauh. pin.

209. Mor. hist. f. 5. t. 25. f. 12.

DESCRIPTION, &c.

Root creeping. Culms naked, simple, surrounded at the base with sheaths, like the rush. Glume two-valved, two-flowered; the proper glume also two-valved. Were it not for the corolla, it would be a rush*. It grows wild about Montpellier, and Nice, in barren pastures and rocky places.

APHYLLANTI AFFINIS. See *Globularia*.

APHYLLON. See *Orobanchæ*.]

[APHYTEIA. (*α and φυτος*, *plantless: having neither root, stem, nor leaves*.)

Lin. gen. Schreb. n. 1104. Amæn. acad. 8. 312.

suppl. 48. Plant. aphyt. 7.

Hydnora. Thunb. aët. holm. 1775. 69. and Diff. 22.

Class. 16. 1. Monadelphia Triandria.

GENERIC CHARACTER.

CAL. *Perianth* monophyllous, femitrifid, funnel-shaped, large, fleshy, erect, permanent.

COR. Rudiments of three petals, growing to the divisions of the calyx; or rather none.

STAM. *Filaments* connate at bottom, short: *anthers* convex, cordate, striated.

PIST. *Germ* inferior: *style* thickish, short: *stigma* three-cornered, channelled.

PER. Berry one-celled.

SEEDS numerous, nestling.

ESSENTIAL CHARACTER.

Cal. large, funnel-shaped, femitrifid. Petals three, inserted into the throat of the tube in the calyx, and shorter than it.

SPECIES.

Aphyteia Hydnora.

Lin. syst. 609. n. 1410. Reich. 3. 300. suppl.

p. 301. Diff. plant. aphyt. p. 10. f. 1—6.

Hydnora africana. Thunb. aët. holm. 1775. p. 69.

t. 2. and 1777. p. 144. t. 4. f. 1, 2.

DESCRIPTION, &c.

A vegetable without leaves, stem, or root. Parasitical, terrestrial, consisting of a fructification only, as the *Latræa clandestina*, which has many flowers, whereas this has only one, four inches over, sessile, coriaceous, succulent. Calyx large, with an erect trifid border, as it were of double lacinias; the inside painted of a white scutiform figure. Smell of the flower and ripe fruit not unpleasant. Very agreeable to foxes and weasels; and eaten both raw and roasted by the Hottentots*. First observed at the Cape of Good Hope, by Thunberg,

* Linn. spec.

† Linn. suppl.

A P I

in the parched sandy plains, parasitical at the root of *Euphorbia*.]

APIOS. See *Glycine* and *Euphorbia*.

APIOSCORODON. See *Cratæva*.

APIUM. (From *Apes*, bees, because these insects are said to delight in it; or, from *apex*, the head, which on some occasions was crowned with this herb.)

Lin. gen. n. 367. Reich. 397. Schreb. 499.

Tournef. 160. Gærtn. 22. Juss. 219.

Class. 5. 2. Pentandria Digynia.

Natural order of *Umbellatæ* or *Umbelliferæ*.

GENERIC CHARACTER.

CAL. *Umbel* universal of fewer rays; *partial* of more.

Involucre universal small, of one or more leaflets; *partial* similar: *proper perianth* obsolete.

COR. *Universal* uniform: *stamules* almost all fertile. *Proper*, petals roundish, inflex, equal.

STAM. *Filaments* simple: *anthers* roundish.

PIST. *Germ* inferior: *styles* reflex: *stigmas* obtuse.

PER. none. *Fruit* ovate, striated, splitting in two.

SEEDS two, ovate, striated on one side, plane on the other.

OBS. *A. Petroselinum* is furnished with minute involucels.

ESSENTIAL CHARACTER.

Fruit ovate, striated. *Invol.* one-leafed. *Pet.* equal.

SPECIES.

1. *Apium Petroselinum*. Parsley.

Lin. spec. 379. Reich. 725. hort. cliff. 108.

ups. 67. mat. med. 86. Blackw. t. 172. Raii

hist. 448. 3. Woodv. med. bot. 205. t. 73.

Plenck, ic. t. 218.

α. *A. fativum*. Riv. pent. t. 88. Common Parsley.

β. *A. crispum*. Mill. dict. n. 2. Curled Parsley.

γ. *A. latifolium*. Mill. dict. n. 3. Large-rooted Parsley, or *Hamburg Parsley*.

A. hortense latif. maxima crassissima suavi et eduli radice. Boerb. ind. 58.

Stem-leaflets linear, involucels minute.

2. *A. graveolens*. Smallage.

Lin. spec. 379. Reich. 726. hort. cliff. 107. mat.

med. 87. fl. succ. 262. Hudf. angl. 129. With.

316. Pollich pal. n. 308. Neck. gallob. 152.

Allion. pedem. n. 1334. Hall. belv. n. 784.

Fl. dan. t. 790. Plenck, ic. t. 217.

Seseli graveolens. Scop. carn. n. 360.

Selinon Theophrasti & Dioscoridis.

A. palustre & officinarum. Bauh. pin. 154. Raii

hist. 447. syn. 214. Blackw. t. 443. Mor. hist.

f. 9. t. 9. f. 8. Petiv. t. 26. f. 12. Park. 926.

Eleoselinum f. *Paludapium*. Ger. 862. emac. 1014.

β. *A. dulce*. Mill. dict. n. 5. Upright *Celeri*.

A. dulce, *Celeri Italorum*. Tourn. inst. 305.

γ. *A. rapaceum*. Mill. dict. n. 6. *Celeriac*, or

turnep-rooted Celeri.

δ. *A. lusitanicum*. Mill. dict. n. 7. *Portugal Celeri*.

A. lusit. maximum, folio trilobato, flore luteolo.

Boerb. ind. 58: n. 10.

Stem-leaves wedge-shaped.

DESCRIPTIONS, &c.

1. [The stems of Parsley are round, smooth, striated. Usually there is one leaflet at the origin of the universal umbel, and an involucre of six to eight short folioles fine almost as hairs to the partial umbel. Flowers pale yellow, regular: petals small, long, narrow, acuminate, inflex. Seed short, turgid.]

The common Parsley, which is generally cultivated for culinary use, [is a biennial plant, and is said by Linneus to be found wild in Sardinia, by brooks.] This is the *Petroselinum* of the officinal writers, and the second species is the *Apium*.

The broad-leaved garden Parsley, mentioned by Caspar Bauhin (pin. 153. n. 4.) and the round-leaved Portugal Parsley, mentioned by Tournefort (inst. p. 105.) are only varieties of this; unless the seeds which I have received from different parts of Europe, under those titles, have been wrong; for the plants which have risen from those seeds have always proved to be the common sort.

[The roots of Parsley are sometimes used in apozems, and supposed to be aperient and diuretic, but liable to produce flatulencies. When large quantities are distilled, two or three drams of essential oil separate from

from two hundred pounds. The leaves are warmer, but less sweet than the roots; they yield about ten drams of essential oil, from two hundred pounds. The seeds are warmer and more aromatic than any other part, and are accompanied with a considerable bitterness; they are accounted carminative, resolvent, and diuretic, and are recommended in the German ephemerides for destroying cutaneous insects in children. In distillation, three pounds yield above an ounce of essential oil^a. Parsley is said to be fatal to small birds^b. It has sometimes been accused of causing epileptic symptoms, and of aggravating that complaint where it already exists: it has been said also to injure the eyes. A cataplasm of the leaves is reported to be resolvent and discutient, if applied to glandular tumors: and also to be an efficacious remedy in curing the bites or stings of poisonous insects. According to some, the human calculus in a decoction of the leaves becomes friable, and hence the plant has been considered as of great efficacy in cases of the stone.

For the distinction between this and Fool's-Parsley, see *ÆTHUSA*.

β. The surest way to avoid any hazard, is to cultivate the curled Parsley;] which Mr. Miller affirms will remain constant, provided care be taken to separate all the plants which have plain leaves, when seed is to be saved from them. [Columna informs us, that this variety is a native of Sardinia, and has been distributed from that island into the rest of Europe.]

γ. *Large-rooted Parsley* is chiefly cultivated for its roots, which are now pretty commonly sold in the London markets; the leaves have much longer footstalks, and their subdivisions are not so numerous as in the common Parsley; the leaflets are much larger, and of a darker green, so that it is easily distinguished from the common sort by its leaves, but the roots are six times as large as the common Parsley can be brought to with the utmost culture. I have sown the seeds of both sorts for several years on the same spot of ground, and have thinned the plants when young, to an equal distance, and given the same culture to both; but when their roots were taken up, those of the common sort were not larger than a man's little finger, but the others were as large as full grown carrots, and were very tender and sweet, whereas the others were stringy and strong; this sort was many years cultivated in Holland, before the English gardeners could be prevailed on to sow it. I brought the seeds of it from thence in 1727, and would then have persuaded some of the kitchen-gardeners to make trial of it, but they refused to accept of it, so that I cultivated it several years before it was known in the markets. It is now however more familiar to us; and the roots are much esteemed in soups: in Holland they have long brought the roots to market in bunches, as we do young carrots; they call it *Petroseline Wurtele*, and are very fond of it in their Water-Souché. It is in season with us from July to Christmas, or March, according to the season.

2. [Stem smooth, shining, deeply furrowed. Leaves alternate, radical, pinnated, ternate, pinnae trifid, gash-ferrate, shining, smooth: upper leaves ternate, subsessile. Umbel subsessile or peduncled, with about fifteen unequal rays at each axilla, supported by a trifid leaf. Universal involucre often wanting. Corollas small, white. Seeds very small.

Ditches and marshes, flowering from July to September. Biennial.

The fresh roots, especially in their native watery places, are fetid, acrid, and supposed to be noxious. By drying, they lose the greatest part of their ill flavour, and become sweetish. In this state they have been employed in apozems, as aperients and diuretics. The seeds have been sometimes used as carminatives and aperients. They have a moderately strong grateful smell, and a warm bitterish taste^c.]

Mr. Miller affirms that he cultivated Smallage forty years, to try if by art it could be brought to the same goodness as Celeri; but all that he could

^a Lewis.

^b Bergius.

^c Lewis.

do was to bring it to a larger size, and by earthing to give it a whiteness; it would not grow tall, nor rise with a straight stem, but sent out many suckers near the root, and after it was blanched, retained its strong, rank taste. [In more southern climates however this change has been effected with success; and Ray affirms that Celeri left to itself, will return after some years to Smallage.]

β. Smallage as improved by culture, has taken the Italian name of *Celeri*, and in this state is reckoned not only wholesome, but serviceable for strengthening the stomach and assisting digestion. It is a good antiscorbutic, but said to be hurtful to persons predisposed to epileptic complaints. The expressed juice, taken to the quantity of six ounces, in the beginning of the shaking fit, is said to conquer an intermittent by exciting sweat. The juice is also esteemed efficacious in calculous cases, like that of Parsley. The blanched stalks have a sweetish warm taste, without any of the bad flavour of the wild plant. It is scarcely necessary to mention, that they are in great request in soups, for stewing, and as a raw salad herb, from August to Christmas, or even March, if the winter be not too severe, or if the beds be covered with stable muck or haulm in case of hard frost. The London gardeners cultivate two varieties; 1. the hollow Celeri, which has been long known; and 2. the solid, which is of later introduction, and is preferred by some, for soups and stewing; but is not so proper for the main winter crop, because it will not endure the frost so well as the other; nor for the market gardener, because it is very brittle, and easily breaks in washing and bunching up for the market. Celeri, though a biennial, will run to seed the same year, if sown very early. The seeds of this are much inferior in aromatic flavour to those of Smallage.]

γ. Turnep-rooted Celeri was supposed to be a degenerate variety from the common sort, but I cannot agree to this opinion; for from many years trial I have never found it vary. The leaves of this are short, when compared with those of the other, and spread open horizontally; the roots grow as large as the common Turneps. The difference which I have observed to arise from the culture, has been only in the size of the roots; those on rich ground which were properly cultivated were much larger than those on poorer land, but the leaves and outward appearance of the plants were never altered.

δ. I received the seeds of Portugal Celeri from the Royal garden at Paris, many years since, where it had been long preserved, and maintained its difference; and from more than twenty years experience of cultivating it in the garden at Chelsea, I have found the case to be the same.

PROPAGATION AND CULTURE.

1. The *Common* and *Curled Parsley* must be sown early in the spring, for the seeds remain a long time in the earth, the plants seldom appearing in less than from four to six weeks after the seeds are sown. This sort is generally sown in drills by the edges of borders in the kitchen-gardens near London, because it is much easier to keep it clear from weeds, than if the seeds are sown promiscuously on a border, and the Parsley is much sooner cut for use: but when the roots are desired for medicinal use, then the seeds must be sown thin: and when the plants are come up, they should be hoed out single, as is practised for Carrots, Onions, &c. observing also to cut up the weeds: if this be observed, the roots will become fit for use by July or August, and continue so till spring.

The common Parsley is, by some skilful persons, cultivated in fields for the use of sheep, it being a sovereign remedy to preserve them from the rot, provided they are fed twice a week for two or three hours each time with this herb; but hares and rabbits are so fond of it, that they will come from a great distance to feed upon it; and in countries where these animals abound, they will destroy it, if it is not very securely fenced against them.

The best time for sowing it in the fields is about the middle or latter end of february : the ground should be made fine; and the seeds sown pretty thick, in drills drawn at about a foot asunder, that the ground may be kept hoed between the drills, to destroy the weeds, which, if permitted to grow, will soon overrun the Parsley. One bushel of seed will sow an acre of land.

γ. *Large-rooted Parsley* may be cultivated by sowing the seeds in good ground early in the spring; and in april, when the plants are up, cut them out with a hoe (as is practised for young Carrots) to about five or six inches square, and keep them constantly clean from weeds; and in july the roots will be fit to draw for use, and may be boiled and eaten as young Carrots; and are very palatable and wholesome, especially for those who are troubled with the gravel.

But if these plants are cut out, to allow them more room, if the soil is good, the roots will grow to the size of a middling Parsnip, by september.

2. Smallage being a common weed by the side of ditches and brooks of water, in many parts of England, is seldom cultivated in gardens; but if any person is willing to propagate it, the seeds should be sown soon after they are ripe, on a moist spot of ground; and when the plants come up, they may be either transplanted in a moist soil, or hoed out, and left six or eight inches asunder, where they may remain for good.

β. γ. The seeds of the two sorts of Celeri should be sown at two or three different times, the better to continue it for use through the whole season, without running up to seed. The first sowing should be in the beginning of march, upon a gentle hot-bed; the second may be a fortnight or three weeks after, which ought to be in an open spot of light earth, where it may enjoy the benefit of the sun; the third time of sowing should be the end of april, or beginning of may, which ought to be in a moist soil: and if exposed to the morning sun only, it will be so much the better, but it should not be under the drip of trees.

The seeds which are sown in the hot-bed will come up in about three weeks or a month after sowing, when the plants should be carefully cleared from weeds; and if the season prove dry, they must be frequently watered; and in about a month or five weeks after it is up, the plants will be fit to transplant: you must therefore prepare some beds of moist rich earth, in a warm situation, in which you should prick these young plants, at about three inches square, that they may grow strong; and if the season should prove cold, the beds must be covered with mats, to screen the plants from morning frosts, which would retard their growth: you must also observe, in drawing these plants out of the seed-beds, to thin them where they grow too thick, leaving the small plants to get more strength before they are transplanted; by which means one and the same seed-bed will afford three different plantings, which will accordingly succeed each other for use.

You must observe, if the season prove dry, to keep the plants diligently watered after they are transplanted, as also to clear the seed-beds from weeds; and after every drawing, keep them duly watered, to encourage the small plants left therein.

The middle of may some of the plants of the first sowing will be fit to transplant for blanching; they should be planted in a moist, rich, light soil, upon which the first planted Celeri will often grow to be twenty inches long in the clean blanching parts, which upon a poor or dry soil seldom rises to be ten inches.

The manner of transplanting it is as follows: after having cleared the ground of weeds, you must dig a trench by a line about ten inches wide, and six or seven inches deep, loosening the earth in the bottom, and laying it level; the earth that comes out of the trench should be equally laid on each side the trench, to be ready to draw in again to earth the

Celeri as it advances in height. These trenches should be made at three feet distance from each other; then place the plants in the middle of the trench, at about four or five inches distance, in one straight row, having before trimmed the plants, and cut off the tops of the long leaves; when they are planted you must observe to close the earth well to their roots, and to water them plentifully until they have taken fresh root; after which it will be needless, except in dry soils, or very dry seasons: as these plants advance in height, you must observe to draw the earth on each side close to them, being careful not to bury their hearts, nor ever to do it but in dry weather, otherwise the plants will rot.

When the plants have advanced a considerable height above the trenches, and all the earth, which was laid on the sides, has been employed in earthing them up; you must then make use of a spade to dig up the earth between the trenches, which must also be made use of for the same purpose, continuing from time to time to earth it up, until it is fit for use.

The first of your planting out will, perhaps, be fit for use by the beginning of july, and will be succeeded by the after plantations; and if the latter sowings are rightly managed, there will be a succession of Celeri for use till april; but you should observe to plant the last crop in a drier soil, to prevent its being rotted with too much wet in winter; and also if the weather should prove extremely sharp, you will do well to cover your ridges of Celeri with some Peas-haulm, or some such light covering, which will admit the air to the plants; for if they are covered too close, they will be very subject to rot; by this means you may preserve your Celeri in season a long time, but you must remember to take off the covering whenever the weather will permit. By this method of covering the Celeri, the frost being kept out of the ground, it may be always taken up for use when it is wanted. The Celeri, when fully blanched, will not continue good above three weeks or a month before it will rot or pipe: therefore, in order to continue it good, you should have at least six or seven different seasons of planting; and if it be only intended to supply a family, there need not be much planted at each time.

The other sort of Celeri, which is commonly called *Celeriac*, is to be managed in the same manner as is directed for the Italian Celeri, excepting that this should be planted upon the level ground, or in very shallow drills, for this plant seldom growing above eight or ten inches high, requires but little earthing up; the great excellency of this being in the size of the root, which is often as large as ordinary Turneps. It should be sown about the middle of march, upon a rich border of earth, and, in dry weather, constantly watered, otherwise the seeds will not grow: when the plants are large enough to transplant, they should be placed eighteen inches asunder, row from row, and the plants six or eight inches distant in the rows; the ground must be carefully kept clean from weeds, but this sort will require but one earthing up, which should not be performed until the roots are nearly grown: both these sorts of Celeri delight in a rich, light, moist soil, where they will grow to a much larger size, and will be sweeter and tenderer than on a poor or dry ground.

The best method to save seed of upright Celeri, is to make choice of some long good roots, which have not been too much blanched, and plant them out at about a foot asunder in a moist soil, early in the spring; and when they run up to seed, keep them supported with stakes, to prevent their being broken down by the winds: and in july, when the seed begins to be formed, if the season should prove very dry, it will be proper to give some water to the plants, which will greatly help their producing good seeds. In august these seeds will be ripe, at which time the plants should be cut up, in a dry time, and spread upon cloths in the sun to dry; then beat out the seeds, and preserve them dry in bags for use.

A P L

APIUM MACEDONICUM. See *Bubon*.
 APIUM PETRÆUM and MONTANUM. See *Albamanta*.
 APIUM PYRENAICUM. See *Crithmum*.
 [APLUDA. (The name of the chaff, &c. that flies off from grain. Milii & panici, & sesamæ purgamenta. Plin.)
Lin. gen. n. 1147. *Reich.* 1253. *Schreb.* 1571.
Schoenanthus Scheuchz. 118. t. 3. f. 2. *Gertn.* t. 175. *Juss.* 33.
 Class. 23. 1. Polygamia Monoecia.
 Nat. order of Gramina or Grasses.

GENERIC CHARACTER.

CAL. *Involucre* common univalve: valve ovate, concave, terminated by a very short point or leaflet, two-flowered, the inferior flower sessile in the short, ovate, truncate, hollow base, which is continued into opposite, glumaceous, linear, flat, vertical footstalks, (one at each side of the flower;) on one of these fits the superior flower; on the other a very short rudiment of a flower.

* Flower inferior hermaphrodite, almost entirely lying hid between the footstalks.

CAL. *Involucre* proper univalve; valvelet lanceolate, compressed, rigid, double-toothed at the tip, smooth, embracing the flower with its margins beneath; opposite to the common involucre.

Glume one-flowered, two-valved: valvelets membranaceous, transparent, shorter than the involucre: the exterior navicular, gibbous on the back, keeled, contracted towards the tip, acuminate; the interior ventricose, somewhat sharp, smaller.

COR. Glume bivalve, membranaceous, extremely thin, transparent: valve exterior navicular, compressed, smooth, hyaline: gibbous on the back, bifid, acute, awned below the tip, hid within the exterior valve of the calyx, and shorter than it; the interior lanceolate, flat, acute, doubled together at each margin, the exterior rather longer. Nectary very small, two-leaved, truncate-rounded, hyaline.

STAM. Filaments three, capillary. Anthers linear, bifid on each side.

PIST. Germ oblong, small. Styles two, capillary, upright, longer than the germ. Stigmas oblong, villose, spreading, protruded on each side from the flower.

PER. none. Corolla cherishes the seed, gapes and drops it.

SEED ovate-oblong, compressed, smooth.

* Flower superior smaller.

CAL. Glume two-flowered, two-valved: valves lanceolate, broadish, flat, sharp, nervose, nearly equal. One floscule female, (within the inner valve of the calyx;) the other male or neuter.

COR. of the Female: glume bivalve: valves membranaceous, hyaline; the exterior ventricose, cornered, sharp-pointed; the interior lanceolate, narrower, shorter, obtuse.

Of the Male: glume bivalve: valves lanceolate, membranaceous, hyaline: the exterior somewhat ventricose, sharp; the interior narrower, shorter.

Nectary in both as in the inferior flower.

STAM. of the male as in the inferior flower.

PIST. of the female as in the inferior flower.

PER. and SEED of the female as in the inferior flower.

OBS. Sometimes each floscule of the superior flower is male. S.

ESSENTIAL CHARACTER.

CALYX. Glume common, bivalve: female floret sessile, males peduncled.

MALE. Cal. none. Cor. bivalve. Stam. three.

FEMALE. Cal. none. Cor. bivalve. Style one. Seed one, covered.

SPECIES.

1. *Apluda mutica*.

Lin. spec. 1486. *Reich.* 4. 311. *Gertn. fruct.* 2. 466.

Leaves lanceolate, all the flowers awnless.

2. *Apluda aristata*.

Lin. spec. 1487. *Reich.* 4. 311. *Amæn. acad.* 4. p. 303.

Schoenanthus avenaceus, &c. *Scheuchz.* 119.

A P O

Leaves lanceolate; male flowers awnless, one at the end sessile and awned.

3. *Apluda Zeugites*. Mountain Reed Grass.

Lin. spec. 1487. *Reich.* 4. 311. *Amæn. acad.* 5. p. 412. *Swartz obs.* 384.

Zeugites arundinaceus, &c. *Brown. jam.* 341. t. 4. f. 3.

Leaves ovate: male flowers awnless, one at the end sessile and awned.

4. *Apluda digitata*.

Lin. syst. 906. *suppl.* p. 434.

Spikes digitate, flowers pointing one way.

DESCRIPTIONS, &c.

1. Culms very long, weak, smooth; joints swelling: leaves long, flat, petiolate, or attenuated towards the sheath into a petiole. Panicle narrow, small; coming out of the sides from the sheaths of the lesser leaves, like the *Andropogon*^a. A native of India.

2. Culms a foot long, smooth, joints inflected. Leaves scabrous petiolate. Racemes terminal and lateral, from each axilla. Flowers by threes on the same pedicel; the middle sessile, with a long twisted awn at the base of the corolla; the other two unequal sitting on a chaffy pedicel^b. A native of India.

3. Culm from one to two feet in height, filiform, jointed, subdivided, round, sheathed, smooth, tinged with brownish red. Leaves subpetioled, acute, nerved, netted, very smooth, bright green. Petioles filiform, from the cloven tip of the sheaths, which are lax, without any ligule, striated, broader at the joints. Panicle diffused, few-flowered, racemules capillary, spreading. Florets pedicelled, small. Common glume ovate, retuse, half-embracing a sessile female floret, and male ones pedicelled. The first has no calyx. Glume of the corolla bivalve; outer valve keeled, acute; inner ovate-lanceolate, awned. Awn terminating, capillary, only half the length of the glume. Stamens none. Germ oblong. Style simple, but bifid above the glume. Stigmas villose, long, white. Seed oblong. Male flowers two, short, half the size of the other, on a pedicel the length of the female floret, rising from the glumes of it. Calyx none. Glume of the corolla bivalve, valves equal, acuminate, awnless. Filaments three, the length of the valves. Pistil none^c.

Native of Jamaica. Browne says, that he found this curious little plant at the cold spring, in the mountains of New Liguanea, growing in a rich shady soil. He calls it *Mountain Reed-grass*.

4. A lofty East-Indian grass discovered by Thunberg.]

APOCYNUM. *Αποκύνιον*, Diosc. (*ἀπό κυνός*, because it is supposed to kill dogs.)

Lin. gen. n. 305. *Reich.* 322. *Schreb.* 426.

Tournef. 20. *Juss.* 146.

Class. 5. 2. Pentandria Digynia.

Nat. order of Contortæ. Apocineæ *Juss.*

GENERIC CHARACTER.

CAL. Perianth one-leaved, five-parted, acute, short; permanent.

COR. monopetalous, bell-shaped, semiquinquefid: divisions revolute. Nectary of five glandular, oval corpuscles, surrounding the germ.

STAM. Filaments very short: anthers oblong, erect, acute, bifid at the base, converging.

PIST. Germs two, ovate; styles short; stigma roundish, bifid at the tip, muricate, glued to the anthers.

PER. Follicles two, long, acuminate, one-valved, one-celled.

SEEDS numerous, very small, crowned with a long down. Receptacle subulate, very long, rough, free.

ESSENTIAL CHARACTER.

Cor. bell-shaped. Nectaries five, alternate with the stamens.

SPECIES.

1. *Apocynum androsæmifolium*. Tutsan-leaved Dog's-bane.

Lin. spec. 311. *Reich.* 1. 606. *hort. cliff.* 80.

^a *Linn. spec.*

^b *Amæn. acad.*

^c *Swartz. obs.*

Roy.

- Roy. prodr. 411. 1. Dod. mem. t. 59. Bocc. sic. 35. t. 16. f. 3. Mor. hist. 3. 609. n. 16. f. 15. t. 3. f. 16. Raii hist. 1089. 13.
Stem straightish, herbaceous, leaves ovate smooth on both sides, cymes terminating.
2. *Apocynum cannabinum*. Hemp Dog's-bane.
Lin. spec. 311. Reich. 1. 606. Ait. hort. kew. 1. 303. Kalm. itin. 3. 258. engl. edit. 1. 131. & 2. 131. Gron. virg. 28. Mor. hist. 15. 3. 14. Raii hist. 1089. 10. Pluk. alm. t. 13. f. 1. & t. 260. f. 4.
Stem straightish herbaceous, leaves oblong, cymes lateral longer than the leaf.
- [3. *Apocynum hypericifolium*. St. John's-wort-leaved Dog's-bane.
Ait. hort. kew. 1. 304.
A. fibricum. Lin. syst. 258. Jacqu. hort. 3. 37. t. 66.
Stem straightish herbaceous, leaves oblong cordate smooth, cymes shorter than the leaf.]
4. *Apocynum venetum*. Spear-leaved Dog's-bane.
Lin. spec. 311. Reich. 1. 607. hort. cliff. 80. Sauv. monsp. 133. Roy. prodr. 411. 2. Pallas itin. 3. 676.
Tithymalus maritimus purpurascens floribus. Bauh. pin. 291. —venetus. Park. theat. 185. 2. Raii hist. 866.
Esula rara e Lio Venetorum infula. Lob. hist. 201. —veneta maritima. Ger. emac. 502. 16.
Stem straightish herbaceous, leaves ovate-lanceolate.
- [5. *Apocynum minutum*. Petty Dog's-bane.
Lin. syst. 258. suppl. 169.
Stem prostrate, leaves hastate.
6. *Apocynum filiforme*. Thread-leaved Dog's-bane.
Lin. syst. 258. suppl. 169.
Stem prostrate herbaceous, leaves filiform, flowers umbelled.]
7. *Apocynum frutescens*. Shrubby Dog's-bane.
Lin. spec. 312. Reich. 1. 607. fl. zeyl. n. 114. Burm. zeyl. 23. t. 12. f. 1. Roy. prodr. 412. 3.
Stem erect shrubby, leaves lanceolate-oval, corollas acute villose at the throat.
8. *Apocynum reticulatum*. Net-leaved Dog's-bane.
Lin. spec. 312. Reich. 1. 607. Roy. prodr. 412. 4. Loureiro cochinch. 167.
Olus crudum minus. Rumph. amb. 5. 75. t. 40. f. 2.
Stem twining perennial, leaves ovate veined
- [9. *Apocynum lineare*. Linear-leaved Dog's-bane.
Lin. syst. 258. suppl. 169.
Stem twining herbaceous, leaves linear flat, umbels axillary compound.
10. *Apocynum triflorum*. Three-flowered Dog's-bane.
Lin. syst. 258. suppl. 169.
Stem twining herbaceous, leaves lanceolate, umbels axillary two or three-flowered.
11. *Apocynum Juventas*. Renovating Dog's-bane.
Lour. cochinch. 167.
Stem twining shrubby, leaves ovate hairy, racemes dichotomous.
12. *Apocynum alterniflorum*. Alternate-flowered Dog's-bane.
Lour. cochinch. 168.
Stem climbing shrubby, leaves ovate acuminate smooth, axils alternate umbelliferous.
13. *Apocynum africanum*. African Dog's-bane.
Lour. cochinch. 168.
Stem suberect shrubby, leaves ovate-oblong, peduncles two or three-flowered.]
- Mr. Miller enumerates six other species.
14. *Apocynum scandens*. Climbing Dog's-bane.
Diët. n. 5.
A. scand. fol. citrii, filiquis maculatis. Plum. cat. 2.
Leaves oblong-cordate stiff, flowers lateral, stem shrubby twining.
15. *Apocynum nervosum*. Nerved-leaved Dog's-bane.
Diët. n. 9.
Leaves ovate nerved, cymes lateral, flowers yellow large, tube very long, stem shrubby climbing.
16. *Apocynum cordatum*. Heart-leaved Dog's-bane.
Diët. n. 10.

- A. scand. fol. oblongis acuminatis, flor. amplis patulis & luteis*. Houst. M.S.S. Mill. fig. t. 44. f. 1.
Leaves oblong-cordate pointed sessile, flowers lateral, stem climbing.
17. *Apocynum villosum*. Villose-flowered Dog's-bane.
Diët. n. 11.
A. sc. amplo fl. villosa luteo, filiquis tumidis angulosis. Houst. M.S.S. Mill. fig. t. 44. f. 2.
Leaves cordate smooth, flowers villose lateral, on long peduncles, stem climbing.
- Apocynum speciosissimum*, n. 4. is *Echites suberecta*.
Apocynum obliquum, n. 8. is *Echites umbellata*.

DESCRIPTIONS, &c.

1. Root perennial. Stems about three feet high, upright. Leaves opposite. These, and the stems, abound with a milky juice, which flows out when they are broken. Corollas white, with the nectaries of a purplish cast. [According to Boccone, they are pale red with a tinge of purple; and Royen mentions that the flowers are pendulous.

Boccone affirms, that flies are destroyed if they alight on the flowers of this plant. The French inhabitants of Canada call it *Herbe à la puce*; and say, that it is noxious to some persons, but harmless to others. Kalm relates, that he saw a soldier, whose hands were blistered all over, merely from plucking it; whereas he frequently rubbed his own hands with the juice, without feeling any inconvenience^a.

It is native of Virginia as well as Canada; and flowers from July to September. It was cultivated in 1731, by Mr. Miller^b; but was in the Chelsea garden much earlier, for Mr. Ray mentions its being there in 1688, under the name of *Apocynum flore Lilii convallium purpurascens*.]

2. Roots perennial, creeping. Stems brown, about two feet high. Leaves smooth, in pairs, abounding with a milky juice, like the former. Towards the upper part of the stem, the flowers come out from the wings of the leaves, in small bunches; they are of an herbaceous white colour, and being small, make no great appearance; this therefore is seldom admitted into gardens, except for the sake of variety. It flowers with the foregoing; and is a native of the same countries.

[The Indians of North America prepare the stalks of this species, as we do hemp, and make twine, bags, fishing-nets and lines, and linen for their own wear^c.

It was cultivated here in 1699, by the Dukes of Beaufort^d.

3. Root perennial, creeping. Stems annual, upright, round, branched, a foot and half in height, filled with a white pith. Leaves opposite, sharpish, quite entire, sessile; the upper ones on the extreme twigs petioled, not revolute. Peduncles umbelled, terminating. Flowers small, inodorous. Leaflets of the calyx oblong, concave, erect, green. Corolla white, longer than the calyx. Between the filaments a roundish, green gland. The whole plant is smooth, and abounds in milk^e.

It is a native of North America; was cultivated in 1756, by Mr. Miller; and flowers in June and July^f.]

4. Root perennial, creeping. Stems about two feet high. Leaves opposite, smooth. The flowers grow erect, at the top of the stems in small umbels, and are much larger than the former sorts. It varies with purple, and with white flowers, and they show themselves in July and August. It is a native of the islands in the Adriatic sea, near Venice; but is supposed to have been originally brought from some other country. [It was cultivated in 1690, in the royal garden at Hampton-court^g.

5. Stems filiform, seldom climbing, scarcely seven inches long. Leaves opposite, scarcely petioled. Peduncle alternate, longer than the leaf, lateral, umbelled. Umbel simple, with about six flowers:

^a Travels, vol. 3. p. 26. engl. edit.

^b Hort. kew.

^c Kalm.

^d Hort. kew.

^e Jacquin.

^f Hort. kew.

^g Ibid.

pedicels shorter than the peduncle. Found at the Cape of Good Hope, by Montin^a.

6. Found at the Cape, by Thunberg¹.

7. Leaves opposite, petioled, smooth, quite entire. Peduncles from the axils, opposite; oppositely branched^k. Corolla salver-shaped. Leaves usually acuminate¹.]

Stem woody, five or six feet high, dividing into several branches. Flowers in loose bunches, small and of a purple colour; never succeeded by pods in this country.

Native of the East Indies, Ceylon, and the coast of Guinea.

8. This plant has a twining stem, by which it rises to a considerable height. [The leaves are dark green, very shining, with a beautiful net of milky veins^m.

Native of the East Indies, and Cochinchina. Mr. Miller cultivated it, by seeds from Professor Van Royen.

9. 10. Found at the Cape of Good Hope, by Thunberg.

11. Stem slender, hairy, red, milky; from a large, fleshy, round, undivided root. Leaves opposite, quite entire. Flowers greenish-yellow, minute: segments of the calyx oblong, hairy, spreading: of the corolla lanceolate, three times the length of those of the calyx. The nectary is composed of five converging lobes, with five barren, upright filaments. Anthers five, sessile, shaped like scales, adhering to the base of the nectary. Germ longish, two-lobed. Stigma sessile, concave, bifid. Native of Cochinchina; usually procumbent.

The physicians of the country fancy the root of this plant to refresh the animal spirits to such a degree, as by a long use of it to endow old age with all the strength and vigour of youth. The Chinese have the same opinion with respect to their *Ho neu u*, which they suppose to be the same plant, but that is not certainⁿ.

12. Stem long, branching. Leaves quite entire, flat, opposite, petioled. Flowers pale, inodorous. Leaflets of the calyx lanceolate, erect. Corolla longer than the calyx. The nectary is composed of ten oblong, upright lobes, placed on the tube of the corolla, pressing the stamens to the stigma. Native of the islands near Canton, in China^o.

13. Stem eight feet high, with climbing branches. Leaves blunt, quite entire, thick, smooth, small, opposite. Flowers pale, about three together, lateral. Calyx half-five-cleft, with acute, erect segments. Segments of the corolla lanceolate, contorted, reflex. The nectary is composed of five awl-shaped, appressed corpuscles, with five coloured glands between them. Style single, subulate, equal to the stamens; with an acute, bifid, erect stigma. Native of the coast of Zanguebar, in Africa, on a sandy plain^p.]

14. Was discovered by father Plumier, in some of the French islands in America. It was afterwards found by the late Mr. Robert Millar, surgeon, growing plentifully near Carthagera, in New Spain, from whence he sent the seeds, which succeeded in several gardens. This plant has twining stalks, by which it mounts to the top of very tall trees, and stiff, oblong, heart-shaped leaves, which are smooth, and of a shining green colour, being of the same thickness with those of the Citron-tree. The flowers are produced in small clusters from the sides of the branches, and are of an herbaceous colour, so do not make any great appearance. These appear in august and september, but are not succeeded by pods in this country.

15. Has a climbing woody stalk, and rises to a considerable height, by the support of neighbouring trees. The leaves grow by pairs opposite; they are ovate, ending in a sharp point, and have many transverse nerves from the midrib. The flowers come out from the wings of the leaves, each stand-

ing upon a separate long foot-stalk; they are large, of a bright yellow colour, with very long tubes, spreading open wide at the top; these are succeeded by long compressed pods, which have borders on one side filled with long channelled seeds, which are crowned with long plumes of soft down. This sort grows naturally at Carthagera, in New Spain, from whence I received the seeds.

16. 17. Were discovered at La Vera Cruz, in New Spain, in the year 1729, by the late Dr. William Houstoun, who sent their seeds to England. These plants have both climbing stalks, by which they mount to the tops of the tallest trees. In England they have climbed over the plants in the stoves, and risen to upward of twenty feet high. The sixteenth sort has produced flowers in England several times, but the seventeenth, which grows more luxuriantly than the other, never had any appearance of flowers.

The down of these plants is in great esteem in France, for stuffing easy chairs, and making quilts, which being warm, and extremely light, are very proper covering for persons afflicted with the gout. The French call it Delawad; and in the southern parts of France, where some of the sorts will thrive in the open air, and perfect their seeds, there are many plantations made of these plants for the sake of the down.

As many of these sorts grow plentifully in the uncultivated lands in Jamaica, this cottony down might be easily procured from thence in plenty, and might probably become a vendible commodity in England, if once it were to become a fashionable furniture: especially as the plants require no cultivation, and the only trouble is to collect the down, which, in some of the sorts with large pods, is produced in great quantity, and may be collected with little trouble.

PROPAGATION AND CULTURE.

1. 2. 3. These are propagated by parting the roots in march, before they put out new stems. They are hardy enough to thrive in the open ground, but the soil should be light and dry, otherwise the roots are apt to rot in winter. They flower in july, and their stems decay to the root in autumn, seldom ripening their seeds. The second sort spreads so much by its creeping roots as to be troublesome in a garden.

4. Will live in the open air, provided it be planted in a warm situation, and dry soil; for although the soil in which it grows wild near Venice be moist, yet in this country the roots will rot in winter, when they are in a wet ground. The best time to remove this sort is in spring, just before new stalks begin to push out.

7, &c. The other species are tender, and must be constantly kept in the hot-house, plunged in the tan-bed. They may be propagated by cuttings during the summer months: these should be laid to dry in the stove, three or four days before they are planted:—or by seeds, procured from their native places, for they rarely produce any in England. These should be sown in pots filled with light sandy earth, and plunged into the tan-pit: they will appear in a month or five weeks, and should then be watered sparingly. They must be kept constantly in the tan-bed; and as they advance in height, will require larger pots; but care must be taken not to overpot them; for unless their roots are confined, the plants will not thrive. The second year, the plants will generally flower, if they have been skilfully managed, in july or august. Some of these make a fine appearance; and the leaves, being of a beautiful green, and keeping on the plant all the year, are an ornament to the stove at all seasons.

APOCYNUM. See *Asclepias*, *Ceropegia*, *Cynanchum*, & *Echites*.

[APONOGETON.

Linn. suppl. 32. *Syst.* 353. *gen.* Schreb. n. 835. *Thunb. nov. gen.* 72. *Juss.* 19.

Class. 11. 4. Dodecandria Tetragynia.

Nat. order of *Inundatæ*? *Naiades* Juss.

^a Linn. suppl. ⁱ Ibid. ^k Lin. zeyl. ^l Royen. ^m Ibid.
ⁿ Loureiro. ^o Ibid. ^p Ibid.

GENERIC CHARACTER.

CAL. none, except a spathaceous *scale* surrounding the outer side of the flower, simple, sessile, ovate, obtuse, entire, upright, smooth, coloured.

COR. none.

STAM. *Filaments* eleven to nineteen, in the upper flowers fewer, inserted between the spathe and the capsules, subulate, smooth, white, many times shorter than the spathe.

PIST. *Germ*s usually four, seldom three or five: *styles* none; *stigmas* subulate, bent in.

PER. *Capsules* four, seldom three or five, ovate, subulate-acute, gibbous on the outside, flat on the inner side, smooth, one-celled.

SEEDS in each capsule three, affixed to the base of it, sessile, obovate, very blunt, subcompressed, smooth.

ESSENTIAL CHARACTER.

Cal. an Ament. Cor. none. Caps. three-seeded.

SPECIES.

1. *Aponogeton monostachyon*. *Single-spiked Aponogeton*.

Lin. suppl. 214. *syft.* 353.

Saururus natans. *Lin. syft. ed.* 13. 291. *Reich.* 2. 139. *mant.* 227.

Parva-Kelanga. *Rheed. mal.* 11. p. 31. t. 15.

Spike simple, leaves cordate-oval.

2. *Aponogeton distachyon*. *Broad-leaved Aponogeton*.

Lin. suppl. 215. *syft.* 353. *Thunb. nov. gen.* 4. fig. *Ait. hort. kew.* 495.

Spike bifid, leaves linear-oblong, floating, bractes entire, flowers many-stamened.

3. *Aponogeton angustifolium*. *Narrow-leaved Aponogeton*.

Ait. hort. kew. 495.

Spike bifid, leaves linear-lanceolate, erect; bractes two-parted; flowers six-stamened.

DESCRIPTIONS, &c.

1. Root bulbous. Leaves very long, petioled, radical, quite entire, very smooth, swimming like *Potamogeton natans*. Scapes flaccid, obscurely three-cornered. Spike hexangular, covered with a caducous spathe. Bractes instead of a corolla, two below each floret, small, clavated, fleshy, permanent. Stamens six, longer than the bractes. Germs three or four, oblong, acute: style scarcely shorter than the germs: stigma obtusish. Observed by Koenig to be common in the fields that are flooded for rice in the East Indies^a.

2. Root bulbous. Leaves on very long petioles, radical, quite entire, very smooth, swimming. Spike imbricated within. Flowers white, alternate, erect, within an ovate bracte. Stamens vary from six to twelve. Pistils three or four. The flowers have a most fragrant smell, and the bulbs are eaten roasted. Found at the Cape of Good Hope, in brooks, by Thunberg^b. This species is confounded with the third in the supplement, when it is said, that the stamens vary from six to twelve. It flowers almost all the year, and was introduced in 1788 by Mr. Francis Masson^c.

3. Leaves narrower than in the foregoing, drawn to a point at each end. Rachis pale red. Flowers few. Bractes white, red at the base, parted almost to the base, so as to seem two: segments linear-oblong. Stamens six, only one-third or one-fourth of the length of the bractes. Styles three. A native of the Cape of Good Hope: introduced in 1788, by Mr. Francis Masson. It flowers almost all the year^d.

PROPAGATION AND CULTURE.

These plants are inhabitants of the Greenhouse or Cape stove; and may be increased by offsets from the bulbs.

APPLE, Custard. See *Annona*.

—— Love. See *Solanum*.

—— Mad. See *Solanum*.

—— Pine. See *Bromelia*.

—— Purple. See *Annona*.

—— Sour. See *Annona*.

—— Thorn. See *Datura*.

APPLE Tree. See *Pyrus*.

—— Water. See *Annona*.

APRICOT or Apricock. See *Prunus*.

APSINTHIUM. See *Artemisia*.]

[AQUARTIA. (So named by Jacquin, in honour of his friend Benoit Aquart, merchant of Martinico, who assisted him in his botanical researches.)

Lin. gen. n. 136. *Reich.* 142. *Schreb.* 176. *Jacqu. amer.* 15. *Juss.* 126.

Class. 4. 1. Tetrandria Monogynia.

Nat. order of *Solaneæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* monophyllous, permanent: *tube* bell-shaped: *limb* subquadrid, expanding: two opposite divisions obsolete.

COR. monopetalous, rotate: *tube* very short: *limb* quadrid: *divisions* linear, widely spreading.

STAM. *Filaments* short: *anthers* erect, very large, linear.

PIST. *Germ* ovate: *style* filiform, declined, the length of the corolla: *stigma* simple.

PER. *Berry* globular, one-celled.

SEEDS very many, compressed.

ESSENTIAL CHARACTER.

Cal. bell-shaped. Cor. wheel-shaped with linear divisions. Berry many-seeded.

SPECIES.

1. *Aquartia aculeata*.

Lin. spec. 161. *syft.* 153. *Reich.* 314. *Jacqu. amer.* 15. t. 12. *Ed. 2. pict. p.* 13. t. 15.

DESCRIPTION.

A perennial, aculeate plant; unarmed at top. Leaves alternate, ovate, obtuse, petioled^a. The stature of *Solanum*^b. A native of South America.

Swartz is of opinion, that it is rather a species of *Solanum*, with four stamens to the flower; differing from it in number, in the segments of the corolla being linear, and the calyx bell-shaped; the habit however is quite the same^c.

It is thus described by Jacquin. Stem shrubby, four feet high, branched, upright, in habit approaching to *Solanum incanum*. The old branches are woody and smooth, armed with subulate, short, scattered prickles; the younger ones unarmed and tomentose. Leaves subovate, quite entire, sometimes slightly repand, tomentose, hoary, alternate, petioled, an inch in length. Peduncles one-flowered, lateral, solitary, very short. Calyx tomentose, with the smaller segments sometimes obsolete. Corolla white, inodorous. Fruit yellow, shining, the size of a pea, placed on the sinus of the calyx. Native of St. Domingo; flowering and bearing ripe fruit there in october^d.]

AQUIFOLIUM. See *Ilex*.

[AQUILARIA. (From *Aquila*, an Eagle. In French, *Bois d'Aigle*, Eagle-wood. From its lofty situation.)

Lin. gen. Schreb. n. 1753. *Lamarck. Encycl.* 1. p. 49. 2. p. 610. *Cavanill. diff.* 7. p. 377. t. 224. *Juss.* 439.

Aloexylum. *Lour. cochinch.* 274.

Class. 10. 1. Decandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* one-leaved, permanent. *Tube* bell-shaped. *Border* five-cleft: *clefts* ovate, acute, flat, spreading.

COR. none.

Nectary one-leaved, pitcher-shaped, length of the tube of the calyx, half five-cleft: *clefts* bifid, obtuse.

STAM. *Filaments* ten, alternate to the clefts of the nectary, and shorter than them. *Anthers* oblong, versatile.

PIST. *Germ* ovate, on a very short pedicel, superior. *Style* none. *Stigma* simple.

PER. *Capsule* on a very short pedicel, obovate, woody, two-celled, two-valved: with the *partition* contrary and bipartile.

SEEDS solitary oblong.

ESSENTIAL CHARACTER.

Cal. five-cleft. Cor. none. Nect. pitcher-shaped,

^a Linn. suppl. ^b Ibid. ^c Hort. kew. ^d Ibid.

^a Jacqu. ^b Lin. spec. ^c Obs. p. 47. ^d Jacqu. amer. half-

half-five-cleft, with bifid clefts. *Capf.* superior, woody, two-celled, two-valved. *Seeds* solitary.

SPECIES.

1. *Aquilaria ovata*.

Cavan. diff. 377. t. 224.

Aloexylum Agallochum. *Lour. cochinch.* 267.

Garo de Malaca. *Lamarck encycl.* 1. p. 49. & 2. p. 610.

Agallochum. *Rumph. amb.* 2. t. 10. *Berg. mat. med.* 961.

Leaves alternate, ovate, mucronate.

DESCRIPTION, &c.

It is a large tree, with the trunk and branches erect, and covered with a brown or gray bark, smooth except towards the ends of the twigs, which are villose. Leaves alternate about eight inches in length, quite entire, very smooth, somewhat coriaceous, having one branched nerve, and very fine veins; the petioles are short and hairy. There are no stipules. Flowers terminating, on many-flowered peduncles. The wood of the tree is white and inodorous^a. Allied to *Samyda*^b.

Native of the mountains of Malacca and Cochin-China.

The *aroma* of Aloes wood is a disease, caused by oleaginous particles stagnating and concreting in the inner parts of the trunk and branches into a resin, by which means the natural appearance of the wood is altered as to colour, smell, &c. till at length the tree dies, and when split the valuable resin is taken out of it. No part of the tree is lactescent or poisonous. All the true *Lignum Aloes* so called proceed from this tree, even the most valuable, which is commonly called *Calumbac*, and is found in the mountains of Champava, belonging to Cochin-China. The inferior species, or rather varieties are less rare, and are found in various places. There are other odorous woods, which by the unskilful are called *Agallochum* and *Aloes Wood*, but which are widely different, and belong to other vegetables.

Perfumes from this wood are highly esteemed by the oriental nations, and from the bark of the tree is made the common paper which the Cochin-Chinese use for writing, in the same manner as in Japan from the bark of the Mulberry (*Morus papyrifera*). This perfume is said to be good in Vertigo and Palsy: the powder restrains vomiting and fluxes, and particularly Lienteries; this it brings about, not by astringing, properly speaking, but by its corroborating power^c.

It has the name of *Lignum Aloes*, or *Wood Aloe*, from its bitter taste.]

AQUILEGIA. (or *Aquilina*, from *Aquila*, an Eagle; because the *nectaries* are fancied to resemble an eagle's claws. Our English name *Columbine*, is derived from the resemblance which the same parts bear, both in form and colour, in the wild state, to the head and neck of a pigeon, *Columba*.)

Lin. gen. n. 684. *Reich.* 741. *Schreb.* 934.

Tournef. 242. *Juss.* 234. *Gærtn.* t. 118.

Class. 13. 5. Polyandria Pentagynia.

Nat. order of *Multifloræ* or *Corniculatæ*. *Ranunculaceæ* *Juss.*

GENERIC CHARACTER.

CAL. none.

COR. *Petals* five, lanceolate-ovate, flat, spreading, equal. *Nectaries* five, equal, alternate with the petals: each horned, gradually broader upwards, with an oblique mouth, ascending outwardly, annexed inwardly to the receptacle; produced below into a long attenuated tube, with an obtuse top.

STAM. *Filaments* thirty to forty; subulate, the outer ones shorter: *anthers* oblong, erect, the height of the *nectaries*.

PIST. *Germes* five, ovate-oblong, ending in subulate styles, longer than the *stamens*: *stigmas* erect, simple. *Chaffs* ten, wrinkled, short, separate, and involving the *germs*.

^a Loureiro and Cavanilles.

^b Jussieu.

^c Loureiro.

PER. *Capsules* five, distinct, cylindric, parallel, straight, acuminate, one-valved, gaping from the tops inward.

SEEDS very many, ovate, keeled, annexed to the gaping future.

ESSENTIAL CHARACTER.

Cal. none. *Petals* five. *Nectaries* five, horned, between the petals. *Capf.* five, distinct.

SPECIES.

[1. *Aquilegia viscosa.* *Clammy Columbine.*

Lin. syst. p. 505. n. 684. 1. *Reich.* 2. 619.

mant. 77. *Allion. pedem.* n. 1506. *Gouan. monsp.*

p. 267. n. 2. *Mugn. hort. monsp.* 21. *Gouan.*

illustr. 32. t. 19.

Stem almost naked, with viscid hairs, and one or two flowers; *leaves* subtrilobate.]

2. *Aquilegia vulgaris.* *Common Columbine.*

Lin. spec. 752. *syst.* 505. *Reich.* 2. 619. *hort.*

cliff. 215. *upf.* 152. *mat. med.* 139. *succ.*

n. 478. *Gærtn. fruct.* 2. 175. *Huds. angl.* 235.

With. 562. *Hall. belv.* n. 1195. *Scop. carn.*

n. 656. *Pollich pal.* n. 513. *Neck. gallob.* 234.

Allion. pedem. n. 1507. *Fl. dan.* t. 695. *Mill.*

illustr.

A. flore ceruleo. *Ger.* 935. 1. *emac.* 1093. 1.

A. flore simplici. *Baub. hist.* 3. 484. 1. *Raii hist.*

706. *syn.* 273. *Park.* 1367. 1. *Blackw. t.* 409.

Mor. hist. f. 12. t. 1. f. 1.

α. A. hortensis simplex. *Baub. pin.* 144.

Single Garden Columbine.

β. A. hortensis multiplex, flore magno. *Baub.*

pin. 144. *Raii hist.* 706. *Park. par.* 271. n. 2.

Double-flowered Columbine.

γ. A. hortensis multiplex, flore inverso. *Baub.*

pin. 144. *Raii hist.* 706. n. 4. *Park. par.* 271. n. 3.

Double inverted Columbine.

δ. A. flore roseo multiplici. *Baub. pin.* 145. *Raii*

hist. 706. n. 3. *Park. par.* 272. n. 4.

Rose Columbine.

ε. A. degener virescens. *Baub. pin.* 145. *Raii hist.*

707. 5. *Park. par.* 272. n. 5.

ζ. A. stellata. *Raii hist.* 705. *Starry Columbine.*

Petals sharp-pointed expanding in the form of a star.

η. A. speciosa. *Siberian Columbine.*

Nectaries blue, yellow at the tip.

Nectaries incurved.

3. *Aquilegia alpina.* *Alpine Columbine.*

Lin. spec. 752. *syst.* 505. *Reich.* 2. 620. *Huds.*

angl. 235. *With.* 563. *Gmel. fib.* 4. 185. *Hall.*

belv. n. 1196. *Allion. pedem.* t. 66. n. 1508.

A. montana magno flore. *Baub. pin.* 144. *prodr.* 75.

hist. 3. p. 484. *Raii hist.* 707.

Nectaries straight, shorter than the lanceolate petal.

4. *Aquilegia canadensis.* *Canadian Columbine.*

Lin. spec. 752. *Reich.* 2. 620. *hort. upf.* 153.

Mill. fig. t. 47. *Gron. virg.* 59. *Corn. canad.*

t. 60. *Park. theat.* 1367. n. 1. *Mor. hist.*

f. 12. t. 2. f. 4. *Raii hist.* 707. n. 8.

Nectaries straight, *stamens* longer than the corolla.

[5. *Aquilegia viridiflora.* *Green-flowered Columbine.*

Lin. syst. 505. *Murray in comment. gotting.* 1780.

p. 8. t. 2. *Jacqu. collect.* 1. p. 35. *Retz. obs.* 3.

p. 34. n. 64.

Nectaries straight, thickened and a little bent in at the

tip; *stamens* nearly equal to the corolla.

DESCRIPTIONS, &c.

1. Root perennial. Stem a foot high at most, hispid with glutinous hairs, quite simple, or with only a single branch or two. Petioles from an inch to three inches in length, with viscid hairs like the stem, proceeding from wide, coloured, stem-clasping sheaths. The first root-leaf palmate-three-lobed, the divisions two-lobed or three-lobed; the other root-leaves, which are four or five in number, ternate, the leaflets equally petioled, blunt, digitate-three-parted; the lateral segments three-lobed or four-lobed; the middle ones always three-lobed. Stem-leaf one only, or seldom two, ternate; the leaflets quite entire, lanceolate, the middle one longest. Peduncles usually two, one axillary, the other terminating, one-flowered. *Nectary* curved inwards. *Capsules* five, viscid, with netted

netted veins. It varies with a short, one-flowered, leafless stem^a.

Native of the south of France, and the mountains of Piedmont.

It is affirmed, in the *Systema Vegetabilium*, that the plants which were produced from seeds of this sort by Gouan, differed in nothing from the common sort.

2. Stem three feet high erect, branching, leafy, somewhat angular. Leaves smooth, glaucous underneath; the lower ones petiolate, biternate; the leaflets roundish trilobate gashed and notched; the upper ones digitate, the lobes oval and quite entire: the radical petioles very long. The flowers are produced from the tops of the naked branches, and hang down^b; they have generally six pistils and eight nectaries^c.

The usual colour of the flowers in their wild state is blue, but Haller says the red is common about Berne; I have found it of the same colour near Vevey. White ones are also seen about Berne. Mr. Woodward has found both red and white flowers in Norfolk. Haller mentions double flowers occurring in the Pays de Vaud. The Columbine is found native in most parts of Europe, in woods, hedges, and among bushes. It is perennial; and flowers with us in June.

The flowers vary much by culture; and become double either by multiplying the petals, or the nectaries. Of all these varieties, there are subordinate variations, both in the degree of doubleness, as with two or more rows of petals, two or three rows of nectaries, curiously inserted one into the other: and in the colours, as blue, white, red, purple, flesh-coloured, ash-coloured, chestnut-coloured, and striped or variegated blue and purple, blue and white, red and white.]

From the different shape of these flowers, persons not well skilled in the culture of plants, might suppose they were distinct species; but having several years sown their seeds, which were collected with great care, I have found them always varying from one to the other.

[The Siberian variety however, which is lower, and has blue corollas, with the brims of the nectaries yellow or white; is affirmed in the *Systema Vegetabilium*, to be constant.

The root, the herb, the flowers, the seeds, have been recommended to be used medicinally, on good authority; but this plant is of a suspicious tribe, and Linneus affirms as of his own knowledge, that children have lost their lives by an over dose of it. The sensible qualities of the seeds, says Lewis, afford little foundation for their supposed virtues in the jaundice, measles, and small-pox; as they do not seem to differ materially from those of the cold seeds, being only somewhat more mucilaginous, with a disagreeable relish. The virtues ascribed to a tincture of the flowers, as an antiphlogistic, and for strengthening the gums, and detaching scorbutic ulcers in the mouth, appear to be better founded; the tincture being made with an addition of the vitriolic acid, and differing little from our officinal tincture of roses. The flowers themselves, as well as the conserve and distilled water of them, directed in some foreign pharmacopœias, are insignificant.

3. Root biennial. Leaves biternate, tender, and smaller than in the common sort; the leaflets multifid; the lobes sublinear and blunt; with the appearance and tenderness of *Canadian Columbine*^d. The leaflets in the common sort are trifid, but in this they are ternate; or they have one pair of sessile lobes, with the odd lobe petioled and trifid; the middle segment again trifid, and the side ones bifid; the middle segment, and the uppermost of the side ones three-toothed; the side-lobes are of the same form, but only bifid; all the teeth are roundish. In Common Columbine the petioles are twice trifid, and all the lobes petioled; in this the side-leaves

are sessile, and the lobes more deeply cut. The corollas are blue, with the tips of the petals yellowish green; the anterior part of the nectaries paler blue, the claws of the petals whitish within^e. According to Haller and Allioni the nectaries are bent in at the end. The former of these adds, that the stem is only a foot or at most eighteen inches high, that the divisions of the leaves are linear, not rounded; and that there are only one or two flowers on a stem. They both are of opinion, that the Alpine Columbine is distinct from the common sort. Mr. Hudson doubts.] Mr. Miller, who observes that the flowers of this are much larger than those of the Garden Columbine, affirms that the seeds which he sowed of this in the garden at Chelsea, produced the same species, without the least variation.

[Native of the Alps of Switzerland and Savoy. Said also to be found in Westmoreland. It flowers in May and June; and was cultivated in 1731, by Mr. Miller^f.

4. Root perennial. Stems very slender, reddish. Leaves of the same form and size with those of *Thalictrum* or Meadow Rue; the lower ones biternate, irregularly divided, the extreme lobes blunt; the upper ones simply ternate, toothed or quite entire; the uppermost simple, lanceolate, acuminate. Corollas yellow within, and red on the outside. Native of Virginia, Canada, and most of the northern parts of America. It flowers in April, and the seeds ripen in August^g. Introduced before 1640, by Mr. John Tradescant, senior^h.

5. Root perennial. Stems a foot high or more, upright, slightly angular and villose. Leaves biternate, petioled: leaflets frequently two-lobed, gashed, blunt, pale green underneath. Flowering peduncles nodding, short, fruiting ones erect. Petals pale green, wrinkled, shorter than the borders of the nectaries; which are greenish yellow within, and brownish on the outside, the border cordate-wedge-shaped, the horn subulate and straight, blunt and a little bent in at the end. Stamens shorter by half than the corolla. Styles longer than the corolla. Germs five with brownish styles, surrounded with ten subulate, acuminate, white, wrinkled, pellucid chaffs. The whole plant is smooth. It flowers in May, and the seeds ripen in Julyⁱ. Native of Siberia, where it was found by Pallas.]

PROPAGATION AND CULTURE.

These plants are all raised by sowing the seeds, or parting the old roots, but the former method is chiefly practised; for the old roots are very apt to degenerate after they have blown two or three years, so as to become quite plain.

The seeds should be sown in a nursery-bed in August or September, for the seeds which are kept till spring seldom grow well, or at least remain in the ground a whole year. The spring following the plants will appear above ground, therefore should be kept clear from weeds, and if the season should be dry, they must be refreshed with water, that they may gather strength.

In the middle or latter end of May, these plants will be strong enough to transplant; therefore some beds of good fresh undunged earth should be prepared, planting them therein at eight or nine inches distance every way, keeping them clear from weeds, and refreshing them with a little water, as they may require it.

In the following autumn, by which time the plants will have acquired strength enough to flower the summer following, the roots should be carefully taken up, and planted in the borders of the flower-garden; but where their roots are designed to be preserved in perfection, all their flower-stems should be cut off, as soon as the flowers are past, to prevent their degenerating by the mixture of the farina from other flowers.

But in order to be sure of having no single or bad flowers in the borders, you may suffer the plants

^a Gouan. illustr.

^b Haller and Lyons.

^c Scopoli and Pollich.

^d Lin. spec.

^e Allioni. ^f Hort. kew. ^g Mill. fig. ^h Hort. kew. from Park.

ⁱ Retz. & Jacqu.

to remain in the nursery-beds until they have blown; at which time you may put a stick by each root you fancy to preserve, or pull out all the single or bad coloured ones, and throw them away, cutting off all the flowers from your best roots as soon as they have shewn themselves, which will greatly add to the preserving them fair in their colours.

In order to keep up a succession of good flowers, fresh seeds should be sown every year; and if you can meet with a friend at some distance, who is furnished with good flowers of this kind, it will be very advantageous to both parties, to exchange seeds once in two years, by which means they will not be so apt to degenerate into plain colours.

In saving the seeds of the variegated columbines, great care should be taken not to suffer any plain flowers to remain for seed, there being generally some plain flowers intermixed with the striped ones on the same plant, and often in the same branches: these should be cut off, for if they are permitted to feed, or if their farina impregnate the striped flowers, they will degenerate into plain colours; so that there cannot be too much care taken in saving the seeds, where the beauty of their flowers are regarded.

4. The Canada Columbine flowers almost a month before the other sorts; for which reason it is preserved in the gardens of the curious, though there is no great beauty in the flowers. There is another variety of this with taller flower-stems, which flowers a little after the other, but does not differ, either in the shape of its flowers or leaves from this; therefore I conclude that they are but one species. The Canada Columbines flower in april, and their seeds ripen the beginning of august. The other sorts flower toward the end of may, and in cool seasons will continue to produce flowers till the middle of july, and their seeds ripen toward the middle or end of september, according as the season proves more or less favourable.

AQUILICIA. See *Leea*.]

ARABIS. (*Ἀράβις* Diosc. from Arabia, Lin.)

Lin. gen. n. 818. Reich. 882. Schreb. 1094. Juss. 238.

Class. 15. 2. Tetradinamia Siliquosa.

Nat. order of *Siliquosæ*, or *Cruciformes*. *Crucifera* Juss.

GENERIC CHARACTER.

CAL. *Perianth* four-leaved, deciduous; leaflets from parallel-converging: two opposite larger, ovate-oblong, acute, a little prominent at the base, gibbose, concave: the two others linear, erect.

COR. four-petalled, cruciform. *Petals* spreading, ending in claws the length of the calyx. *Nectaries* four: each from a little scale, within the bottom of the calycine leaflet, affixed to the receptacle, reflex, permanent.

STAM. *Filaments* subulate, upright, two the length of the calyx, four twice as long; *anthers* cordate, erect.

PIST. *Germ* columnar, the length of the stamens: style none: stigma obtuse, entire.

PER. *Siliqua* compressed, very long, linear, unequal, with swellings at the seeds: valves almost the length of the partition.

SEEDS very many, roundish, compressed.

OBS. The *nectaries* and *stigma*, show this to be a distinct genus both from *Cheiranthus* and *Hesperis*.

ESSENTIAL CHARACTER.

Nectareous Glands four, one within each leaflet of the calyx, like a reflex scale.

SPECIES.

1. *Arabis alpina*. *Alpine Wall-cress*.

Lin. spec. 928. Reich. 3. 271. hort. cliff. 335. lapp. 257. suec. 604. Scop. carn. n. 833. Hall. belv. n. 451. Fl. dan. t. 62. Villars dauph. 318. Leaves stem-clasping, toothed.

[2. *Arabis lucida*. *Shining Wall-cress*.

Lin. syst. 599. n. 818. 2. suppl. 298. Leaves stem-clasping, shining.

3. *Arabis grandiflora*. *Great-flowered Wall-cress*.

Lin. spec. 929. Reich. 3. 271. amæn. acad. 2. 358. t. 4. f. 20.

Stem naked.]

4. *Arabis thaliana*. *Common Wall-cress*.

Lin. spec. 929. Reich. 3. 272. suec. n. 605. Hudf. angl. 292. With. 702. Curtis lond. 2. t. 49. abr. t. 24. Hall. belv. n. 452. Pollich palat. n. 636. Crantz. austr. t. 3. f. 2. Villars dauph. 321. Mor. hist. f. 3. t. 7. f. 5. Park. 556. Petiv. herb. brit. t. 48. f. 1. 2.

Leaves petiolate, lanceolate, quite entire.

5. *Arabis bellidifolia*. *Daisy-leaved Wall-cress*.

Lin. syst. 599. Reich. 3. 272. mant. 94. Jacq. austr. 3. t. 280. Hall. belv. n. 446. (Leucoium).

α. *A. pumila*. Jacq. austr. 3. t. 281. Hall. belv. n. 447. Ger. emac. 260. Chf. hist. 129. Raub. hist. 2. 870. (Sinapi).

Leaves subdentate, the radical ones obovate, those of the stem lanceolate.]

6. *Arabis lyrata*. *Lyrate-leaved Wall-cress*.

Lin. spec. 929. Reich. 3. 272. Gron. virg. 99.

Leaves smooth, the radical lyrate, the stem-leaves linear.

[7. *Arabis hispida*. *Rough Wall-cress*.

Lin. syst. 600. Reich. 3. 273. suppl. 298. Hall. belv. n. 453. Villars dauph. 326. (Turritis).

A. stricta. Hudf. angl. 292. With. 702.

Cardamine pumila, &c. Raii syn. 300.

Leaves wedge-shaped, sub-lyrate, hispid; the stem-leaves half-stem-clasping, lanceolate; siliques stiff, ancipital.

8. *Arabis Halleri*. *Haller's Wall-cress*.

Lin. spec. 929. syst. 600. Reich. 3. 273. Hall. opusc. 101. t. 1. f. 1. Scop. carn. 2. n. 818.

t. 39. (Cardamine).

Stem-leaves sub-lyrate, those on the branches lanceolate, gashed.]

9. *Arabis canadensis*. *Canadian Wall-cress*.

Lin. spec. 929. Reich. 3. 273. Gron. virg. 100.

Eruca virginiana, &c. Pluk. alm. 136. t. 86. f. 8.

Stem-leaves lanceolate, toothed, smooth; flowers pendulous.

10. *Arabis pendula*. *Pendulous Wall-cress*.

Lin. spec. 930. syst. 600. Reich. 3. 273. Jacq. hort. 3. t. 34.

Leaves stem-clasping; siliques ancipital, linear; calyxes sub-pilose.

11. *Arabis Turrita*. *Tower Wall-cress*.

Lin. spec. 930. syst. 600. Reich. 3. 274. Jacq. vind. 118. austr. 1. p. 10. t. 11. Hudf. angl. 293. With. 703. Hall. belv. n. 444. Crantz.

austr. p. 39. t. 3. f. 2. Villars dauph. 320.

Mor. hist. f. 3. t. 2. f. 23. Ger. emac. 272. 2.

Park. 852. 2.

Leaves stem-clasping; siliques bending down, flat, linear; calyxes subrugose.

[12. *Arabis saxatilis*.

Allion. pedem. n. 973. Villars dauph. 319. 4. t. 37.

Stem erect, leaves stem-clasping lanceolate toothed, siliques the length of the raceme.

13. *Arabis scabra*.

Allion. pedem. n. 974. Hall. belv. n. 447. (Leucoium.) Segu. veron. 387.

Root-leaves roundish, scabrous, toothed, stem-leaves embracing hirsute.

14. *Arabis serpyllifolia*.

Villars dauph. 318. t. 37.

All the leaves elliptic, quite entire; stem flexuose.

15. *Arabis recta*.

Villars dauph. 319. t. 37.

Stem straight, leaves rectangularly toothed and sessile, siliques from erect spreading.]

DESCRIPTIONS, &c.

1. *Alpine Wall-Cress* is a perennial plant, increasing very fast by its creeping roots, which run obliquely near the surface, and send out fibres at every joint. The root-leaves are collected into heads, spreading circularly: they are oblong, whitish, and indented on their edges. From the middle of these heads arise the flowering stems, which grow near a foot high; with leaves on them placed alternately,

nately, broader at their base than those which grow below, and closely embracing the stem. The flowers grow in loose bunches towards the top: the petals are white, [obtuse and entire: the calyx is yellowish, shorter by one third than the corolla. This plant, in its wild state, the more open and airy its situation, the higher it grows, the more it branches, and the more hairy it becomes; in the shade it is almost smooth, quite creeping, with a single stem, the whole plant very pale, and drawn up^a.

Native of the Alps and other mountains of Europe, on rocks, in caverns and in woods.

It was cultivated in the botanic garden at Oxford, in 1658^b; and is now become very common in gardens; being increased with great facility, and esteemed for its very early flowering, and the pretty appearance it then makes in cold abject situations, where few other things will thrive. I gathered it on mount Saleve in Savoy, flowering in april.

2. Stem four inches high, quite simple, round, smooth. Leaves quite entire, and of some consistence; the bottom ones obovate, petioled, obtuse, those on the stem, alternate, embracing, cordate or cordate-oblong. Corymb terminating, becoming racemose. Calyx smooth, gaping. Petals almost erect, white, linear, entire, twice as long as the calyx, narrower at the base. Stamens the length of the petals. Stigma obtuse. It is a perennial plant; native of Hungary^c.

3. Stem erect, round. Root-leaves many, two inches long, lanceolate, cut beyond the middle like pinnate leaves with acuminate divisions, scabrous, ending in oblong petioles dilated at the base and membranaceous. Corymb terminating, flat, with alternate flowers on very short peduncles, the lower ones rather longer.

There is a variety with the leaves quite entire; and another with a white corolla. This is perennial, and native of Siberia^d.

4. Root-leaves oblong-ovate, petioled, commonly entire, but sometimes toothed, especially near the base, hairy, rough on both sides, with little prominent points. Stem-leaves sessile and toothed; the hairs at the base simple, at the edges and on the surface two-forked or three-forked. Stem upright, somewhat branched, round, crooked, covered with a bloom, hairy: the little branches alternate and drooping. Calyx slightly hairy. Petals white, twice the length of the calyx, entire and blunt. Silique half an inch long, containing several yellowish seeds. The glands are so minute as scarcely to be discerned with a common magnifier. This is an annual plant, varying much in size, from two inches to a foot and more. It grows frequently among the corn on sandy ground, and also on walls; flowers in march and april, and ripens its seed in may^e.

5. Root perennial, producing several stems and tufts of leaves, which are dark green, thickish, shining, sometimes quite smooth, sometimes rough with dots ending in a short hair. Stems undivided, round, smooth, generally bending, lengthened out gradually at top into a long raceme. Flowers corymbed, inodorous. Calyx greenish yellow, scarcely gibbous at the base. Petals white, twice as long as the calyx, either quite entire, or slightly emarginate, of an obovate form. Siliques parallel to the stem, upright, smooth, linear, compressed: the valves are not rolled back, but open at both ends, and fall off. Native of the foot of the Alps in Switzerland and Austria, in moist places^f. It flowers in may and june; and was introduced in 1773, by John Earl of Bute^g.

Jacquín describes (p. 44) and figures (t. 281.) a smaller alpine variety of this, under the name of *Arabis pumila*.]

6. Root annual. The flower-stalks rise near a foot high, and are terminated by white flowers. [Linneus observes, that this is of the size and habit of the fourth species, except that the root-leaves are

lyrate and smooth, and the flowers larger. Native of North America.

7. This resembles the fourth and sixth species, but the flowers are less, and the root perennial. The petals are white and erect. The stem is about four inches high, and erect. The root-leaves abundant, sublyrate, runcinate, hispid: one stem-leaf under each branch, small and lanceolate. Calyx almost closed^h.

Haller observes, that the corolla is much larger than in *Arabis thaliana*; that the calyx is not gibbous; that the glands form a kind of ring round the base of the filaments; that the siliques are vague, sometimes pendulous, two inches long; and that the seeds are compressed and yellow.

It is thus described by Mr. Hudson, who taking it for a new species, named it *Arabis stricta*.—

Root annual. Stems many, six inches high, upright, round, villose at the base, smooth above, simple. Root-leaves very many, toothed, and gash-toothed, hispid or hairy-scabrous, with long, white hairs. Stem-leaves three or four, toothed, hispid. Flowers in racemes, on short peduncles, large, white; petals obovate, quite entire, twice as long as the calyx. Siliques stiff, an inch and half long, quadrangular at the base, striated. Seeds roundish, brown.

Native of the south of France, Switzerland and Austria. Observed on Mont Saleve in Savoy, near Geneva, by Ray; and on St. Vincent's rocks, near Bristol, by Hudson and others; flowering in may.

8. Stem erect, six inches high. Root-leaves on long petioles, smooth, obtuse, repand, with a small tooth or two at bottom: stem-leaves simple, on short petioles, oblong, sinuate-toothed rather acute. Branches with few leaves and few flowers. Calyx greenish: petals white, with green claws. This has runners from the root and the base of the stemⁱ.

Native of Germany, Carniola, and Piedmont.

9. Stem erect, from a foot to two feet in height, smooth. Leaves broad-lanceolate, serrate with four or five small, thick, remote teeth on each side. Raceme terminating, naked; and from the upper axils two or three lateral racemes^k. Native of North America.

10. Stem near a foot high, rough with scattered, stiff hairs. Leaves rough: stem-leaves embracing, less than in the following species, serrate. Peduncles long, filiform, loose. Calyxes hirsute at the tips. Corollas white. Siliques smooth, nodding, loose^l. Native of Siberia. Cultivated in 1759, by Mr. Miller^m.

11. Root woody, marked annual by Hudson and Withering, but in reality biennial, as Mr. Relhan has marked it. Stem nine inches, or from one to two feet high, upright, round, striated, downy (or rather, hispid), generally simple. Leaves hairy on both sides: root-leaves petioled, oblong, thick, hispid, grayish, sharp at the end, toothed and waved at the edge: stem-leaves similar, stem-clasping, toothed, tomentose, regularly decreasing as they approach the top; upper ones more pointed, and rather serrate than toothed, not so gray. Flowers upright, white or pale yellow, on short peduncles. Style short, permanent. Glands within the shorter stamens, and on the outside of the longer ones, as in *Brassica*. Siliques very long, smooth, linear, compressed, on short fruit-stalks, rising at the base, and then bent downwards, forming an elegant curve. Seeds round, compressedⁿ.

It is thus described by Professor Jacquin. Root perennial, often producing several stems. Leaves lanceolate-oblong, thickish, somewhat tomentose, pale green, unequally toothed, somewhat waved about the edge, acute, the root-leaves and lowest stem-leaves narrowing into long petioles, the rest of the stem-leaves cordate at the base and stem-clasping. Stem round, scarcely angular, subtomentose and usually simple, terminated with few flowers

^a Villars. ^b Hort. kew. ^c Lin. suppl. ^d Lin. amæn.
^e Curtis. ^f Jacqu. austr. ^g Hort. kew.

^h Lin. syst. & suppl. ⁱ Scopoli. ^k Lin. spec. ^l Ibid.
^m Hort. kew. ⁿ Woodw. & Lyons M.S.

coming out together, and successively lengthened into a long fruit-bearing raceme. Leaflets of the calyx pale green, moderately prominent at the base, alternately broader, either quite smooth, or with very few hairs, having a transverse furrow or two, hence perhaps called wrinkled by Linneus. Petals oblong, white or pale yellow. Siliques brown, linear, blunt, compressed, often bowed, long and smooth, all when ripe bent down the same way. Seeds brown, flat, surrounded with a membranaceous wing, emarginate. It may be doubted whether this be different from *Arabis Pendula*; it grows on shady rocks, and begins to flower in April^o; with us in May and June.

Native of Austria, Switzerland, Dauphiné, &c. Observed by Professor John Martyn, before the year 1732 on a wall at Lewisham, in Kent; and on the walls of Trinity and St. John's colleges in Cambridge; on the latter of these it still grows abundantly. Also on Magdalen-college walls at Oxford.

12. Root annual, round, with very few fibres. The whole plant is hoary with soft hairs. Stem a palm or a palm and half in height, round, simple. Leaves crowded, upright, alternate, or rather without regular order, cased at the base, deeply toothed. Sometimes there are several stems from the same root. Umbel of flowers terminating, nodding. Lower peduncles longer. Calyx green, leaflets convergent, ovate-lanceolate: petals white, squarish, not emarginate, scarcely larger than the calyx. Stigma roundish, bifid. Siliques in short racemes, almost upright, and spreading, not pressed to the stem, flat, compressed, in such a manner however as to have a raised streak on each side; they are not beaked, and are of a shining green colour. Peduncles smooth, green, thickening^p.

According to Villars, the stem is from a foot to two feet in height, straight and firm, single at bottom, divided into two or three branches at top. Leaves all on the stem, elliptic, lanceolate or oblong, embracing the stem by two little ears rounded at the base, their edges almost parallel, toothed, ending obtusely, having a little projection in the middle, an inch and half in length, and half an inch or eight lines in breadth, green but beset with hairs which divide into two or three parts at the end. Each branch, when there are any, has a small leaf at its origin. Calyx somewhat hairy, equal and firm. Petals oblong, blunt. Siliques from an inch to two inches in length, thin, almost round, a little streaked, spreading almost at right angles. Peduncles two or three lines in length, preserving two glands at the end. The partition extends a line beyond the valves, and finishes in a blunt stigma. Seeds small, russet-coloured, oblong, flattened, irregular.

Native of the south of Europe, on rocks.

13. This has many things in common with the fifth sort. It is low, and the siliques are more dispersed. Leaves couchant, short, ovate, hairy, and exceedingly scabrous. Stem smooth, upright, seldom more than four, or at most six inches in height, not branched, having on it one or two ovate, lanceolate leaves. Flower larger than in the fifth sort: calyx white, coloured. Petals milky white, long-ovate, emarginate. Siliques broadish, bowed at the end, upright, parallel to the stem. Seeds compressed, surrounded with a leafy wing^q.

Native of the south of Europe.

14. Stems weak, filiform, bending and entangled one with another. Leaves small, sessile, beset with cloven hairs. Petals white, small, within a converging yellowish calyx. Siliques very thin, a little compressed. Seeds brown, a little lengthened out and flattened. Biennial. Native of Dauphiné^r.

15. This sort approaches near to the foregoing and to the first species, but the stem is constantly straight. The leaves are sessile, white with forked hairs, and the teeth are rectangular. Flowers white, smaller than those of *A. alpina*, in a calyx less-coloured. Annual or biennial. On walls and rocks about Grenoble^s.]

PROPAGATION AND CULTURE.

These are all hardy plants, and will thrive in any situation. They produce seeds in plenty, and may easily be propagated by them, either sown in the autumn, or permitted to scatter on the ground. The first sort is most known in the gardens, and multiplying fast by its creeping roots, few persons are at the trouble of sowing the seeds. It flowers early, and having many strong stems from one root, it makes a pretty variety in cold situations, where many finer plants will not thrive; and may have place in plantations of shrubs, where it will grow with little care.

ARABIS. See *Cardamine*.

ARACA-PUDA. See *Drosera*.

ARACH. See *Atriplex*.

ARACHIDNA. }

ARACHIDNOIDES. } See *Arachis*, *Glycine*, *Lathyrus*.

ARACHIS. (*Arachis* Theophr. *Ἀραχίς*, *Ἀραχίς*, *Ἀραχίς* and *Ἀραχίς*, names of a legume, in Galen and Theophrastus, derived from *ἀρά*, *damnum vel noxa*.)

Lin. gen. n. 876. Reich. 937. Schreb. 1177. Gærtn.

t. 144. Juss. 354.

Arachidna. Plum. 37.

Arachidnoides. Niff. aff. gall. 1723. t. 19.

Class. 17. 4. Diadelphia Decandria.

Nat. order of *Papilionaceæ* or *Leguminosæ*.

GENERIC CHARACTER.

CAL. Perianth two-parted, gaping; upper-lip ovate, semitrifid; the intermediate division rather larger, emarginate: under-lip lanceolate, concave, acute, rather longer.

COR. papilionaceous, resupine. Banner roundish, flat-deflex, very large, emarginate, longer than the calyx: wings free, subovate, shorter than the banner: keel subulate, incurved, the length of the calyx, very slightly bifid at the base.

STAM. Filaments ten, all united at bottom, subulate, the length of the keel: anthers alternately roundish and oblong.

PIST. Germ oblong: style subulate, the length of the germ, ascending: stigma simple.

PER. Legume ovate-oblong, columnar, valveless, gibbous, torulose, veined, coriaceous, one-celled.

SEEDS two, oblong, obtuse, gibbous, truncate at one end.

OBS. Most of the flowers are male, having a pistil without a germ.

ESSENTIAL CHARACTER.

Cal. bilabiate. Cor. resupine. Filaments connected, Legume gibbous, torulose, veined, coriaceous.

SPECIES.

1. *Arachis hypogæa*. Common Earth or Ground Nut. Lin. spec. 1040. Reich. 3. 438. hort. cliff. 353. upf. 228. Gærtn. fruct. 2. 303. Brown. jam. 295. Plum. gen. 49. Ebrēt pist. t. 3. f. 3. (Arachidna.) Marcgr. bras. 37. Raii hist. 919. n. 3. (Mundubi.)

α. *A. asiatica*. Lour. cochinch. 430. Rumph. amb. 4. 426. t. 156. f. 2. (Chamæbalanus.) Pluk. alm. t. 60. f. 2. (Senna.)

β. *A. africana*. Lour. cochinch. 430.

Stem herbaceous, procumbent.

[2. *Arachis fruticosa*. Shrubby Earth or Ground Nut. Retz. obs. 5. 26. n. 67.

Hedyfarum hamatum. Lin. syst. 674. Burm. zeyl. 226. t. 106. f. 2.

Stem shrubby, upright.

DESCRIPTION, &c.

1. Stem herbaceous annual, three feet high, round, very hairy, reddish, suberect, with diffused, procumbent branches. Leaves scattered petioled, abruptly pinnate; leaflets two pairs, ovate, hairy, quite entire, on short petioles. Stipules sharp, bifid, opposite, half-stem-clasping. Flowers gold-coloured, heaped, axillary, growing singly on very long, slender peduncles. Many of them are male, mixed with the hermaphrodites. The legumes contain three or four seeds. Native of the East-Indies, and cultivated very abundantly in China and Cochinchina.

β. The African Ground-Nut differs from the Asiatic, described above, in having the leaflets smooth,

^o Jacquin. ^p Allioni. ^q Haller. ^r Villars. ^s Ibid.

smooth, the stipules entire, the flowers usually in pairs on shorter peduncles, and only two or three seeds in each legume. This occurs in various parts of eastern Africa^a.]

All the European settlements in America now abound with the Ground-Nut, but it is generally supposed that it was originally brought by the slaves from Africa. In South Carolina there is great plenty of this plant; the inhabitants roast the nuts, as they are commonly called, and make use of them as Chocolate. [In the eastern countries they are a substitute for almonds. They abound in a thin limpid oil proper for lamps, and it is much used for this purpose in Cochinchina; it supplies the place also there of oil of olives for the use of the table, but is inferior to it in flavour^b.

The Ground-Nut was cultivated in the Chelsea garden, so long since as 1712^c.

2. The whole plant is viscid. Leaves like those of Myrtle, of different sizes, oblong, ternate, alternate or opposite, at the base of the petiole sheathing the stem, hirsute. Stems slender, many, filiform, seldom subdivided. At the ends of the branches are the flowers, collected into solitary heads with bractes under them; they are of a yellow colour^d. Native of the East-Indies, in Tranquebar and the island of Ceylon.]

PROPAGATION AND CULTURE.

The Ground-Nut multiplies very fast in hot countries. In England the seeds must be sown on a hot-bed in the spring, and the glasses must be kept over the plants till the middle or end of June; after which, if the weather prove warm, they may be exposed to the open air by degrees. The branches trail upon the ground, and as soon as the flower begins to decay, the germ thrusts itself under ground, and there the pod is formed and ripened.

ARACHIS. See *Glycine*.

ARACHUS. See *Ervum*.

ARACUS. See *Orobus*.

ARALIA.

Lin. gen. n. 386. *Reich.* 417. *Schreb.* 525.

Tournef. 154. *Juss.* 218.

Class. 5. 5. Pentandria Pentagynia.

Natural order of *Hederaceæ*.—*Araliæ* Juss.

GENERIC CHARACTER.

CAL. *Involucre* very small, of a globular umbellule.

Perianth five-toothed, very small, superior.

COR. *Petals* five, ovate, acute, sessile, reflex.

STAM. *Filaments* five, subulate, the length of the corolla: *anthers* roundish.

PIST. *Germ* roundish, inferior: *styles* very short, permanent: *stigmas* simple.

PER. *Berry* roundish, striated, crowned, five-celled.

SEEDS solitary, hard, oblong.

ESSENTIAL CHARACTER.

Flowers in an umbellule with an involucre. *Cal.* five-toothed, superior. *Cor.* five-petalled. *Berry* five-seeded.

SPECIES.

1. *Aralia spinosa*. *Thorny Aralia* or *Angelica-tree*.

Lin. spec. 392. *Reich.* 751. *Vir. cliff.* 26. *hort.*

cliff. 113. *Gron. virg.* 34. 48. 1.

Angelica arborescens, &c. *Comm. hort.* 1. p. 89.

t. 47. *Raii hist.* 1798.

Christophoriana arbor aculeata virginienfis. *Pluk. phyt.* 98. t. 20.

Arborescent, stem and leaves prickly.

[2. *Aralia pentaphylla*. *Five-leaved Aralia*.

Lin. syst. 300. *Thunb. jap.* 128.

Arboreous, prickly; leaves quinate.

3. *Aralia chinensis*. *Chinese Aralia*.

Lin. spec. 393. *Reich.* 752. *Loureiro cochinch.* 187.

Frutex aquosus mas. *Rumph. amb.* 4. p. 105. t. 44?

Nalugu. *Rheed. mal.* 2. p. 43. t. 26. *Raii hist.* 1635.

Shrubby; stem and petioles prickly; leaflets unarmed, villose.

4. *Aralia japonica*. *Japanese Aralia*.

Lin. syst. 300. *Thunb. jap.* 128. *Kämpf. ic. select.* t. 10. *Shrubby, leaves lobate.*]

5. *Aralia racemosa*. *Berry-bearing Aralia*.

Lin. spec. 393. *Reich.* 752. *Hort. upf.* 70. *cliff.* 113. *Cold. noveb.* 67.

Panaces carpimon, &c. *Corn. canad.* 74. t. 75.

Barr. ic. 705. *Raii hist.* 661. *Park. theat.* 950. 6.

Christophoriana canadensis, &c. *Mor. hist. f.* 1. t. 2. f. 9.

Stem leafy, herbaceous, smooth.

6. *Aralia nudicaulis*. *Naked-stalked Aralia*.

Lin. spec. 393. *syst.* 300. *Reich.* 752. *hort. cliff.*

113. *Gron. virg.* 34. 48. 2. *Cold. noveb.* 66.

Christophoriana virginiana, &c. *Pluk. alm.* 98. t. 238. f. 5.

Stem naked, leaves in pairs ternate.

[7. *Aralia cordata*. *Heart-leaved Aralia*.

Thunb. jap. 127. *Kämpf. amæn.* 5. p. 826.

Herbaceous; stem angular, unarmed; leaves simple heart-shaped.

8. *Aralia octophylla*. *Digitate-leaved Aralia*.

Lour. cochinch. 187.

Stem arboreous, unarmed; leaves digitate with eight leaflets; panicle umbelled.

9. *Aralia palmata*. *Palmate-leaved Aralia*.

Lour. cochinch. 187.

Stem scandent, prickly; leaves five-lobed; umbels simple, lateral.]

DESCRIPTIONS, &c.

1. This rises with a woody stem to the height of eight or ten feet, dividing into several branches, with branching leaves, composed of many divaricated wings, with oblong leaflets; the ribs of the leaves, as also the branches and stem, are armed with strong crooked spines, rendering the places where the plants grow in plenty very difficult to pass through. The flowers are produced in large loose umbels, at the extremities of the branches, and being of an herbaceous colour make no great figure. [The berry is three-cornered and three-celled^a.

Native of Virginia, whence it was sent to England by Banister, and was cultivated in 1688, by Bishop Compton, at Fulham. Mr. Ray also mentions, that there was then a tree of this species in the botanic garden at Chelsea, which was above the human stature, and thicker than a man's arm. It had not then flowered here^b.

2. Branches prickly, round, flexuose, smooth, ash-coloured. Prickles axillary, solitary, horizontal. Leaves from one bud to three, four or more, petioled; leaflets on very short petioles, ovate, acute, serrate at top, entire and drawn to a point at bottom, unarmed, smooth, the lower ones smaller, the middle one largest. Petioles linear, unarmed, streaked, smooth, loose, spreading. The flowers from buds among the leaves, in simple, peduncled umbels. Peduncles half the length of the petioles; pedicels many, capillary, spreading. Stamens longer than the corolla. Native of Japan, flowering in May and June^c.

3. Stem simple, very full of prickles, with leaves only at the top. Petioles compound, three-parted, prickly and villose. Partial leaves pinnate, and two leaflets besides at the branchings of the petiole. Leaflets ovate, serrate, villose especially beneath, twice as large as in the first species. Panicle branching, with numerous umbellules. It differs therefore from the first in having no prickles upon the ribs of the leaves, which are larger and not smooth. The habit also is different. It was found in China by Osbeck^d; also in Cochinchina by Loureiro; it is a native of Malabar, and of Amboina, if Rumphius's plant be the same. He speaks of it as a tree, growing to a large size in the woods: whereas Loureiro says that in Cochinchina, it is procumbent or scandent. He describes it at length, and remarks that it is very troublesome to travellers with its numerous crooked prickles, as it climbs in the hedges. According to him the corolla is white, twice as large as the calyx; style scarcely any, but five ob-

^a Loureiro. ^b Ibid. ^c Hort. kew. ^d Burm. zeyl.

^a Fabric. in Reich. syst. ^b Ray hist. ^c Thunberg. ^d Lin. spec. long,

long, reflex stigmas. Berry very black, five-furrowed, one-celled, with five seeds.

4. Stem unarmed, upright, six feet high. Leaves towards the top frequent, alternate, petioled, seven-lobed; the younger ones five-lobed; the older three or four times larger, with as many thick nerves as there are lobes, reticulate, green above, pale beneath; the lobes with rounded gashes, ferrate from the middle to the tip, sharp, a finger's length. Petioles round, fleshy, thick, broad at the base and stem-clasping, pale green, upright, the same length with the leaf. Bractes many, involving the whole panicle of flowers, ovate, acute, very concave, pubescent, deciduous, from half an inch to almost an inch in length, becoming gradually less upwards. Flowers in terminating, compound panicles, with alternate umbelled peduncles. Umbel simple, roundish. Pedicels almost equal. No involucre. Native of Japan; flowering in november and december^e.]

5. This grows three or four feet high, and divides into many irregular branches. Leaves ramose, alternate. Peduncles axillary, terminated by round umbels of small four-leaved flowers, of a whitish colour; succeeded by round channelled berries, which when ripe are black. It flowers in july, and the seeds ripen in october. [Native of Canada; where the berries are eaten, and both leaves and roots are used as salads and potherbs by the Indians and French^f.

6. Stem so very short as scarcely to be called any. Leaves decompose, with long petioles; leaflets pinnate with five ferrate pinnae. A scape arises between two leaves which is trifid or bears three umbellules^g.] It rises nearly to the same height as the former. The flower-stalks spring immediately from the root, and are terminated by round umbels of flowers, in shape and colour like the foregoing; but the berries are smaller. This flowers towards the end of july, and the seeds ripen late in the autumn. The roots were formerly brought over and sold for Sarsaparilla, and some of the inhabitants of Canada make use of it as such, but it is very different from the true sort. [Native of Virginia and Canada. Linneus says, there is one very like it, and perhaps the same, in Java.

This and the foregoing were cultivated by Mr. Miller, in 1731^h.

7. Stem suffruticose, ascending, villose, branching but little. Branches alternate. Leaves alternate, petioled, ovate, acute, toothed, rough on both sides, pale and ribbed beneath, unequal. Petioles shorter than the leaves. Flowers axillary, umbelled. Peduncles trichotomous. Both they and the pedicels tomentose. Styles five, divaricate. Native of Japanⁱ.

8. This is a tree ten feet in height, and spreading. Leaves on long petioles: leaflets oblong, obtuse, quite entire, smooth, unequal, disposed in a ring. Flowers yellow sprinkled with red, in a vast terminating panicle, ending in umbels. There is no involucre. Calyx truncate: petals oblong, spreading. Stigmas five, sessile. Berry small, ovate, containing five oblong seeds. Native of Cochinchina; where it is also cultivated, and used medicinally in dropical cases.

Near Canton in China there grows a variety, or perhaps a distinct species, perfectly resembling this in the stem, leaves, and habit of the flowers; but differing, in having ten stamens, and a ten-cleft stigma.

9. Stem shrubby. Leaves large, scattered, on long petioles. Flower white, without any involucre. Prickles on the stem bowed back, scattered; on the petioles and peduncles none. Native of China, but differing from *A. chinensis*, which has pinnate leaves, prickly petioles, and the flowers in a branched panicle. The bark of this is also used in the dropfy, and in cutaneous disorders^k.

Possibly some of the above species may, on more

accurate examination, be found to belong more properly to the genus *Hedera*, which in many respects is allied to this.]

PROPAGATION AND CULTURE.

1. This is propagated by seeds, which are easily procured from North America; but as they seldom arrive here till toward the spring, the plants never come up the first year: therefore when the seeds arrive, they should be sown in pots, filled with light earth, and placed in a shady situation, where they may remain until the next autumn, being careful to weed the pots constantly; otherwise if weeds are permitted to grow till they are large, they cannot be taken out, without drawing up the seeds with their roots. In the autumn, the pots should either be plunged into an old bed of tan, or planted in a warm border under the shelter of a hedge or wall; and if the winter proves severe, it will be proper to cover the pots with straw or peas-haulm, to prevent the frost from penetrating deep into the ground. In march the pots should be plunged into a moderate hot-bed, which will bring up the plants early, so that they will have more time to get strength before the following winter. When the plants come up, they should be frequently refreshed with water, and constantly kept clean from weeds: in may they should be inured to the open air, and when they are removed out of the bed, they should have a shady situation. These plants should not be disturbed the first season, but as they are often injured by frost when young, in october the pots should be placed under a frame, where they may be screened from hard frosts, but in mild weather they should be constantly opened to enjoy the free air. The leaves of these plants fall away in the autumn, so that some persons have supposed them dead, and have thrown them out of the pots. In the spring, before the plants begin to push, they should be carefully shaken out of the pots, and separated; part of them should be planted singly into small pots, and the other may be planted in a bed of light earth in a warm situation. If those which are planted in the small pots are plunged in a moderate hot-bed, it will greatly forward their growth; but they must be early inured to bear the open air, otherwise they will draw up weak. In the following summer they must have a shady situation, and the next winter should be sheltered again; the spring following they may be shaken out of the pots, and planted where they are designed to remain. Those plants which were planted in the bed, will require protection from the frost the first winter; but if the surface of the ground is covered with old tanners bark, it will prevent the frost from penetrating to their roots; and if in hard frosts, some straw, peas-haulm, or any light covering is laid over the bed, it will secure their stems from being injured. The plants in the bed may remain there two years, by which time they will be strong enough to transplant to the places where they are designed to grow. As these plants do not come out very early in the spring, they often continue growing pretty late in the autumn, which causes the extreme parts of their shoots to be very tender, whereby they often suffer from the early frosts in autumn, which frequently kill the upper parts of the shoots: but as their woody stems are seldom injured, they put out new branches below: and if in very severe winters the stems are destroyed, yet the roots will remain, and put out new ones the following summer.

This plant may also be propagated by its roots, for as they spread far in the ground, if they are laid open, and some of the strongest are separated from the plant and left in the ground, they will put out new stems and make new plants. Or if part of the roots are taken off and planted on a moderate hot-bed, they will push out stems in plenty, and may be thus increased with ease.

5, 6. Both these sorts are easily propagated by seeds, which are generally produced in plenty. These should be sown in the autumn soon after they are ripe, for those which are sown in the spring, never grow the same year, so that a whole season is gained

^e Thunberg.

^f Parkinson.

^g Lin. spec.

^h Hort. kew.

ⁱ Thunberg.

^k Loureiro.

gained by the sowing in autumn. When the plants appear, they must be kept clean from weeds during the summer; and in the autumn following, when their leaves decay, the roots may be taken up, and transplanted where they are to remain. They are very hardy plants, so may be planted in any situation; and as they grow naturally in woods, they may be planted in wilderness quarters, under trees, where, although they have no great beauty, yet they will add to the variety.

These two sorts may also be propagated by parting their roots; the best time for doing this is in the autumn, soon after their leaves decay. These should be planted pretty far asunder, for their roots spread to a considerable distance, where they are left undisturbed for some years.

ARALIA arborea & capitata. See *Hedera*.

ARALIASTRUM. See *Panax*.

ARAPABACA. See *Spigelia*.

ARATICU PONHE. See *Annona*.

ARBOR camphorifera. See *Laurus*.

— crepitans. See *Hura*.

— Judæ. See *Cercis*.

— vitæ. See *Thuya*.

ARBUTUS. (Latin: derivation uncertain.)

Lin. gen. n. 552. Reich. 596. Schreb. 750.

Gært. 59. Tournef. 368. Juss. 160.

Uva ursi. Tournef. 370.

Class. 10. 1. Decandria Monogynia.

Nat. order of *Bicornes*. *Ericæ* Juss.

GENERIC CHARACTER.

CAL. Perianth five-parted, obtuse, very small, permanent.

COR. monopetalous, ovate, flattish at the base, diaphanous, with a quinquefid mouth: divisions obtuse, revolute, small.

STAM. Filaments ten, subulate-swelling, very slender at the base, affixed to the edge of the base of the corolla, and half the length of it: anthers slightly bifid, nodding.

PIST. Germ subglobular, on a receptacle marked with ten dots: style cylindric, the length of the corolla: stigma thickish, obtuse.

PER. Berry roundish, five-celled.

SEEDS small, bony.

OBS. It approaches very nearly to *Vaccinium*, from which it is distinguished by a superior fruit.

Arbutus. Tournef. has many-seeded cells.

Uva ursi. Tournef. has one-seeded cells.

ESSENTIAL CHARACTER.

Cal. five-parted. Cor. ovate, diaphanous at the base. Caps. five-celled.

SPECIES.

1. *Arbutus Unedo*. Common Strawberry-tree.

Lin. spec. 366. syst. 407. Reich. 2. 297. hort. cliff. 163. Huds. angl. 177. With. 427. Mill. fig. t. 48. Gron. orient. n. 137. Hunt. Evel. sylva. 2. p. 81. Ger. 1310. 2. emac. 1496. Park. 1489.

n. 1. t. 1490. f. 1. Raii hist. 1576. Cam. epit. 168. Clus. hist. 1. 47. 2. Barrel. ic. t. 674.

α. *A. alba*. Common white-flowered Strawberry-tree.

Ait. hort. kew. 2. 71.

Flower simple, corollas whitish.

β. *A. rubra*. Red-flowered Strawberry-tree.

Ait. hort. kew. 2. 71.

Flower simple, corollas reddish.

γ. *A. plena*. Double-flowered Strawberry-tree.

Ait. hort. kew. 2. 71.

Flower full.

Stem arboreous, leaves oblong-lanceolate, panicles smooth, nodding.

[2. *Arbutus laurifolia*. Laurel-leaved Strawberry-tree.

Lin. syst. 407. suppl. 238.

Stem arborescent; leaves oblong, acuminate to both ends, sharply serrate, smooth; racemes axillary, one-ranked, sessile, solitary.]

3. *Arbutus Andrachne*. Oriental Strawberry-tree.

Lin. spec. 566. syst. 407. Reich. 2. 297. Ebrt.

act. ang. vol. 57. p. 114. t. 6. (very good.)

Andrachne theophrasti. Clus. hist. 1. p. 48. A-

drachne. Park. theat. 1490. f. 2.. Raii hist.

1577.

Stem arboreous; leaves oval, quite entire and serrate; panicles pubescent, erect.

[4. *Arbutus ferruginea*. Long-flowered Strawberry-tree.

Lin. syst. 408. suppl. 238.

Stem arborescent, leaves oblong, obtuse, smooth, quite entire, racemes terminal.

5. *Arbutus mucronata*. Pointed-leaved Strawberry-tree.

Lin. syst. 408. suppl. 239.

Stem shrubby; leaves alternate, ovate, serrate, pointed; peduncles axillary, one-flowered.

6. *Arbutus pumila*. Dwarf Strawberry-tree.

Lin. syst. 408. suppl. 239.

Stems diffused; leaves alternate, distich, oblong, quite entire; flowers lateral, solitary.]

7. *Arbutus acadiensis*. Acadian Strawberry-tree.

Lin. spec. 566. Reich. 2. 298.

Vitis idæa acadiensis, foliis alaterni. Tournef. inst. 608.

Stems procumbent; leaves ovate, subserrate; flowers scattered: berries many-seeded.

8. *Arbutus alpina*. Alpine Arbutus.

Lin. spec. 566. Reich. 2. 298. lapp. n. 161. suec.

n. 359. hort. cliff. 163. Huds. angl. 177. With.

427. Lightf. scot. 216. a, b. Hall. belv. n. 1019.

Fl. dan. t. 73. Villars dauph. 589. Ger. 1230. 4.

emac. 1417. 4. Park. 1456. 3. Bauh. hist. 1.

519. Clus. hist. 1. 61. Raii syn. 457. 4.

hist. 1488. 2.

Stems procumbent; leaves rugose, serrate.

9. *Arbutus Uva ursi*. Trailing Arbutus or Bear-berry.

Lin. spec. 566. syst. 408. Reich. 2. 298. lapp.

n. 162. t. 6. f. 3. suec. n. 358. mat. med. 115.

Woodv. med. bot. 194. t. 70. hort. cliff. 163.

Huds. angl. 177. With. 428. Lightf. scot.

216. c, d. Hall. belv. n. 1018. Fl. dan. t. 33.

Gmel. sib. 4. 118. n. 1. Scop. carn. n. 483.

Villars dauph. 590. Blackw. t. 592. Plenck.

ic. 340. Ger. 1230. 5. emac. 1416. 5. Park.

theat. 1457. 6. Bauh. hist. 1. 523. Clus.

hist. 1. 63. 2.

Stems procumbent, leaves quite entire.

[10. *Arbutus thymifolia*. Thyme-leaved Arbutus.

Ait. hort. kew. 2. 72.

Vaccinium hispidulum. Lin. spec. 500. (exclusis

synonymis Raii et Plukenetii.) Kalm. itin. 3. 37.

engl. edit. 2. 79. Mill. dict. n. 4.

Stems procumbent; leaves oval, acute, obscurely serrate, strigose underneath, flowers axillary, eight-

stamened.

DESCRIPTIONS, &c.

1. The Common Arbutus or Strawberry-tree rises to the height of twenty or thirty feet, but rarely with an upright stem. It usually puts out branches very near the ground. The leaves keep on all the winter, and are thrust off in the spring by new ones, so that it is always clothed with leaves^a. The berries have many seeds in them, and are roughened with the tubercles of the seeds^b.]

The Arbutus is now to be found in most of our plantations, and is one of their greatest ornaments in the months of october and november, that being the season when it is in flower, and the fruit of the former year is ripe; for that is a whole year in growing to perfection. When there is plenty both of fruit and flowers upon the trees, they make a handsome appearance, at a season when most others are past their beauty.

Those trees which have large oval fruit^c, make the greatest figure; the flowers of this being larger, and oblong. The variety with double flowers is a curiosity, but the flowers, having only two rows of petals, make no great appearance, nor do the trees produce fruit in any quantity; the other therefore is preferable. That with red flowers makes a pretty variety when intermixed with the other; for the outside of them is of a fine red colour, at their first appearance, and afterwards they change to purple

^a Mill. fig.

^b Linneus.

^c Mill. fig. t. 48. f. 1.

before

before they fall off. The fruit of this is the same with the common one. [Besides these principal varieties, the nurserymen have the curled-leaved or cut-leaved, and the smooth-leaved; they also distinguish the broad from the narrow-leaved.]

The Arbutus is a native of the south of Europe, Greece, Palestine, and many other parts of Asia. It is also found in the west of Ireland; in the county of Kerry; near the lake of Killarney; on barren limestone rocks. The country people eat the fruit there, in Spain, Italy, &c. Mr. Ray mentions, that he saw it in the market at Padua. It is said to have constituted part of the food of mankind in the early ages:

“Arbuteos foetus, montanaque fraga legebant.”

That it was not in any esteem among the ancients, we may suppose from the name *Unedo*, if Pliny's reason for that name be the true one: “cui nomen ex argumento fit unum tantum edendi.” Virgil recommends the twigs as food for goats in winter:

— “jubeo frondentia capris
“Arbuta sufficere.”

And for basket work:

“Arbutæ crates, & mystica vannus Jacchi.”

Horace celebrates the shade of it:

“Nunc viridi membra sub Arbuto
“Stratus.”

After all these quotations, I hope we shall no more have the classical ear wounded, by pronouncing the last syllable but one of *Arbutus* long.

This tree is in Greek named *Κομαρος*, and the fruit *Μυραικυλον*: in Latin *Arbutus*, and the fruit *Unedo*; in Italian *Arbuta*, *Albatro*, *Albaro*, *Corbezzolo*, and the fruit *Corbezzola*: in French *L'Arbousier commun*. The Greek name is almost preserved at Constantinople in *Komaria*.

2. This is very like the common Arbutus, but differs in its sharp cuspidate serratures, and its axillary, very simple racemes, shorter than the leaves, with the flowers all directed the same way. It is a native of North America^d.

3. This also much resembles the common *Arbutus*, but the bark is not rough; some of the leaves have no serratures; the panicle is upright and viscid, which in that is smooth^e.]

It grows to a middle-sized tree, with irregular branches. The leaves are smooth, large, somewhat like those of the Bay-tree, but not quite so long. Flowers like those of the common Arbutus, but growing thinly on the branches. Fruit oval, of the same colour and consistence with the common sort; but the seeds of this are flat, whereas in that they are pointed and angular.

It grows naturally in the east, particularly about Magnesia, where it is so plentiful, as to be the principal fuel used by the inhabitants. [Belon says, it is common in Crete, and between Aleppo and Antioch. Wheeler observed it near Athens, and saw the fruit in the market at Smyrna^f.

It is the *Αδραχυν* of Theophrastus, and is called *Αδραχλα* in modern Greek.]

Tournefort enumerates three other varieties of this tree, which he observed in the Levant, one with serrate leaves; a second with a large oblong fruit; and a third with large compressed fruit.

[It was cultivated in 1724, at Eltham, by James Sherard, M. D.; and flowers in march and april^g.

4. Branches angular, simple, smooth. Leaves alternate, petioled. Racemes axillary, terminating the branches, solitary. Pedicels branching, spreading, with two bractes in the middle, which are opposite, ovate and smooth. Flowers remote, nodding. Corolla longer than in the other sorts, almost like that of the Andromedas. Found in America, by Mutis^h.

^d Lin. suppl. ^e Lin. spec. & syst. ^f Ray hist. ^g Hort. kew.
^h Linn. suppl.

5. This is a very stiff shrub. Leaves on very short petioles, flat, stiff, the edge cartilaginous, with four serratures on each side, without veins. Buds in the axils, with very few, concave, imbricate scales, whence proceed single peduncles, having one nodding flower on them, and being sometimes scaly.

6. A very low shrub, with leaves extremely small, like those of *Empetrum*, very smooth above, keeled beneath. Peduncles from the scales of an axillary bud, naked, long, one-flowered. Flowers nodding. Both these were found in Terra del Fuego by Bäckⁱ.]

7. This is a low bushy shrub, with slender trailing branches; the flowers are axillary, and grow in thin loose bunches. It never produces fruit in England. It grows naturally in Acadia, and other northern parts of America, upon swampy land, which is frequently overflowed with water.

8. [The branches of this shrub trail flat upon the ground, two or three feet round the root, having a brown deciduous bark: the leaves grow alternate, and are of a long oval form, gradually diminishing towards the base into the petiole; they are wrinkled on the upper side through the depression of the veins, and reticulated underneath by their promiency; their edges are slightly ferrate, and their petioles have a few straggling hairs: the flowers grow in reflex clusters at the summits of the branches, each standing single upon a short peduncle: they are of an oval-conical form, and white colour, the rim divided into five short, obtuse, reflex segments: the berries are globular, sitting on a very small blood-red calyx, smooth, with a depressed umbilicus green at first, then red, but black when ripe, and of the size of a sloe, having five cells containing five small, bony seeds, their taste something resembling that of Black Currants^k; but more maukish, insomuch that Linneus says, the Laplanders will scarcely eat them^l. Haller on the contrary thinks the flavour not unpleasant:] and Mr. Miller describes them as of a pleasant taste, so as frequently to be eaten by the inhabitants of those countries where they grow naturally.

[Nothing is more common, says Linneus, in all the Lapland alps, in Dalekarlia, from their tops to their base, round the White Sea, especially in very dry sandy places. Also in Denmark, Switzerland, Dauphiné, Savoy, Siberia, &c. and with us, in many of the highland mountains of Scotland, in a dry barren soil. It flowers in may. Mr. Ray says, that Thomas Willifel showed it to him in Lancashire, where Merret had found it^m.

9. The branches trail upon the ground two or three feet round the root, or more: leaves alternate, bluntly oval or oblong wedge-shaped, with a net-work of veins underneath, and corresponding wrinkles above, firm and evergreen like those of Box: the flowers grow at the extremities of the branches in small clusters, each supported by a short red foot-stalk: they are of an oval-conical figure, flesh-coloured, or white with a red mouth, and divided into five obtuse, reflex segments at the rim: the berries are round with a depressed umbilicus, smooth and glossy, red when ripe, and of the size of a holly-berry, replete with an austere mealy pulp, in which are five cells, containing five angular seedsⁿ. The structure of the anthers, as given by Villars, is singular: they have two threads on their hinder part, and at top two pores by which the pollen escapes, and a bulb below each thread.

This shrub is very abundant in many parts of the continent, as in Sweden, Denmark, and most parts of the north: also in Switzerland, Germany, Carniola, Dauphiné, Savoy, Siberia, &c. With us it is of late discovery, and seems first to have been noticed by Mr. Lhwyd, in the island of Mull; it is however now known to be very common upon dry, heathy, mountainous, and rocky places, throughout

ⁱ Lin. suppl. ^k Lightfoot. ^l Lapp. & suec. ^m syn. 457.
ⁿ Lightfoot.

the highlands and western isles: also near Hexham in Northumberland°. It is called in English *Bear-berries* and *Bear Whortle-berries*, from the German *Barentraube* or *Barenbeere*; in Dutch *Beerendruif*; in French *la Bufferole*; in Italian *Uva d'orzo*; in Spanish *Uba de oso*; in Portuguese *Uva de urso*; and by most of the old botanists *Uva ursi*.

The leaves have been greatly celebrated in calculous and nephritic complaints, and other disorders of the urinary passages: the dose is half a drachm of the powder of the leaves, every morning, or two or three times a day. De Haen relates, after great experience of this medicine in the hospital of Vienna, that suppurations, though obstinate and of long continuance, in the kidneys, ureters, bladder, urethra, scrotum, and perinæum, where there has been no venereal taint or evident marks of a calculus, were in general completely cured by it: that of those who had a manifest calculus several found permanent relief, so that, long after the medicine had been left off, they continued free from pain or inconvenience in making water, though the catheter showed that the calculus still remained: that others, who seemed to be cured, relapsed on leaving off the medicine, were again relieved on repeating its use, and this for several times successively; while others obtained from it only temporary and precarious relief, the complaints being often as severe during the continuance of the medicine as when it was not used.—The trials of the *Uva Ursi* made in this country have by no means answered expectation°. Sometimes the patients found no relief, but thought their complaints rather aggravated than alleviated; whilst in other calculous and nephritic cases, the symptoms have been almost entirely removed. Perhaps upon the whole, we shall find it no better than other vegetable astringents; some of which have long been used by the country people, in gravelly complaints, and with very great advantage; though hitherto unnoticed by the regular practitioners¶.

But whatever may be the event of its medical qualities, the whole plant is certainly very serviceable in dying an ash-colour, but particularly in tanning leather. In this view it may deserve attention, in those countries where whole mountains are covered with this trailing shrub, and they have scarcely timber sufficient for their æconomical purposes. The berries are a food for grouse and other game.

10. This has the structure of *Vaccinium Oxycoccus* or Cranberry, but all the parts are larger. The stem is imbricate with bristle-shaped scales. Native of North America, in swamps*; and extremely abundant there. The berries are brought to market at Philadelphia, late in autumn; and are used for tarts and other kinds of pastry. Quantities of them are sent over, preserved, to Europe, and to the West Indies°. They are much used by our pastry-cooks in London, but are inferior to Cranberries of our own growth. The Swedes in America call them *Tranber*, and the French in Canada *Atopa*, from the Indians.

Introduced about 1776, by John Fothergill, M.D.†

PROPAGATION AND CULTURE.

1. The best method of propagating the common *Arbutus* is from seeds. When the fruit is perfectly ripe, which is from the middle of november to the end of december, it should be gathered, and mixed whole with dry sand, to preserve it until the time of sowing. The surest method of raising the plants, is to sow the seeds in pots, which should be plunged into an old bed of tanners bark, that has lost its heat, covering the bed with glassies, &c. to keep out frost; this should be done in december: if the seeds are good, and as the spring advances, the pots are refreshed with water, the plants will come up the beginning of april, when they should be frequently but sparingly watered, and constantly kept clean from weeds.

As the summer advances, if the plants are shaded in the heat of the day, it will greatly promote their growth; but in warm weather they must be open all night to receive the dew, and should only be covered in the middle of the day: with this management, the plants will rise to the height of five or six inches the first summer. The beginning of october, these plants may be shaken out of the pots, and their roots carefully separated, planting them singly in small pots filled with light earth; then plunge the roots into an old bed of tanners bark, under a common frame, observing to shade them from the sun in the middle of the day, and to give them water as they may require: in this bed the pots should remain during the winter, observing to expose the plants to the open air, at all times when the weather is favourable; but in frosty weather they must be covered, otherwise they will be in danger, if the season proves severe. The spring following the plants may be removed to a very gentle hot-bed, which will require no other covering but mats. This will enable them to make strong shoots early in the summer, whereby they will be in a better condition to bear the cold of the succeeding winter: in this bed the plants may continue most part of the summer, for if the pots are taken out and set upon the ground, the smallness of their size will occasion the earth in them to dry so fast, that watering will scarcely preserve the plants alive; but if they are kept growing all the summer, they will be more than a foot high by the next autumn: but it will be advisable to screen them from the frost during their continuance in pots, by plunging them into the ground in a warm place, and covering them with mats in bad weather.

When the plants are grown to be two or three feet high, you may shake them out of the pots, and plant them in the open ground in the places where they are to remain; but this should be done in april, that they may have taken good root before the winter, which would be apt to damage them if newly planted; and as all the earth about their roots may be thus preserved, there will be no fear of succeeding at this season.

These plants are tolerably hardy, and are seldom hurt, except in extreme hard winters, which many times kill the young and tender branches, but rarely destroy the roots; therefore, however dead they may appear after a hard winter, yet I would advise the letting them remain till the succeeding summer has sufficiently demonstrated what are living and what are dead; for the winters of 1728-9, and 1739-40, gave us great reason to believe most of the trees of this kind were destroyed; and many people were so hasty, as to dig up or cut down, many of their trees; whereas all those who had patience to let them remain, found that scarce one in five hundred failed to come out again the next summer, and many of them made handsome plants that season.

This tree delights in a moist soil, for when it is planted in dry ground, it seldom produces much fruit: the flowers coming forth in autumn, if the winter proves severe, are generally destroyed, which has occasioned their producing very little fruit in England for several years: therefore, in order to obtain fruit, the trees should be placed in a warm situation; and where the ground is not naturally moist, there should be a good quantity of loam and rotten neat's dung laid about their roots; and if the spring should prove dry, they must be plentifully watered, in order to have plenty of fruit.

The very best season for transplanting the *Arbutus* is in september, at which time the blossoms are beginning to appear; and at that season, if it should prove very dry and they are kept moist, they will take root very soon; but toward the beginning of november, their roots should be well covered with mulch, to keep out the frost.

[The following directions are added from Mr. Boucher's excellent treatise on Forest-trees.

The seeds ripening at different times must not be gathered all at once. Those fruits which are ripe may easily be known by their turning of a deep brownish

° Wallis. ¶ Hunter. ¶ Withering. ° Lin. spec. ° Kalm.
† Hort. kew.

brownish tawney colour; examine therefore your trees every two or three days. They retain their growing quality a very short time.—Sow the seeds rubbed out with the sand in pots the middle of march. If the quantity you intend to raise be large, prepare a moderate hot-bed of tanners-bark; lay on six inches deep of the finest rich loose mould, sow the seeds, and cover them not more than one-sixth of an inch deep. In five or six weeks the plants will appear.

The second spring, Mr. Boucher recommends to remove them into penny pots, which should be plunged into the hot-bed till august, hardening them gradually by exposing them to the open air in moist calm weather. Then they may be placed in a warm spot under a hedge, till october, where they may be exposed all the winter, mats only being thrown over them in bad weather. The following spring take out the surface mould, fill the pots again with rich earth, remove them to a shady border till autumn, watering them in dry weather every second or third evening; and then let them stand during winter under a wall or hedge, where they may have the sun.

Having now stood two seasons in the pots, shake them out cautiously, and cut off the mouldy or musty roots; plunge them in water and earth for an hour, and then place them in twopenny pots, where they may continue two or three years; keep them the first season under shade and shelter; water them in dry weather, and every spring take away the earth from the surface of the pots, and replace it with some which is fresh and rich.

Mr. B. says they require a generous dry soil, and that they should be planted under the covert of trees at a proper distance.

This tree is not fond of being much pruned at removal; this ought therefore to be performed a year before or after that operation. It will not succeed in moist, heavy, or clay lands, but will grow tolerably well in a thin sandy soil; it most affects that which is deep, loamy, and generous. It will rise thirty feet high, in a favourable soil and situation that is well sheltered *.]

3. The *Andrachne* may be propagated in the same manner as the common *Arbutus*; but as there are no plants in this country which produce fruit, the seeds must be procured from the Levant, where they may be had in plenty. As the leaves of this tree are larger than those of the common *Arbutus*, the trees make a finer appearance, therefore deserve our care to cultivate them, especially as they will bear the open air when the plants are become woody; for while they are young, they are impatient of much frost, therefore should be preserved in pots three or four years, till they have obtained strength, and may then be planted in a warm situation and on a dry soil, for this sort will not thrive in a wet ground.

7, 8, 9. It is with difficulty that these plants are kept alive in England, in gardens, for they grow naturally in cold situations, in boggy places, among moss, and are usually covered with snow during the winter. They may however be preserved a few years in pots, filled with bog earth, and set in water.

ARBUTUS, Trailing. See *Epigæa*.

ARCHANGEL. See *Lamium*.

——— Baum-leaved. See *Melittis*.

——— Yellow. See *Galeopsis*.

ARCHANGELICA. See *Angelica*.

ARCTIUM. (*Ἀρκίον*, *Diosc.* from *ἄρκτος*, a Bear. *Lappa*, from *λαμβάνειν*, to take hold, or *λαπτείν*, to lick. *Personata*, from its large leaves having been used for masks.)

Lin. gen. n. 923. *Reich.* 1002. *Schreb.* 1253.

Lappa Tournef. 256. *Vaill. æt. gall.* 1718. *f.* 20.

Juss. 173. *Gærtn. t.* 162.

Class. 19. 1. *Syngenesia Polygamia Æqualis*.

Nat. order of Compositæ Capitatæ. Cinarocephalæ,
Juss.

* Boucher.

GENERIC CHARACTER.

CAL. common globular, imbricate: scales lanceolate, ending in long, subulate prickles, reflex and hooked at the end.

COR. compound tubular, uniform: *corollules* hermaphrodite equal.—*Proper* monopetalous, tubular: tube slender, very long; limb ovate, quinquefid: divisions linear, equal.

STAM. Filaments five, capillary, very short: anther cylindric, tubular, the length of the corolla, five-toothed.

PIST. Germ oblong, with a villose top: style filiform, longer than the stamens: stigma bifid, reflex.

PER. none. Calyx converging.

SEEDS solitary, vertically pyramidal, with the two opposite angles obliterated, gibbous on the outside: down simple, shorter than the seed.

REC. chaffy, flat: chaffs setaceous.

ESSENTIAL CHARACTER.

Cal. globular: the scales furnished at the end with inflected hooks.

SPECIES.

1. *Arctium Lappa.* Common Burdock, Burr, or Clot-burr.

Lin. spec. 1143. *Reich.* 3. 667. *Juss.* n. 712. *mat. med.* 179. *Huds. angl.* 348. *Wither. arr.* 863. *Lightf. scot.* 445. *Curtis lond.* 4. 55. *Relb. cant.* n. 583. *Scop. carn.* n. 995. *Pollich pal.* n. 759. *Neck. gallob.* 339. *Krock. files.* n. 1322. *Villars dauph.* 37. *Fl. dan.* 642. *Matth.* 1154. *Lob. obs.* 318. 1, 2. *ic.* 1. 587. 2. & 588. 1. *Dod. pempt.* 38. *Fuchs. hist.* 72. *Bauh. hist.* 3. 570. *Trag.* 837. *Lonic.* 1. 64. 2. *Ger. herb.* 664. 1. *emac.* 809. 1. *Park. theat.* 1223. 1. *Petiv. brit. t.* 23. *f.* 1. *Mor. hist.* *f.* 7. *t.* 32. *f.* 1. *Blackw. herb. t.* 117. *f.* 1. *Raii hist.* 332. (*Bardana.*) *syn.* 196.

Lappa major. *Gærtn. fruct.* 2. 379. *Hall. helv.* n. 161.

L. officinalis. *Allion. pedem.* n. 528.

β. *Arctium tomentosum.* *Mill. dict.* n. 3.

Lappa tomentosa. *Allion. pedem.* n. 527.

L. major montana, capitulis tomentos. *Bauh. pin.* 198. *Mill. fig. t.* 159. *Blackw.* 117. 2. *Pet.* 23. 5. *Mor. f.* 2. *Matth.* 1155. *Ger. emac.* 810. *Park.* 1222. *Raii syn.* 197. *hist.* 332. 2. *Leaves cordate, unarmed, petioled.*

2. *Arctium Personata.* Cut-leaved Burdock.

Lin. spec. 1144. *syft.* 723. *Reich.* 3. 667. *Krock. files.* n. 1323. *Jacqu. vind.* 275. n. 75.

Carduus Personata. *Jacqu. austr.* 4. 25. *t.* 348. *Hall. helv.* n. 162. *ed.* 1. 678. *t.* 19. *Gmel. sib.* 2. 62. *t.* 24. *Bauh. pin.* 377. 2. *prodr.* 155. 1. *Leaves decurrent ciliate-spiny; root-leaves pinnate; stem-leaves oblong-ovate.*

[3. *Arctium Carduelis.*

Lin. syft. 723. *Reich.* 3. 668. *mant.* 108. *Krock. files.* n. 1324.

Cirsium arctioides. *Scop. carn.* n. 997. *t.* 53.

Leaves pinnatifid prickly.

DESCRIPTIONS, &c.

1. Root biennial. Stem upright, three feet high or more, the thickness of the thumb, branched quite to the bottom, round, grooved but not deeply, hoary and purplish. Leaves very large, alternate, whitish underneath, veined, the lower on long-petioles and waved at the edges, the upper ovate-lanceolate. Petioles angularly grooved and hoary. Both stems and leaves have short white soft bristles. Peduncles axillary. Heads of flowers upright, alternate. Calyx shining; outer scales hooked, inner linear with purple tops, simple, without hooks. Corolla purple, with a white tube: anthers blueish or violet-coloured: germ slightly three-cornered, white, bending inwards; style grooved on each side; stigmas spreading, white. Seeds oblong, tapering towards the base, crowned with small prominent points, flattened, somewhat angular, with a wrinkled netted surface. Down obsolete, somewhat stiff.

* Curtis, With. Woodw. M. S.

Burdock is very common by road sides, on rubbish and on ditch banks throughout Europe, flowering in July and August. It is no less common in Japan; where it is called *Gobo* and *Uma Bufuki*. In England it is commonly known by the name of *Burr*, either simply, or with some prefix, as *Great-burr*, *Clot-burr*, and *Hurr-burr*: the usual name in books is *Burdock*. In German, it is called *Gemeine Klette*; in Dutch, *Gemeene Kliffen*; in Danish *Agerburre*; in Swedish, *Karborre*; in French, *Bardane* or *Glouteron*; in Italian, *Lappolo* or *Bardana*; in Spanish, *Lampazo* or *Bardana*; in Portuguese, *Lappa*, *Arcio*, or *Pegamaca*; in Russian, *Lapushnik* or *Repeinik*.

Few quadrupeds, except the ass, touch this plant with us. According to Linneus, cows and goats only eat it; and Dr. Stokes adds, that a horse eat the leaves, and even the heads. Birds feed on the seeds; and snails, slugs and some caterpillars on the leaves. Boys catch bats, by throwing the prickly heads up into the air. The stems, stripped of their rind, before the flowers appear, are eatable, either boiled, or raw with oil and vinegar. A decoction of the roots is esteemed by some very sensible physicians, as equal, if not superior to that of *Sarsaparilla*. Two ounces of the dried root are boiled in three pints of water, till one pint is wasted, and a pint or more of the strained liquor taken warm every day.

The herb being burnt green, between the time of flowering and feeding, in a hole made in the ground, without suffering the flame to escape; three pounds of the ashes produced sixteen ounces of very white alkaline salt, as good as the best pot-ash.

There are many varieties of this common plant, differing in colour, and the size and smoothness or woollyness of the heads. The most remarkable of these, is the Woolly-headed Burdock, which Mr. Miller has figured in his plates; and which he looks upon as a distinct sort, because the leaves are whiter beneath, the heads more compact, and the florets of a bright red colour; but principally, because the calyx is beautifully netted with a fine down all over.

2. [Root biennial, black, woody. Stem from half a yard to a yard in height, branched, thick, angular, leafy. Stem-leaves tomentose beneath, serrate, with little spines on and between the serratures: these leaves, though attenuated at the base, are decurrent by very slender, spiny edges. The lower leaves are petioled, and have three or four pairs of pinnae, with a very large leaf at the end; the pinnae are a span or more in length, and half a span in breadth, all angular backwards; the upper leaves are six or seven inches long, and four or five broad, acuminate, sessile, alternate, unequally serrate; the uppermost very small. Flowers terminating, in bunches, sessile, two, three or four, sometimes seven, on tomentose peduncles, armed with little spines on the edge. The scales of the calyx are not hooked, as they are in the common Burdock, but only reflex at the point, as in many Thistles; whence Jacquin and others have placed it in that genus: but Linneus observes, that the habit of the common Burdock appears clearly in the texture of the leaves, the panicle, the form and size of the calyx. Florets six or seven in number, of a violet-purple colour. Seeds streaked, not grooved, brownish, oblong. Down sessile, much longer than the seed, capillary.

Native of Switzerland, Austria, Silesia and Siberia; flowering in July and August. Introduced here in 1776, by Jos. Nich. de Jacquin, M.D.

3. This is the size of the Way-thistle (*Serratula arvensis*). Stem upright, prickly. Leaves stem-clasping, lacinate. Calyxes terminating, peduncled; with linear bristle-shaped scales, spreading and bending inwards.

It is thus described by Scopoli, the first disco-

• Withering, Lightf. Bryant, fl. dietet. 55. • Withering.
• Lewis art. Bardana. • Krock. • Linn. spec. • Krock.
• Haller. • Linn. • Haller. • Krock. • Hort. kew.
• Lin. mant.

verer. Root perennial, fibrous, brown. Stems many, upright, a cubit high, grooved, branched, subhirsute, viscid, winged with the decurrent leaves. Lower leaves half a foot long, all cut almost to the midrib into alternate, lanceolate, loosely toothed segments; the teeth and the whole edge having soft spines on them: they are smooth above, shining and nerved beneath; the midrib subhirsute. The heads of flowers terminating the stem and branches are spherical, half an inch in diameter, composed of imbricate, linear scales, spreading open a little, not bent back but inwards at the tip. Filaments hairy and broader at the base. Anthers yellow. Style white. Stigmas greenish.

Native of the mountains in Upper Carniola, and in Silesia.

PROPAGATION AND CULTURE.

These plants may readily be increased from seed, and are seldom admitted into any but botanic gardens. The first sort is much propagated by sheep carrying about the hooked seeds in their fleeces, and probably also by small birds. Where it is a troublesome weed, it may be destroyed with less trouble than such plants as have perennial roots; and if it be cut up before it seeds, in two or three years it may be entirely rooted out; for the plants which come up from seed, do not flower till the second year, and when the seeds are perfected their roots decay.

ARCTÖPUS. (*Ἀρκτου πους*, Bear's-foot.)

Lin. gen. n. 1165. Reich. 1278. Schreb. 1601.

Juss. 225.

Class. 23. 3. Polygamia Dioecia.

Nat. order of *Umbellatae* or *Umbelliferae*.

GENERIC CHARACTER.

* Male.

CAL. *Umbel* universal long, unequal—partial shorter, more abundant.

Involucre universal five-leaved, short—partial five-leaved, the length of the umbellule.

Perianth five-parted, very small.

COR. *universal*, uniform: *proper* petals five, entire, oblong.

STAM. *Filaments* five, setaceous, longer than the corolla: *anthers* simple.

PIST. *Germ* none: *styles* two, setaceous, longer than the stamens: *stigmas* simple.

PER. abortive.

* Female (or Androgynous) on a distinct plant.

CAL. *Umbel* partial with sessile floscules.

Involucre partial one-leaved, four-parted, spreading, spiny at the edge, many-flowered, very large.

COR. *proper* of the disk male, several, as in the male—of the ray female, four, pentapetalous.

STAM. to the males of the disk, as in the male.

PIST. to the females. *Germ* subulate, hispid, under the receptacle of the floscule: *styles* two, reflex, permanent: *stigmas* simple.

PER. none. *Involucre* converging with spines.

SEEDS to the females solitary, cordate, acuminate, bent outward, hispid above, bilocular, the size of the involucre.

ESSENTIAL CHARACTER.

MALE. *Umbel* compound. *Invol.* five-leaved. *Cor.* five-petalled. *Stam.* five. *Pist.* two, abortive.

ANDROG. *Umbel* simple. *Invol.* four-parted, spiny, very large, containing very many male floscules in the disk, and four female ones in the ray.

Male. *Pet.* five. *Stam.* five.

Fem. *Pet.* five. *Styles* two. *Seed* one, bilocular, inferior.

SPECIES.

1. *Arctopus echinatus*. *Prickly-leaved Arctopus*.

Lin. spec. 1512. Reich. 4. 360. hort. cliff. 495.

Burm. afr. t. 1.

Valerianoides, &c. Pluk. mant. t. 271. f. 5.

DESCRIPTION, &c.

A handsome plant, from the Cape of Good Hope. Introduced in 1774, by Mr. Francis Masson. It has the habit of *Eryngo*. The leaves are

• Hort. kew.

crowded,

crowded, sinuate and ciliate, with spines on the upper surface disposed starwise at the sinuses; flowers terminating, among the leaves^b.

ARCTOSTAPHYLOS. See *Vaccinium*.

ARCTOTHECA. See *Gorteria*, and *Arctotis*.

ARCTOTIS. (From *ἄρκτος*, a bear; on account of its shaggynefs.)

Lin. gen. n. 991. *Reich.* 1074. *Schreb.* 1340.

Gärtn. t. 172. *Juss.* 190. *Arctotheca. Vaill.*

act. gall. 1720. *f.* 39, 40. *Anemonospermus.*

Comm. H. A. 2. *p.* 45. *Ursinia, Gärtn. t.* 174.

Class. 19. 4. *Syngenesia Polygamia Neceffaria.*

Natural order of compound flowers. *Corymbifera* *Juss.*

GENERIC CHARACTER.

CAL. common roundish, imbricate: lower scales more lax, subulate: middle ovate: inmost oblong; scariose, rounded and concave at the end.

COR. compound radiate: corollules hermaphrodite very many, in the disk. Females ligulate, near twenty, longer than the diameter of the disk. Proper of the hermaphrodites funnel-shaped; border quinquefid; ends reflex, equal:—of the females ligulate, lanceolate, very finely three-toothed; tube very short.

STAM. of the hermaphrodites—filaments five, capillary, very short: anther cylindric, tubular, five-toothed, the length of the corolla.

PIST. of the hermaphrodites—germ scarcely visible: style cylindric, a little longer than the corolla: stigma simple:—of the females, germ ovate-four-cornered, villose, crowned with its proper calycle: style filiform: stigmas ovate-oblong, thickish, erect.

PER. none. Calyx unchanged.

SEEDS in the hermaphrodites none—in the females, solitary, roundish, villose, crowned with a calycle usually of five leaves: leaflets ovate spreading.

REC. villose or chaffy, flattish.

OBS. A singular genus, having in some species the female floscules of the ray barren, of the disk fertile; in others, the female floscules of the ray fertile, of the disk barren.—Number of leaflets in the calycle varying from four to eight.

ESSENTIAL CHARACTER.

Rec. villose or chaffy. Down with a five-leaved crown.

Cal. imbricate, with scales scariose at the end.

SPECIES.

* *Receptacle villose.*

1. *Arctotis calendulacea.* Marygold-flowered *Arctotis*.

Lin. syst. 791. *Reich.* 3. 926.

α. *A. Calendula.*

Lin. spec. 1306. *Herm. lugdb. t.* 42.

Radiant florets twelve-fold, nearly entire.

β. *A. hypochondriaca.*

Lin. syst. 791.

A. tristis. *Lin. spec.* 1306. *Mill. dict. n.* 1.

A. sulphurea. *Gärtn. fruct.* 2. 439?

Radiant florets trifid, the middle inflected.

[γ. *A. tristis.*

Lin. mant. 479. *Berg. cap.* 320. *Comm. var.* 1. 36.

Radiant florets four-parted.

δ. *A. coruscans.* *Lin. syst.* 791.

Radiant florets three-parted: the exterior one trifid.

ε. *A. superba.*

Lin. spec. 1305. *Amen.* 4. 331.

Radiant florets five-parted.

Radiant florets barren: leaves runcinate rather tomentose.

2. *Arctotis ferrata.*

Lin. syst. 791. *suppl.* 385.

Radiant florets barren; leaves lanceolate, undivided, tooth-ferrate.

3. *Arctotis tenuifolia.*

Lin. syst. 791. *suppl.* 385.

Radiant florets barren; leaves linear, undivided, naked.

4. *Arctotis grandiflora.* Great-flowered *Arctotis*.

Ait. hort. kew. 3. 272.

Radiant florets fertile; leaves pinnatifid, toothletted, cobwebbed, three-nerved.]

^b *Jussieu.*

5. *Arctotis plantaginea.* Plantain-leaved *Arctotis*.

Lin. spec. 1306. *Reich.* 3. 927.

Radiant florets fertile; leaves lanceolate-ovate, nerved, toothletted, stem-clasping.

[6. *Arctotis argentea.* Silvery *Arctotis*.

Ait. hort. kew. 3. 273.

Radiant florets fertile; leaves lanceolate-linear, quite entire, tomentose.]

7. *Arctotis angustifolia.*

Lin. spec. 1306. *Reich.* 3. 928. *hort. cliff.* 412.

A. radicans. *Lin. mant.* 2. 479.

β. *A. spontanea.*

Lin. syst. 792. *mant.* 479.

Leaves oblong, toothed.

Radiant florets fertile, stems creeping, cobweb-like, leaves lyrate with two teeth on each side.

8. *Arctotis aspera.* Rough *Arctotis*.

Lin. spec. 1307. *syst.* 792. *Reich.* 3. 928. *hort.*

cliff. 412. *ups.* 275. *mant.* 480. *Berg. cap.* 315.

Vaill. act. par. 1720. *p.* 428. (*Arctotheca*.)

α. *Anemonospermus africana.* Broad-leaved rough *Arctotis*.

Commel. hort. 2. *p.* 43. *t.* 22.

A. undulata. *Berg. cap.* 315. *Gärtn. fruct.* 2. 438.

β. *Anemonospermus*, &c. flore aurantio pulcherrimo.

Narrow-leaved Rough *Arctotis*.

Boerb. lugdb. 1. *t.* 100.

Radiant florets fertile; leaves pinnate-sinuate, villose, divisions oblong, toothed.

** *Receptacle chaffy.*

[9. *Arctotis paradoxa.* Chamomile-leaved *Arctotis*.

Lin. spec. 1307. *Reich.* 3. 929. *Amen.* 4. 330.

Pluk. phyt. 312. *f.* 5.

Ursinia paradoxa. *Gärtn. fruct.* 2. 462.

Radiant florets barren; chaffs coloured, longer than the disk; leaves bipinnate, linear.

10. *Arctotis scariofa.* Southernwood-leaved *Arctotis*.

Ait. hort. kew. 3. 274.

Radiant florets barren; chaffs equalling the florets of the disk; leaves decom-pound.]

11. *Arctotis paleacea.* Chaffy *Arctotis*.

Lin. spec. 1307. *Reich.* 3. 929. *amen.* 6. *afr.* 84.

Mill. fig. t. 49.

Aster, &c. *Burm. afr.* 176. *t.* 65. *f.* 1.

Radiant florets barren, chaffs equalling the florets of the disk; leaves pinnate, linear.

[12. *Arctotis dentata.* Fine-leaved *Arctotis*.

Lin. spec. 1307. *syst.* 792. *Reich.* 3. 929.

A. pilifera. *Berg. cap.* 325.

Chrysanthemum. *Pluk. alm.* 103. *t.* 276. *f.* 2.

Burm. afr. 175. *t.* 64.

Radiant florets barren; leaves pinnate, pinnae pinnatifid-indent.

13. *Arctotis anthemoides.*

Lin. spec. 1307. *syst.* 792. *Reich.* 3. 929. *amen.* 6.

afr. 85. *Berg. cap.* 324.

Chamæmelum. *Burm. afr.* 174. *t.* 63. *f.* 2.

Chaffs shorter than the florets; leaves supra-decom-pound, linear.

14. *Arctotis tenuifolia.*

Lin. syst. 792. *Reich.* 3. 930. *mant.* 288.

Radiant florets barren? leaves linear, undivided, smooth.]

15. *Arctotis acaulis.* Dwarf *Arctotis*.

Lin. spec. 1306. *Reich.* 3. 930.

Anemonospermus. *Comm. var.* 1. 35.

Peduncles radical, leaves lyrate.

DESCRIPTIONS, &c.

[1. α. Peduncles villose, beset with red bristles, before and after flowering time nodding. Ray yellow, purplish underneath, twisted during the night. The corollules of the disk black on the outside, and with black anthers. The outer scales of the calyx spreading, subulate, very short, hispid^a. Cultivated in 1752, by Mr. Miller^b.

β. If this be the same with *A. sulphurea* of Gärtn. the seed is woolly, inversely pyramidal, obscurely four-cornered, brown. Wings of the back coriaceous, pale, cartilaginous-toothletted, recurved, but not touching each other; whence the spurious

^a *Lin. spec.*

^b *Hort. kew.*

cells are incomplete, and the middle groove of the back naked. The down has four larger, ovate-acuminate upright chaffs, and four intermediate caducous ones^c.

γ. Stems spreading, hirsute. Leaves runcinate, thickish, brittle, the serratures with irregular little prickles, pubescent, beneath white. Peduncles long, striated, hairy, floccose. Calyxes, before the flowers open, nodding: with the scales villose-ciliate at the tip. Disk black, with yellow florets, black at top. Ray with four or five-parted yellow florets, lead-coloured beneath; the middle division divaricate, defending the disk^d. Gærtner remarks, that in all the genuine species of *Arctotis*, which he examined in the immense herbarium belonging to Sir Joseph Banks, he found the seeds or ovaries constantly false-three-celled, except in *A. trifida*.

δ. Of this variety we have no description.

ε. Peduncles villose, with hyaline bristles, decumbent in the night, but never nodding. The ray greenish underneath, converging during the night. The corollules of the disk yellow, with yellow anthers^e.

These are all annual. They are natives of the Cape of Good Hope, as are also the other species.

2. Stems upright, simple, woody, subpubescent. Leaves sessile, not tomentose or white, scarcely pubescent, somewhat crowded. Peduncles terminating, many very long. Calyx scariose, yellow. Corollas yellow. Crown of the seeds white^f.

3. Stems herbaceous, few, not much branched. Leaves filiform or linear, rather fleshy, naked. Peduncles very long, solitary, naked, filiform. Bracte minute, filiform. Calyx imbricate, scariose above. Ray yellow. Perennial^g.

4. Ray very large. Petals straw-coloured, with a tinge of red underneath, yellowish above near the base, with a very dark purple mouth. Biennial. It flowers from march to may; was found by Masson, and introduced in 1774^h.

5. Leaves tomentose underneath. Disk barren. Perennialⁱ. It flowers from june to august, and was cultivated by Mr. Miller, in 1768^k.

6. Flowers yellow, showing themselves in august. Plant biennial. Found by Masson, and introduced in 1774^l.

7. Florets of the disk barren. Receptacle very woolly^m.

β. The whole plant white, very branching, prostrate, brittle, rooting. Leaves petioled, lyrate with two teeth on each side, obovate, rather obtuse, three-nerved, white on both sides, with the edge scarcely toothletted. Peduncles very long, almost naked. Ray of the corolla purple. It varies with leaves scarcely broader than those of *Lavender*ⁿ.

8. Stem stiff, perennial, villose with purple streaks. Leaves white underneath. Corollas of the ray yellow with red streaks beneath, fertile; those of the disk barren^o.

β. Has large, handsome, orange-coloured flowers; displaying themselves from july to september. It was cultivated in 1731, by Mr. Miller^p.

Receptacle flat, alveolate, having hairs the length of the seeds on the edges of the cells: so that, if it be viewed obliquely, the whole receptacle seems to be villose. Seeds uniform, covered with a close white lanugo, inversely conical, gibbous, with two wings reflected to the back, and touching each other in such a manner, that if the seed be cut transversely three cells appear, the two dorsal ones empty, but having a seed in the ventral one. Outer covering somewhat crustaceous, hard, dark chestnut colour, falsely three-celled; inner membranaceous, very thin, involving the embryo; which is obovate, compressed and whitish^q.

9. Chaffs elongate, coloured, almost the length of the ray; whence the flower has the appearance of a double one^r.

According to Gærtner, they are scariose, pale

yellow, rolled up into pipes, embracing the florets of the disk, quite entire on one side, opening with a longitudinal fissure on the other, finely notched or toothletted at the tip. Seeds inversely conical, curved a little, streaked, smooth, pale white, one-celled. Down compound; outer five-leaved, leaflets roundish, scariose, snow-white, half as long again as the seeds, rolled about the floret before it opens and concealing it; inner bristle-shaped, with five rays connate at the base, only about half the length of the other.

On account of this difference in the down, Gærtner has placed this species, with the twelfth and thirteenth, in a new genus, which he has entitled *Urfinia*; and he thinks it probable that all the species of the second division, with chaffy receptacles, may be of the same genus: they should be examined therefore, in order to see whether they have this double Pappus or down.

A. paradoxa is biennial, flowers in august, and was introduced in 1774, by Masson^s.

10. Stem shrubby. All the calycine leaflets obtuse scariose screw-shaped squarrose spreading; whereas in the species next following the inner scales only are scariose and obtuse, the outer ones being lanceolate and somewhat succulent. It flowers from april to august; and was introduced in 1774, by Masson^t.

11. Stem shrubby, branching; peduncles axillary, long; with few, linear, very simple leaves: calyx and corolla yellow, like a *Chrysanthemum*: ray simple, barren^u. It flowers from april to august; and was cultivated by Mr. Miller, in 1768^x.

12. Stem branching. Leaves alternate, somewhat rigid and villose; the pinnae recurved. Peduncles long, one-flowered. Flowers small, with the ray purple beneath^y. It is annual, flowers in july, and was introduced by Mr. Haneman, in 1787^z.

13. The plant and leaves very like *Chamomile*; but the structure of the flower as in this genus. Ray barren, violet-coloured^{aa}.

14. Stem branching, brownish, smooth. Leaves linear, filiform, rather fleshy, smooth, the length of the finger. Peduncles very long, one-flowered. Calyx hemispherical, smooth, with the inner scales scariose and white. Corolla all yellow^{bb}.

15. This is a low plant, the flower-stem rarely exceeding six inches in height; but the flowers, which are yellow, are large and fine. They come out in april and continue to july. It was cultivated in 1759, by Mr. Miller^{cc}.]

PROPAGATION AND CULTURE.

These plants are all natives of the Cape of Good Hope. The annual sorts may be raised from seed sown in the spring, either in a warm border of light earth, about the middle of april, or in a moderate hot-bed, towards the end of march. In favourable seasons the former will be the strongest plants; but in cold seasons they will seldom ripen their seeds. The latter must be transplanted, when they are fit, into pots; and as soon as they are well rooted, inured by degrees to the open air. They require much water in dry weather; and the roots will push through the hole of the pots, if they stand long unremoved. If they are kept in the house, and drawn weak, they never produce good seeds.

They may also be propagated by cuttings or slips from the roots.

The shrubby sorts are propagated by planting cuttings in a bed of light fresh earth, in any of the summer months, observing to shade them from the heat of the sun until they have taken root, as also to refresh them often with water; and in six weeks after planting, they will be rooted sufficiently, at which time they should be transplanted into pots filled with fresh earth, setting the pots in a shady place until the plants are new rooted; after which time they should be placed in the open air until the latter end of october, or later, according as the wea-

^c Gærtner. ^d Lin. mant. ^e Lin. spec. ^f Lin. suppl. ^g Ibid. ^h Hort. kew. ⁱ Lin. spec. ^k Hort. kew. ^l Ibid. ^m Lin. spec. ⁿ Lin. mant. ^o Lin. mant. & spec. ^p Hort. kew. ^q Gærtner. ^r Lin. spec.

^s Hort. kew. ^t Ibid. ^u Lin. amæn. ^x Hort. kew. ^y Lin. amæn. ^z Hort. kew. ^{aa} Lin. amæn. & syst. ^{bb} Lin. mant. ^{cc} Hort. kew.

ther is favourable, when they must be removed into the green-house, where they should be placed as near the window as possible, that they may have a good quantity of free air at all times, when the weather is mild; nor should they be over-hung by other plants, which would occasion them to take a mouldiness, and rot; they must also be frequently refreshed with water, giving it them plentifully in mild weather, otherwise their leaves and branches will hang and wither; in summer they can scarce have too much water given them. They will also require to be shifted into other pots two or three times at least every summer, and the pots should be frequently removed, to prevent the plants from striking their roots through the holes of the pots into the ground, which they are very apt to do, then they will shoot very vigorously: but when these roots are torn off, by removing the pots, the plants are often killed.

All these plants should be frequently renewed by cuttings, because the old plants are subject to decay in winter; therefore if young plants are not annually raised, the species may soon be lost.

If the green-house in which these plants are placed in winter is subject to damps, it will be very difficult to preserve some of the sorts; for when the windows are kept close, the tender parts of their shoots are very subject to a mouldiness, which will soon cause the plants to decay, if it is not constantly cleaned off, and free air admitted to dry off the damps.

Several of these grow to the height of four or five feet; and as they send forth many branches, they require to be frequently pruned, to keep them in order.

They are seldom destitute of flowers, unless the winter be severe; on which account they are very valuable. In that season they make a fine variety in the green-house or cape-stove; and when set abroad in summer, they produce flowers in great abundance.

ARCTOTIS. See *Gorteria*.

ARCTURUS. See *Celsia*.

ARCUATION. See *Layers* and *Laying*.

[ARDISIA.

Lin. gen. Schreb. n. 1735. Swartz. prodr. 48.

Aust. D. D. Swartz. Aiton. kew. 3. p. 507.—

Anguillaria. Lin. gen. Schreb. n. 345. p. 823.

Gertn. t. 77. Badula. Juss. 420.

Class. 5. 1. Pentandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth one-leafed, five-cleft: clefts subulate, upright, coloured, permanent.

COR. one-petalled. Tube short, length of the calyx. Border five-parted: parts lanceolate, acute, spreading, at length reflex.

STAM. Filaments five, subulate, upright. Anthers acute, upright, bifid at the base, converging at top round the style.

PIST. Germ superior, ovate, very small. Style subulate, longer than the stamens, upright, at length ascending. Stigma simple, acute, permanent.

PER. Berry roundish, large.

SEED single, roundish, covered with a hard, brittle bark, like a nut.

ESSENTIAL CHARACTER.

Cal. five-cleft. Cor. one-petalled, five-parted, reflex. Stigma simple. Berry roundish, one-seeded.

SPECIES.

1. *Ardisia excelsa. Laurel-leaved Ardisia, or Aderno.*

Ait. hort. kew. 1. 261.

Anguillaria bahamensis. Gertn. fruct. 1. 372.

Racemes axillary simple, leaves obovate cartilaginous-serrate at the edge.

2. *Ardisia zeylanica.*

Anguillaria zeylanica. Gertn. fruct. 1. 373.

Badulam. Herm. mus. zeyl. 43. Lin. zeyl. n. 600.

Tinus humilis zeylanica, foliis crassis venosis.

Burm. zeyl. 222. t. 103.

Flowers terminating panicled, leaves ovate subpetioled quite entire, stem arborescens.

3. *Ardisia tinifolia.*

Swartz. prodr. 48. Sloan. jam. 2. 98. t. 205. f. 2. Flowers panicled, leaves elliptic entire nerved, stem arborescens.

4. *Ardisia coriacea.*

Swartz. prodr. 48.

Flowers panicled, leaves oblong entire veinless coriaceous.

5. *Ardisia ferrulata.*

Swartz. prodr. 48.

Flowers panicled, leaves ovate-lanceolate acuminate wrinkled, stem shrubby pubescent.

6. *Ardisia lateriflora.*

Swartz. prodr. 48.

Racemes lateral or axillary compound, flowers umbelled, leaves oblong acuminate quite entire, stem shrubby.

7. *Ardisia parasitica.*

Swartz. prodr. 48.

Racemes axillary simple, leaves sessile lanceolate-ovate marked with lines, stem shrubby.

DESCRIPTIONS, &c.

This genus was named *Anguillaria*, in honour of Luigi Anguillara, an eminent botanist of Padua, in the sixteenth century. But Swartz having given it the name of *Ardisia*, and that being adopted by Schreber, the latter title is here preferred, although we are at a loss for the meaning of it.

The *Ardisias* are trees or shrubs, natives of hot climates, chiefly the West-Indies.

1. Calyx five-parted, with ovate-lanceolate, equal, permanent leaflets. Corolla five-cleft almost to the base, the clefts twice as long as the leaflets of the calyx. Stamens inserted into the corolla. Style filiform. Seed-vessel a superior, globose, coriaceous, smooth, black berry; having no receptacle, except a broad scar at the bottom of the berry, to which the seed is fixed. Seed globose, of a pale colour, having a wide umbilical pit at bottom; covered with a thickish, fungose-coriaceous, friable integument^a.

Native of Madeira, where it was found by Mr. Francis Masson; and introduced here in 1784^b. We apprehend therefore that the trivial name given by Gertner to this plant must be a mistake.

2. The leaves of this tree are thick, oval, more attenuated towards the base, entire, evergreen, shining and very smooth, veined, alternate, on such short petioles that they may almost be considered as sessile. Flowers on the tops of the branches, very many, in racemes, disposed almost umbelwise, wheel-shaped, five-cleft, with a long-tube, of a red colour; calyxes very small, five-cleft^c. Berry spherical, only half the size of that in the foregoing species, within the five-cleft, permanent calyx, one-celled, of a reddish colour. Seed, the shape of a crab's-eye, semiglobose, flattened a little, very obscurely scrobiculate at top, flattish at bottom with a blackish umbilical pit; the colour of the rest bay. Integument single and thin. It seems to be allied to *Myrsine*; and perhaps, if the immature germ were to be examined, we might discover that the natural number of the seeds is five^d. The berries are esteemed cooling and refreshing, and a rob is made of them, which is given in ardent fevers^e. Native of Ceylon.

3. This tree rises to about thirty feet high, having an ash-coloured smoothish bark. Leaves very smooth, dark green, four inches long, and two broad in the middle, with a prominent midrib. Petioles a quarter of an inch in length. Flowers purplish, bowed back. Native of Jamaica^f.

4, &c. The remaining species are natives of the West-Indies, and are hitherto only known from Swartz's catalogue. The fifth is found in St. Domingo; and the last in Montserrat.]

[ARDUINA. (So named in honour of Pietro Arduini, curator of the economical garden at Padua.)

Lin. gen. Reich. n. 287. Schreb. 364. Lycium. Mill. fig. t. 300.

^a Gertner.

^b Hort. kew.

^c Burman 223.

^d Gertner.

^e Burm. 222.

^f Sloane,

A R E

Class. 5. 1. Pentandria Monogynia.
Nat. order of *Contortæ*. *Apocineæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, erect, acute, small, permanent.
COR. one-petalled, funnel-shaped. *Tube* cylindrical, a little curved inwards at top. *Border* five-parted, acute, spreading.
STAM. *Filaments* five, simple, shorter than the tube, and inserted into the lower part of it. *Anthers* oblong, within the throat of the corolla.
PIST. *Germ* superior, ovate. *Style* filiform, the length of the tube. *Stigma* bifid, thickish.
PER. *Berry* globular-oval, two-celled.
SEEDS solitary, oblong, hard.

ESSENTIAL CHARACTER.

Cor. one-petalled. *Stigma* bifid. *Berry* two-celled. *Seeds* solitary.

SPECIES.

1. *Arduina bispinosa*. *Two-spined Arduina*.
Lin. syst. 236. *Reich.* 1. 550. *mant.* 52.]
Lycium cordatum. *Mill. dict.* n. 10. *fig.* 200. t. 300.

DESCRIPTION, &c.

This is a low shrubby plant, seldom rising above four or five feet high. It sends out spreading branches in pairs from top to bottom; they are covered with a dark-green bark, and are armed with short, strong thorns, which come out by pairs; and sometimes there are double pairs upon the same footstalks; these are situated just below the leaves, and where there are four, two point upwards, and the other two downwards. The leaves are heart-shaped, not much larger than those of the Box-tree, (about an inch long, and three-quarters of an inch broad at their base,) of the same consistence and colour, terminating in acute points; they are placed opposite in pairs pretty close together, and continue green all the year. The flowers come out in clusters at the ends of the branches, upon short slender peduncles, each supporting five or six small white flowers; having an agreeable odour. They commonly appear in July and August; and are seldom succeeded by seeds in England. The berries do not ripen till the spring following, and are then of a deep-red colour. It is a native of the Cape of Good Hope, whence the seeds were brought to Holland, and first raised in the gardens there.

[Mr. Miller cultivated it, at Chelsea, in the year 1760^a.

According to Linneus, in habit it is between *Randia* and *Penæa*. In *Arduina* the spines are axillary; whereas *Randia* has two bifid spines at the ends of the branches. Jussieu joins it with *Carissa*^b: they have both a two-celled berry, but *Arduina* has only one seed in each cell; whereas *Carissa* has several.]

PROPAGATION AND CULTURE.

It may be increased by cuttings, planted in July, and shaded from the sun; when they have taken root, they should be removed into small pots, and placed in the shade till they have taken root again: they may then be removed to a sheltered situation till autumn, when they must be put into a greenhouse, or under a hot-bed frame; this plant being too tender to live in the open air.

AREALU. See *Picus religiosa*.

[ARECA.

Lin. gen. n. 1225. *Reich.* 1341. *Schreb.* 1696. *Gertn. t.* 7. *Juss.* 38.

Class. 25. 1. *Palmae*.—*Monoecia Enneandria*.

Nat. order of *Palmae* or *Palms*.

GENERIC CHARACTER.

* *Male flowers*.

CAL. *Spathe* bivalve. *Spadix* branched. *Proper perianth* three-leaved.
COR. *Petals* three, acuminate, rigid.
STAM. *Filaments* nine, the three outer longer than the rest.

A R E

* *Female flowers*, in the same spadix.

CAL. *Spathe* common with the males. *Proper perianth* three-leaved.

COR. *Petals* three, acuminate, rigid.

PER. *Berry* subovate, fibrose, surrounded at the base with the imbricate calyx.

SEED ovate.

ESSENTIAL CHARACTER.

Cor. three-petalled.—*Male* nine stamens. *Female*, a drupe with an imbricate calyx.

SPECIES.

1. *Areca Catechu*.

Lin. spec. 1659. *Reich.* 4. 636. *mal. med.* 234. *fl. zeyl. n.* 392. *prælect. in ord. nat.* 71. *Lour. cochinch.* 567. *Pluk. alm. t.* 309. *f.* 4.

A. *Faufel. Gertn. fruct.* 1. 19. *Cesalp.* 83. *Blackw. herb. t.* 387. *Raii hist.* 1363.

Faufel. Garc. arom. i. c. 25. *Baub. hist. i.* 389. *Stap. theophr.* 356. *Worm. mus.* 199. *Baub. pin.* 510. 11.

Palma Areca, Faujet, seu Bonga minor. Camell. luz. ap. Raium in hist. 3. *app.* 45. *Burm. zeyl.* 182.

Nux Faujel, seu Pinang. Bont. jav. 6. c. 2. *p.* 90.

Pinanga. Rumph. amb. i. 26. *t.* 4. (good.)

Caunga. Rheed. mal. i. p. 9. *t.* 5—8.

Fronde pinnate; leaflets folded back opposite end-bitten.

2. *Areca oryzæformis*.

Gertn. fruct. 1. 20. *Lin. prælect.* 76.

A. *sylvestris. Lour. cochinch.* 568.

Pinanga oryzæformis. Rumph. amb. i. 40. *t.* 5. *f. c.*

Fronde pinnate, leaflets smooth three-nerved.

3. *Areca oleracea. Cabbage-tree.*

Lin. syst. 986. *Reich.* 4. 636. *Jacqu. amer.* 278. *t.* 170. *piet.* 135.]

Palma altissima. Mill. dict. n. 4. *Sloan. jam.* 2. *t.* 215. [*Brown. jam.* 343. *n.* 3.]

P. nobilis. Raii hist. 1361. 12. & 3. *dendr. p.* 1.

Leaflets quite entire.

DESCRIPTIONS, &c.

1. The *Areca* is a Palm growing to the height of forty or fifty feet. The trunk is six or eight inches in diameter, very straight, round, covered with a smooth, ash-coloured bark, and marked with parallel rings. The fronds spring forth in pairs decussated, encircling the top of the trunk at their base, and thus forming an oblong head larger than the trunk itself; they are few in number (six or seven), unarmed, reclining, six feet long; on a stipe four feet in length. These fronds break and fall off in succession. From their axils issue the sheaths which inclose the flowers and fruits. These are simple, sharpish, white, coriaceous, thin, streaked, deciduous, from eighteen inches to two feet in length, and six inches in breadth, defended by a wide involucre, formed of the dilated base of the frond involving the spadix and spathe. Spadix axillary, branched, spiked, reclining. Spikes linear, containing male and female flowers confusedly mixed. Flowers white, very small, triangular; smelling sweet, but faintly, morning and evening. The calyx of the male is three-leaved, but that of the female six-leaved, imbricate and unequal. The three petals in both are sharp, thick, curved and erect. Filaments short. Pistil one, superior. After the flowers fall off, appear the rudiments of the fruits, sessile in the axils of the branches of the spadix. These become drupes of an ovate form, smooth, and the size of a pullet's egg; the rind is fibrose, thick and yellowish, there is no hard shell, but a heart-shaped nucleus, sometimes roundish or ovate, solid, of a horny substance when ripe, red with white veins^a. The fruit, according to Gartner, is a berried drupe, or to speak more properly a berry: it is surrounded at the base by the calyx, which is six-leaved, coriaceous, smooth, shining, ending at top in an oblate-spheroidal, cartilaginous, shining boss, with the remains of the style. Cuticle very thin; pulp thick and filamentose; shell the substance of paper, very thin, brittle, white with arched

^a Hort. kew.

^b Gen. p. 149.

^a Loureiro & Rumphius.

red veins, cohering with the pulp all round. The receptacle is a bundle of very stiff fibres, growing thicker towards the top, and fixed laterally to the base of the seed; which is of a rounded conical form, of a colour from bay inclining to ash-colour, netted with depressed arched streaks, marked underneath with an umbilical, cordate, swelling, white, excentric area, having a small, roundish hole in the middle, accompanied with a little teat appertaining to the embryo^b. The fruit does not fall off even when ripe^c.

The Indians call it *Chotool*, and present it to their guests in all visits, green when they can procure it so, and stripped of the outer rind; but if not, dry. They cut it in slices, and give it wrapped in the aromatic leaves of *Betel* or *Betle*^d, which they cover with a thin layer of shell-lime to preserve the flavour longer in the mouth. They are continually chewing it, swallowing their saliva tinged with the juice, and spitting out the rest. The inside of their mouths appears red as blood, and it gives their teeth a dark colour; it preserves them however, and is esteemed for sweetening the breath, as being good against the scurvy in the gums, and as strengthening the stomach and appetite^e. A decoction of the nuts is also used in dying, and is supposed both to set and enliven the colours. For these purposes several vessels are sent yearly from Cochinchina to China and India. They are also used medicinally in constipations of the bowels, in worm cases, &c.

It was formerly supposed that the Gumresin, vulgarly but improperly called *Terra Japonica*, is a preparation from this Palm; but that is now known to be produced from a species of *Mimosa*: the trivial name therefore of *Catechu* or *Catbecu* is certainly improper, as leading us into an erroneous notion.

This Palm is a native of the East-Indies. It is cultivated every where in Cochinchina, not only on the coast, but in the mountains. In the southern provinces of China it is rare, but in those of the north it is never seen^f.

2. This is a very slender Palm, the trunk being only an inch and half in diameter, or at most scarcely the thickness of a man's leg; about ten feet in height, and very straight. The fronds are three feet in length, or more, without any prickles: the stipes are triangular, dilated at the base, coriaceous, embracing the stem and fructification: leaflets two feet long, opposite, triplicate, distant, sometimes sharp, sometimes end-bitten. Spathe membranaceous, white, stiff. Spadix spiked; spikes linear, with the flowers regularly disposed, one female between two males. Calyx of the male three-leaved, with subulate unequal leaflets: corolla three-petalled, almost closed, longer than the calyx, acute, erect; anthers twenty-four, linear, without any filaments. Calyx of the female three-leaved, permanent; leaflets broad, obtuse, covering each other laterally: corolla three-petalled, rounded, smaller than the leaflets of the calyx. Germ oblong-ovate, close; style none; stigma three-cornered, three-cleft^g. Berry ovate, terminated by the permanent style, small, scarcely larger than a grain of wheat, but rounder, red; pulp or rind thin, fibrose, smooth, adhering in all parts to the seed, so that the cell is not invested with its proper coat, as in the foregoing species. Seed ovate-conical, hollowed at the base into a wide pit, within which is a very minute teat^h; it is solid, horny, and half an inch in length.

Native of Cochinchina, Amboina, &c. In the former the fruit is larger than in the latter. It is used for chewing with the Betel leaf, as well as the foregoing species.

This Palm seems to be the intermediate link between *Areca* and *Caryota*; for it has the habit and fruit of the former, with the stamens and position of the flowers as in the latter: the corolla and calyx

of the male flowers are common to both; the calyx of the female flowers differs in the number of leafletsⁱ.

3. The Cabbage-tree is the highest of the American Palms, and is very distinct from the East Indian *Areca*. The sheaths of the leaves are very close, and form the green top of the trunk, a foot and half in length. Below this come out green shining spathes, which fall to the ground when the very branching spadix bursts forth. The calyx of the flower is one-leaved, cut half way into three segments. The fruits are oblong, obtuse berries, slightly bent, of a blue purple colour, succulent, scarcely fibrose, the size of a middling olive: the pulp dries away, and becomes a brittle, wrinkled bark. The nut or stone is oblong, smoothish, rather acute at the base, membranaceous, brittle, thin, whitish-brown frequently with a shade of red. The kernel is oblong, cartilaginous, very hard, and has a cavity in the middle of a small fissure.

The inhabitants cut off the green top of the trunk, take out the white heart of two or three inches in diameter, consisting of the leaves closely folded together, and expose it to sale in the herb market. It is eaten either raw with pepper and salt, or fried with butter, and has then somewhat the taste of Artichoke^k.

The Jamaica Cabbage-tree, says Dr. Patrick Browne, is frequent in most of the sugar-islands, and grows commonly to a moderate size. The body of the tree is generally pretty tall, upright and even; and throws out its flowers immediately under the column formed by the sheathed bottoms of the ribs: these in the size and disposition, as well as in the form of both their bunches and covers, are very like those of the Barbadoes Palm; and its foliage, as in that plant, affords a delicate wholesome green, which is commonly called Mountain-Cabbage; and for which it is generally cut down. The outward part of the tree is used for lathing, and boards for out-houses; the seeds serve to feed the wild hogs in the season, and the spathes are frequently made into mats by the negroes.

The best Cabbage is obtained when the tree is young, and not above fifteen or sixteen feet high. The fruit is devoured by birds, who mute the stones, by which means there is a continual nursery of these trees, which otherwise would soon be extirpated. The external coat of the trunk is impenetrable to a musket-ball, though it is scarcely an inch thick; and within this is a pithy farinaceous substance similar to some others of the Palm kind^l.

The *Barbadoes Cabbage Tree*, says Browne^m, is the most beautiful tree I have ever seen, and may be very lawfully esteemed the queen of the woods; it grows to a very considerable size; rises by a small straight trunk, which bilges moderately at some distance above the root; and shoots by a round tapering body to the top, where it spreads into a large and beautiful foliage, not unlike that of the Coco-nut tree. The lower part of each rib is pretty broad, and formed into a sheath, which embraces all those that grow between it and the centre; so that they continue the form of the trunk for some space above the real summit of the stem, whence it throws out, on opposite sides, two large branched bunches, well beset with mixed flowers: but these continue covered by a simple spathe, until all the parts are ready for generation. Both the bunch and sheath resemble those of the Coco-nut Palm very much; but the spathe of this is more soft and delicate, and the bunch more fertile and spreading; though the fruit is very small, and seldom exceeds the size of a pea.

The seeds of this beautiful tree were first carried to Jamaica by his excellency Admiral Knowles, then governor of the island; and it has been since cultivated there with great care. It is chiefly planted for its beauty, and seldom or never cut down for the cabbage, or for any other use.

^b Gært. fruct. 19.

^c Rumphius.

^d Piper Betle.

^e Loureiro & Bomare, Dict. art. Cachou.

^f Loureiro.

^g Ibid.

^h Gærtner.

ⁱ Loureiro.

^k Jacquin.

^l Jamaica, 342.

^m Long's Jamaica, 744.

Ligon and other travellers speak of Cabbage-trees from one hundred to two hundred, two hundred and fifty, and even three hundred feet in height, with a trunk no bigger than a man's thigh^a. More modern travellers are not willing to allow them a greater height than from thirty to a hundred feet.

The West-Indian Cabbage-tree was introduced into the royal garden at Kew in 1787, by Hinton East, Esq.^o

Many other species of Palm are mentioned by Rumphius, some of which are undoubtedly of this genus; but being imperfectly known, they are not set down here^b. There is also a sort named *Areca sapida* by Solander, which grows spontaneously in New Zealand, and thence to Charlotte sound, and abounds in Norfolk Island: but we are not acquainted with the fructification of it^c.

PROPAGATION AND CULTURE.

See PALMS.

AREIRA. See *Schinus*.ARELI. See *Nerium*.[ARENARIA. (So called from its native soil, *Arena* or sand.) Engl. Sandwort. Fr. Sabline.

Lin. gen. n. 569. Reich. 618. Schreb. 774.

Gærtn. t. 130. Juss. 301.

Class. 10. 3. Decandria Trigynia.

Nat. order of Caryophyllei.

GENERIC CHARACTER.

CAL. Perianth five-leaved: leaflets oblong, acuminate, spreading, permanent.

COR. Petals five, ovate, entire.

STAM. Filaments ten, subulate; five alternately interior. Anthers roundish.

PIST. Germ ovate: styles from erect reflex: stigmas thickish.

PER. Capsule ovate, covered, one-celled, three or fix-valved.

SEEDS very many kidney-shaped.

OBS. The number of stamens is inconstant. Reich.

ESSENTIAL CHARACTER.

Cal. five-leaved, expanding. Pet. five entire. Caps. one-celled, many-seeded.

SPECIES.

1. *Arenaria peploides*. Sea Sandwort or Chickweed.

Lin. spec. 605. Reich. 2. 359. succ. n. 396. lapp.

n. 188. Hudf. angl. 191. With. 458. Lightf.

scot. 229. Gmel. sib. 4. 160. t. 64. Fl. dan.

t. 624.

Alfine marina foliis portulacæ. Loef. pruss. 12. t. 2.

Raii syn. 351.

A. littoralis fol. portulacæ. Baub. pin. 251.—et,

Anthyllis maritima lentifolia ejusd. 282. Park.

281. 2. Raii hist. 1024. Pet. brit. t. 65. f. 9.

Anthyllis lentifolia f. Alfine cruciata marina. Ger.

emac. 622. 1.

Leaves ovate acute fleshy.

2. *Arenaria tetraquetra*. Square Sandwort.

Lin. spec. 605. syst. 423. Reich. 2. 359. mant. 386.

D'Asso aragon. n. 381.

Caryophyllus faxatilis ericæfolius ramosus repens.

Baub. pin. 211. prodr. 105. Burf. 11. 135.

Leaves ovate keeled recurved imbricate four ways.

β. *Gypsophila aggregata*. Lin. spec. 581. Amæn.

acad. 3. p. 23. Allion. pedem. n. 1718. t. 89. f. 1.

Mill. dict. n. 1. Schreb. act. nov. acad. N. C. 4.

140.

Caryophyllus faxatilis, &c. Baub. pin. 211. prodr.

105. Raii hist. 1033. Magn. monsp. 53. t. 5.

Leaves pointed recurved, flowers aggregate.

3. *Arenaria biflora*. Two-flowered Sandwort.

Lin. syst. 423. Reich. 2. 360. mant. 71. Hall.

helv. n. 877. Allion. pedem. t. 44. 1. & t. 64. 3.

n. 1699. Gouan. illust. 30. Villars dauph. 622.

Leaves obovate obtuse, stems procumbent, peduncles two-flowered lateral.

4. *Arenaria lateriflora*. Side-flowering Sandwort.

Lin. spec. 605. Reich. 2. 360. Gmel. sib. 4.

p. 159. n. 68.

Leaves ovate, obtuse, peduncles lateral two-flowered.

^a Ray's hist. 1361. ^b Hort. kew. ^c See Linn. prælect. in ord. nat. by Giseke, p. 77—84. and Raii hist. 3. app. 45. ^d Forst.

cicul. 66. n. 35.

5. *Arenaria trinervia*. Plantain-leaved Chickweed or Sandwort.

Lin. spec. 605. Reich. 2. 360. hort. cliff. 173:

succ. 397. Hudf. angl. 191. With. 458. Lightf.

scot. 230. Curtis lond. 4. t. 31. Pollich pal.

n. 423. Hall. helv. n. 878. Fl. dan. t. 429.

Krock. files. n. 674. Villars dauph. 620.

Alfine plantaginis folio. Baub. hist. 3. 364. 1.

Raii syn. 349. hist. 1032. Petiv. brit. t. 59. f. 1.

Leaves ovate acute petiolate nerved.

6. *Arenaria ciliata*. Ciliate Sandwort.

Lin. spec. 608. syst. 423. Reich. 2. 360. Fl. dan.

t. 346. Allion. pedem. 1701. Jacq. vind. 75.

Villars dauph. 620.

Alfine. Hall. helv. n. 876. t. 17. Segu. veron. 1.

p. 321. t. 5. f. 2.

Leaves ovate nerved ciliate acute.

7. *Arenaria balearica*. Majorca Sandwort.

Lin. syst. 423. Reich. 2. 361. L'Heritier stirp.

nov. p. 29. t. 15.

A. muscosa. Medic. comm. palat. phys. 3. 202.

t. 12.

Leaves ovate shining rather fleshy, stem creeping, peduncles one-flowered.

8. *Arenaria multicaulis*. Many-stalked Sandwort.

Lin. spec. 605. syst. 423. Reich. 2. 361. Amæn. 1.

162. n. 155.

Alfine. Hall. helv. n. 876. t. 17. see n. 6.

Leaves ovate nerveless sessile acute: corollas larger than the calyx.

9. *Arenaria serpyllifolia*. Least Chickweed or thyme-leaved Sandwort.

Lin. spec. 606. Reich. 2. 361. succ. 398. hort.

cliff. 173. Gærtn. 2. 232. Hudf. angl. 191.

With. 459. Curtis lond. 4. t. 32. Pollich pal.

n. 424. Leers herb. n. 325. Hall. helv.

n. 875.

Stellaria serpyllifolia. Scop. carn. n. 544.

Alfine minor multicaulis. Baub. pin. 250. Raii

syn. 349. hist. 1031. Petiv. brit. t. 59. f. 2.

A. minima. Baub. hist. 3. 348. 1? Ger. 488. 3.

emac. 612. 3.

A. aquatica minima. Park. 1259. 3.

Leaves subovate acute sessile, corollas shorter than the calyx.

10. *Arenaria triflora*. Three-flowered Sandwort.

Lin. syst. 423. Reich. 2. 362. mant. 240. Villars

dauph. 623. t. 47.

A. graminifolia. Ard. spec. 2. 25. t. 10.

Leaves lance-subulate ciliate, branches mostly three-flowered, petals marked with lines, obtuse.

11. *Arenaria montana*. Mountain Sandwort.

Lin. spec. 606. syst. 423. Reich. 2. 362. Amæn. 4.

272. Allion. pedem. n. 1705. D'Asso aragon.

n. 383. t. 2. f. 3. Krock. files. n. 677.

Alfine. Morn. obs. 127.

Leaves linear-lanceolate rugged, barren stems very long procumbent.

12. *Arenaria rubra*. Purple Spurrey or Sandwort.

Lin. spec. 606. syst. 424. Reich. 2. 362. succ. 399.

Hudf. angl. 192. With. 459. Lightf. scot. 230.

Neck. gallob. 198. Pollich pal. n. 425. Krock.

files. n. 678.

A. campestris. Allion. pedem. n. 1716.

Alfine. Hall. helv. n. 872.

Spergula purpurea. Baub. hist. 3. 722. 3. Raii

syn. 351. 9. hist. 1034. Petiv. brit. 5. 59. f. 8.

Sagina spergula minima. Park. 561.

Polygonum. Loef. Pruss. 203. t. 63.

Leaves filiform, stipules membranous sheathing.

β. *Arenaria marina*. Sea Spurrey or Sandwort.

Lin. cliff. 173. Hudf. angl. 193. 7. γ. Relb.

cantabr. n. 327. Allion. pedem. 1717. Gouan.

monsp. 242. Fl. dan. t. 740. Ger. 1125. Mor.

hist. f. 5. t. 23. f. 15.

Alfine, &c. Baub. pin. 251. Raii syn. 351. 10.

Spergula marina. Baub. hist. 3. 772. Raii hist. 1034.

Petiv. 59. 7.

Leaves linear, the length of the internodes.

13. *Arenaria media*. Middle or downy Sandwort.

Lin. spec. 606. syst. 424. Reich. 2. 363. Pollich

pal.

- pal. n. 426. Hudf. angl. 193. 7. β. With.
459. β. Villars dauph. 637. Krock. 679. 46.
Spergula maritima flore parvo cæruleo, femine vario.
Dill. giff. app. 30. E. N. C. cent. 5. f. 6. 275.
t. 4. Raii syn. 351. 11.
Leaves linear fleshy, stipules membranous, stems pubescent.
14. *Arenaria bavarica*. Bavarian Sandwort.
Lin. spec. 607. Reich. 2. 363. amæn. 4. p. 315.
Alpine alpina, &c. Segu. veron. 1. p. 429.
Saxifraga bavarica. Raii hist. 1033. Park. theat. 427.
f. 8.
Leaves semicylindric fleshy obtuse, petals lanceolate, peduncles terminal mostly binate.
15. *Arenaria gypsophiloides*.
Lin. syst. 424. Reich. 2. 364. Schreb. act. nov.
acad. N. C. tom. 4. 139.
Leaves linear, radical ones bristly; panicle subpubescent; petals lanceolate.
16. *Arenaria faxatilis*. Rock Sandwort.
Lin. spec. 607. Reich. 2. 364. Guett. stamp. 2.
p. 281. Jacq. vind. p. 75. Krock. fles. n. 680.
Villars dauph. 631?
Alpine. Hall. belv. n. 867. Gmel. fib. 4. p. 157.
t. 63. f. 2. Magn. monsp. t. 11. Pluk. alm. t. 7.
f. 3.
Spergula. Sauv. monsp. 45.
Stellaria faxatilis. Scop. carn. n. 539.
Leaves subulate, stems paniced, leaflets of the calyx ovate obtuse.
17. *Arenaria verna*. Vernal mountain Sandwort or Chickweed.
Lin. syst. 424. Reich. 2. 364. mant. 72. Jacq.
austr. 5. t. 404. Hudf. angl. 191. With. 460.
Lightf. scot. 231. Villars dauph. 626.
Alpine. Raii syn. 350. n. 4. hist. 1033. n. 11.
Leaves subulate, stems paniced, calyxes pointed striated.
18. *Arenaria hispida*. Hispid Sandwort.
Lin. spec. 608. syst. 424. Reich. 2. 365.
Leaves subulate hispid underneath.
19. *Arenaria juniperina*. Juniper Sandwort.
Lin. syst. 424. Reich. 2. 365. mant. 72. Smith
icon. ined. 2. t. 35.
Leaves subulate thorny, stems erect, calyxes striated, capsules oblong.
20. *Arenaria tenuifolia*. Fine-leaved Chickweed or Sandwort.
Lin. spec. 607. syst. 424. Reich. 2. 365. Hudf.
angl. 192. With. 461. Guett. stamp. 2. p. 282.
Pollich pal. n. 427. Neck. gallob. 197. Leers
herb. n. 327. Krock. fles. n. 682. t. 5. Fl. dan.
t. 389.
A. hybrida. Villars prosp. p. 48. t. 30. f. 3.
dauph. 634. t. 47.
Alpine. Hall. belv. n. 866.
A. tenuifolia. Baub. hist. 3. 364. 3. Raii hist. 1031.
syn. 350. Vaill. par. t. 3. f. 1.
Leaves subulate, stem paniced, capsules erect, petals shorter than the calyx and lanceolate.
21. *Arenaria laricifolia*. Larch-leaved Sandwort.
Lin. spec. 607. syst. 424. Reich. 2. 365. Jacq.
austr. 3. t. 272. Magn. hort. t. 11. Allion.
pedem. n. 1710. Hudf. angl. 192. With. 461.
Krock. fles. n. 683. Villars dauph. 629.
Alpine. Hall. hist. n. 869. Baub. pin. 251. 2.
prodr. 118. 4. Raii hist. 1031. 3.
Leaves bristly, stem nakedish above, calyxes rather shaggy.
22. *Arenaria striata*. Striated Sandwort.
Lin. spec. 608. Reich. 2. 366. Amæn. 4. p. 315.
Allion. pedem. n. 1712. t. 26. f. 4. Villars
dauph. 630. t. 47.
A. Cherleroides. Villars prosp. p. 48. t. 30. f. 1, 2.
dauph. 626. t. 47?
Leaves linear erect pressed to the stem, calyxes oblong striated.
23. *Arenaria fasciculata*. Cluster-flowering Sandwort.
Lin. syst. 424. Reich. 2. 366. Jacq. austr. 2.
t. 182. Gouan. illustr. 30.
Stellaria rubra. Scop. carn. n. 538. t. 17.
Leaves subulate, stem erect stiff, flowers fascicled, petals very short.
24. *Arenaria grandiflora*. Great-flowered Sandwort.
Lin. spec. 608. syst. 425. Reich. 2. 367. Allion.
pedem. n. 1711. t. 10. f. 1. Gouan. illustr.
p. 30.
A. juniperina. Villars 624.
Stellaria aculeata. Scop. carn. n. 537. t. 17.
Alpine. Hall. belv. n. 874.
Leaves subulate, flat, stiff: the radical ones crowded, stems one-flowered.
25. *Arenaria austriaca*. Austrian Sandwort.
Lin. syst. 425. Jacq. austr. 3. t. 270. Allion.
pedem. n. 1708. t. 64. f. 2.
Alpine. Hall. belv. n. 864.
Stems undershrubby prostrate, then herbaceous and erect, leaves subulate, flowers twin, petals emarginate.
26. *Arenaria liniflora*. Flax-flowered Sandwort.
Lin. syst. 425. Reich. 2. 367. suppl. 241. Jacq.
austr. 5. t. 445.
Stems erect, branching below and undershrubby, leaves subulate, flowers twin.
27. *Arenaria recurva*.
Allion. pedem. n. 1713. t. 89. f. 3. Ger. prov. 405.
n. 7. t. 15. f. 1.
Alpine. Hall. belv. n. 868.
Radical leaves beaped recurved subulate; stem simple bearing about three flowers.
28. *Arenaria obtusa*.
Allion. pedem. n. 1714. t. 64. f. 4.
Alpine. Hall. belv. n. 863.
Leaves linear flat obtuse, calyxes viscid.
29. *Arenaria lanceolata*.
Allion. pedem. n. 1715. t. 26. f. 5.
Alpine. Hall. belv. n. 864.
Leaves lanceolate three-nerved acute, calyxes lanceolate three-nerved.
30. *Arenaria dianthoides*.
Smith ic. ined. t. 16.
Alpine orient. &c. Tourn. cor. 17.
Leaves linear scabrous at the edge, flowers capitated, bractes ventricose longer than the peduncles.
31. *Arenaria cucubaloides*.
Smith ic. ined. t. 17.
Alpine orient. caryophilli fol. viscosa, fl. magno albo. Tourn. cor. 17.
Leaves linear, scabrous at the edge, panicles dichotomous pubescent, petals obovate.

DESCRIPTIONS, &c.

The *Arenarias* or Sandworts are small herbaceous annual or perennial plants, generally considered as weeds in the countries where they grow naturally, and not cultivated in gardens. The flowers are axillary or terminating, with white corollas for the most part. The leaves in pairs stipulaceous, usually connate. The flowers sometimes have from five to eight or nine stamens only; five styles; and seeds with a membranaceous rim, as in *A. rubra* and *media*; which therefore are more nearly allied to the genus *Spergula*. *A. tetraquetra*, which has flowers in a head, and the capsule five-valved, approaches to *Minuartia*.

1. Root perennial. Leaves smooth, resembling those of Purslain, coming out in pairs and decussated, growing so close together at the tops of the stalks as to make them appear quadrangular. Corollas white. Glands on the receptacle. Capsules and seeds very large in proportion to the size of the plant.

Frequent on sandy sea-coasts in the north of Europe. With us near Sheerness in Kent, Yarmouth in Norfolk, Southwold in Suffolk; in Scotland near Leith, &c. It flowers in June and July.

2. Stems almost upright, so abundant in alternate branches as to form a tuft. Leaves imbricate in four rows forming angles, connate-sheathing, ciliate at the base, with a spreading disk, and a cartilaginous edge. Flowering-stems higher, simple, jointed, upright, with the oppositions of the leaves

remote, small. Peduncle terminating, bünd, with flowers in a head, separated by subulate leaves spreading at the top, the length of the calyxes, heaped into two or three hardish heads. Calyx five-leaved, lanceolate. Petals five, oblong, marked with lines, rather erect. Stamens and styles divaricating, white, shorter than the petals^b.

According to Schreber^c, the stems are a finger's length, many, quite simple. Leaves keeled, recurved, channelled, mucronate, with a cartilaginous edge, streaked, smooth, very short, approximating, subciliate at the base and connate. Head of flowers peduncled, fastigiate, with about five sessile flowers. Leaflets of the calyx lanceolate, the outer ones larger. Petals sessile, oblong, blunt, marked with lines. Styles three. Capsule one-celled, five-valved, with several seeds.

Allione describes the root as oblong and perennial; the stem with many upright branches; the leaves connate, firm, recurved, acute, furnished with a nerve, near the root longer than the internodes, but shorter on the branches. Flowers five or six heaped into a head. Leaflets of the calyx five, resembling the stem-leaves. Petals nearly equal to the calyx. Of the ten stamens five are shorter than the corolla, or sometimes a little longer. The stem, leaves, and calyxes, viewed through a magnifying-glass appear rough; their edges are scariose and silvery. D'Asso says, that the plant which he saw was scarcely an inch high; in the garden it grows to near a foot. The flowers are white.

It is a native of the Pyrenean mountains, Aragon, the mountain of Tende, &c. flowering in July or August.

Casimir Gomez Ortega, M. D. introduced it into the Kew garden, in 1776^d.

3. Leaves like those of wild Thyme, roundish, even. Peduncles twice as long as the leaves, bifid: with two linear bractes at the division, as also on the other pedicel. Calyxes ovate. Petals white. Capsules subglobose^e.

Haller describes it as much resembling the *multicaulis*, but having long stems, entirely prostrate; leaves perfectly round, without any point, a little ciliate at the base; the flowers on short peduncles, with the calyx ovate and lanceolate, but not sharp, the petals ovate, longer than the calyx.

It is a native of the high alps of Savoy and Switzerland, near the melting snow.

4. Stem very short, small and quite simple. Leaves smooth, on very short petioles. Peduncles single, long, bifid, axillary. Corolla longer than the calyx. Discovered in Siberia, by Gmelin^f.

5. Root annual. Stems dichotomous, cylindrical, several growing together in tufts. Branches from the upper side. Leaves running down into the petioles, beset with very fine short hairs, and fringed with short fine bristles; the lower ones subcordate, the upper lanceolate-ovate, subsessile. Peduncles bent down, solitary, axillary. Leaflets of the calyx lanceolate, concave, beset with minute bristles, scariose at the edge, twice as long as the petals, and contracting as soon as they are fallen. Petals spreading, white. Stamens as long as the calyx, alternately shorter. Styles sometimes two or four: stigmas bent back, woolly. Capsules pendulous^g.

Haller observes, that this species has the appearance of common Chickweed (*Alfine media*) but that the stem is harder, rough, branching, a foot high. Mr. Curtis has given the distinctions very accurately. The stalk is uniformly covered with very short hairs, scarcely discernible: it grows erect: the leaves have three strong veins or ribs; the petals are entire: and the seeds are black, perfectly smooth and shining. Whereas common Chickweed has a row of hairs running down each side of the stalk, which is procumbent: the leaves are not distinguished by any ribs: the petals are bifid: and the seeds are brown and rough. This species also grows

only in and about woods, not very common: and does not flower till May and June; whereas the other flowers in March and April; indeed almost always in mild weather and sheltered situations.

6. Haller does not distinguish this from the *multicaulis*. It is thus described by Villars. Stems long, numerous, branched and procumbent. Leaves sessile, pointed, a little concave above, ciliate on the edges at the base. Corollas large, as big again as the calyx, each petal rounded at the end; leaflets of the calyx oval, pointed and nerved. The stamens are placed on a circle of nectariferous glands. The leaves frequently become narrower by half, and less ciliated; and the plant, when it grows in a more barren soil, is straighter and less branched.

According to Linneus, it is a native of mount Abraham, in the Rhætian alps (Grisons). If it be the plant of the authors quoted above, it is also found on mount Cenis, on the high mountains of Dauphiné, &c. in the turf.—According to the Kew catalogue, it is a native of Iceland, whence it was introduced in 1773, by Sir Joseph Banks, Baronet. It flowers from March to August; and is biennial. Other authors mark it as perennial.

7. This is a perennial plant, growing in tufts. Stems branching, creeping, rooting at the knots, filiform. Branches very numerous, opposite. Leaves opposite, petioled, close, spreading, acute or acuminate, quite entire, nerveless, with short hairs above, paler beneath. Peduncles terminating, solitary, erect, very long, one-flowered, filiform, pubescent. Flowers large, white; with two opposite, sessile, lanceolate bractes^h.

According to the observation of Linneus, this is an intermediate species between *ciliata* and *multicaulis*; but the peduncles are long, and the seed-vessels drooping.—D'Assoⁱ has given another, which he thinks is a connecting link between these, and the same with Haller's n. 876. t. 17.

Native of Majorca and Minorca. Introduced into France by Ant. Richard, the King's gardener^k; into England by Monf. Cels, in 1787^l. In the open air it flowers from June to August; but early in the spring, if it be kept in the green-house.

8. Leaves more or less ciliate; flower very large^m. Gerard and Haller make this to be only a variety of the sixthⁿ:—Villars of the ninth^o.

Native of the Swiss and Pyrenean mountains.

9. This is an annual plant. The stems are dichotomous at top and hairy; they grow to the height of four inches or a span. Leaves subovate or lanceolate, entire, dark green. Peduncles at the divisions and ends of the branches, short, one-flowered. Calyx narrow, acuminate, often closed; petals white, entire. Seeds dark-coloured, covered with very minute dots in rows, about twenty, in an ovate, one-celled capsule, opening at top with five or six short toothlets.

According to the observation of Leers, in this and the fifth species the petals are only half the length of the calyx: the capsule nodding, with the peduncle horizontal, as in *Stellaria*, and opening into six parts at top.

Haller reports, that he has sometimes found the petals to be bifid.

Scopoli says, that it is a hispid and very branching plant; that the capsule has ten angles at the base; and that the flower has five styles: all other authors give it only three styles.

This little neat annual plant, says Mr. Curtis, is sufficiently distinguished from its congeners, by the stiffness of its stalk, and the thyme-like form of its leaves. It is common on walls among rubbish, and on dry barren places; flowering from May to August; not only in Europe, but in Japan.

10. Perennial. Stems four inches high, copious, diffused, ascending, round, subpubescent: branches alternate, upright. Leaves like those of Juniper. Peduncles terminating, many, round, pubescent,

^b Lin. mant. ^c Linn. syst. ed. 14. ^d Hort. kew. ^e Lin. mant.
^f Linn. ^g Withering, Relh. cant. n. 323. Linn. fuc.

^h L'Heritier. ⁱ Stirp. Aragon. n. 382. ^k L'Heritier. ^l Hort. kew.
^m Jacquin. ⁿ Linn. syst. ^o Dauph. 621.

longer than the internodes, three-flowered; middle pedicel leafless, side ones longer. Bractes two, ovate, ciliate, pubescent on the outside. Calyx ovate, acute, erect, pubescent; petals obovate, oblong, twice the length of the calyx, spreading, obtuse, white marked with lines; stamens white; pistil green, shorter than the stamens^p.

Native of the south of Europe, on rocks.

11. The leaves form a tuft about the root, and are almost imbricate, bristle-shaped, stiffish, spreading, of a shining green; those on the stem are shorter than the internodes; all of them are stem-clasping. Flowering-stems half a foot high, somewhat erect and hairy: two or three flowers come out from the top on long peduncles; the calyx has three streaks on it, is oblong, obtuse, with the leaflets separate; the petals are twice as long as the calyx, white marked with lines, ovate, and slightly emarginate. Fruit long and subcylindric^q. According to D'Affo, the segments of the calyx are acute. Linneus observes that the flowers are very large, and the fruits pendulous.

Native of the south of France, Spain, and the Col de Tende.

12. Purple Spurrey is an annual plant. Stems many, round, smooth, procumbent, branching, a finger's length or more, green tinged with red, forming a small tuft. Leaves in pairs, sessile, quite entire, full or darkish green, compressed, smooth, terminated by a little sharp point, somewhat longer than the internode: under these are two dry, white, shining stipules. Flowers axillary and terminating, on round, pubescent, one-flowered peduncles, erect when bearing flowers, but a little bent down when in fruit. Calyxes hairy, viscid; this viscidness probably arises from the globular glands which terminate the hairs. Corolla purple. The stamens vary extremely in their number, four, five, seven, eight, and ten have been observed by Haller, D'Affo, Fabricius, and others. The former remarked also three and five pistils. Capsule conical, three-valved. Seeds very small, brown or rufous. The flowers open at nine o'clock, and close between two and three, according to Linneus; but Pollich has observed them to be open at three o'clock.

β. Linneus makes Sea Spurrey a variety only of the former; and certainly much greater variations are occasioned by situation and soil. Gouan, Allioni, and some other modern botanists are however of opinion that they are distinct species. Ray tells us, that he was induced to impute the difference between land and sea Spurrey wholly to the place of growth; but observing the seed of the latter to be compressed and flat, he changed his opinion. Mr. Woodward remarks that the stipules are broader and blunter in this.

The first grows in sandy pastures and fields; the second in salt marshes, where the leaves being succulent, it is gathered, pickled, and sold for Samphire. They both produce their pretty purple flowers in June and July, and they continue frequently to September.

These plants approach to *Spergula* in their habit and stipules; the number of pistils and the fruit place them in this genus; but perhaps the two genera are not naturally distinct^r.

According to the observations in *amæn. acad.* goats refuse this plant; and sheep are not fond of it.

13. This is very like Sea Spurrey, but the whole plant is viscid, and it is less branching, with the stems ascending more and pubescent. Leaves also pubescent, somewhat acute, a little depressed above and convex beneath. Flowers white, with the petals scarcely larger than the calyx. Seeds surrounded with a membranaceous edge. The calyx covers half the capsule. The flowers open at noon^s. Linneus, in his *species plantarum* says, that it is a vernal plant, and a spurious daughter of Sea Spurrey; nay little more than a variety, the difference consisting chiefly in the scariosc-membranaceous stipules.

Dr. Stokes has described it with his usual precision. The foliage has much the air of a *Mesembryanthemum*. Stem nearly upright or ascending, simple or forked, from three to six inches high. Leaves subulate-linear, convex underneath about the length of the internodes, (others say longer); the lower expanding, bent back; the upper upright, pointing one way. Stipules surrounding the stem, of two lips, which are ovate, pointed, sometimes cloven at the end. Peduncles solitary, from the base of the leaves, and at the forks of the stem, bent down when ripe. Petals purple. Stamens four, five, or seven. Seeds flat, between half heart-shaped and kidney-shaped, the circular edge downy, with an elevated rounded border, the straight edge plain, dark brown; some encompassed with a membranaceous border, deeper than half the breadth of the seed, white, with radiated scores, toothed at the edge. So remarkable a difference in structure one might have expected to afford a mark of specific distinction, but though the two kinds of seeds are generally found on different plants, yet they are sometimes seen in the same seed-vessel^t.

Authors differ as to the colour of the petals. Villars says they are *d'un blanc de rose purpurin*. Pollich and Krockner agree with Linneus, that they are white. The former is singular in attributing five styles to the flower; and affirms, that he has numbered more than twenty seeds in a capsule, black, compressed, with a white pellucid rim.

Hudson takes this to be only a variety of the foregoing species. Dillenius^u says, that it differs in the slenderness of the root, and the smallness of the whole plant, especially the flower and seed, which last has usually no rim, and when it has, it is much narrower than in the Sea Spurrey; the internodes are also longer in this. It flowers as that does in June and July, and is found plentifully on the shell-coast of the isle of Shepey. It is also a native of Germany and France.

Pollich and Stokes differ widely as to its time of flowering: the former affirming that it flowers early in spring, and ripens its seeds in May; the latter, that he has found it in flower in September.

Willdenow informs us, that it differs from *Spergula pentandra* of Linneus, in its membranaceous stipules; three pistils; and more pubescent stalks^v. He assigns April and May for the time of flowering.

14. Bavarian Sandwort is perennial. Stems prostrate, with many slender, divided branches; having a pair of oblong, narrow, pale-green leaves at each joint. At the end of each branch is one flower: calyx whitish; corollas white, petals acuminate; sometimes fringed and purplish. Capsules small, of an oblong spheroidal form. Seed minute, flattened, black, shining^w.

Native of Bavaria, monte Baldo, and little St. Bernard.

15. This is perennial, and of the same stature with the species next following. Stem upright, six inches high, smooth, with seven or eight joints. Root-leaves copious; stem-leaves larger, longer than the internodes. Panicle terminating, brachiate, dichotomous, subfastigate; the last pedicels subvillose. Calyx ovate, hardish, mucronate. Petals white, three times as long as the calyx. Native of the Levant^x.

16. This is perennial; and the roots put forth an incredible number of stems, forming a very thick tuft, from four inches to a span in height, branching much, and very full of flowers. Peduncles short, one-flowered. Petals white, larger than the calyx. The whole plant is smooth^y.

Scopoli describes the stem as biflorous; the peduncles villose; the leaflets of the calyx smooth, with white edges, and marked with three lines; petals woolly at the base; seeds about eight in a capsule, brown and kidney-shaped.

^p Lin. mant. ^q Allioni. ^r Villars. ^s Lin. spec. & syst.

^t With. arr. 460. ^u Raii syn. ed. 3. 351. ^v Fl. berol. prodr. n. 486.
^w Ray hist. ^x Schreber. ^y Haller.

Native of France, Germany, Switzerland, Car-niola, Siberia.

17. This differs from the foregoing, in having stems not more than three or four inches high, set with few hairs; the peduncles hairy, and the calyxes sharp^b.

Leaves next the ground in tufts, smooth, stiffish, with three ribs underneath; two or three pairs on each branch; flowers terminating and axillary, from one to six, but generally three. Petals oval, white, a little longer than the calyx^c.

Native of Dauphiné, Savoy, Austria, and Britain; on mountains: as in Cornwall, near the Land's-end; about Settle, Kendal, Matlock, and other places in the northern counties; Arthur's seat near Edinburgh: in Wales, near Holywell, between that and St. Asaph, Llanberys, &c. It flowers from may to august.

18. This has the habit of Spurrey. The stems are simple with scattered hairs. Leaves opposite, flat, with a few hairs underneath. Panicle first dichotomous, and then branching with alternate peduncles^d. Native of Montpellier.

19. Root perennial. Stems very many, half a foot high, round, pale, very slightly pubescent, almost naked at top. Leaves spreading, connate at the base, three-nerved, almost triangular, mucronate and pungent, very slightly pubescent; root-leaves very short, blunt, without prickly points, pressed close to the stalk, smooth. Flowers in panicles, terminating, upright, dichotomous, scarcely pubescent. Bractes small, ovate-lanceolate, acute, three-nerved, with a scariosé waving edge. Peduncles filiform, smooth, upright, one-flowered. Calyx blunt at the base, even, always closed; leaflets ovate-lanceolate, mucronate, three-nerved, the three outer ones sometimes bent obliquely, and the two others closely embracing. Petals obovate-lanceolate, obtuse, scarcely twice as long as the calyx, streaked, white. Filaments filiform, equal, the length of the calyx. Germ oblong: styles three, the length of the stamens. Capsules three-valved, obtuse, shining, a little longer than the calyx. Seeds numerous, small, compressed, roundish, black.—Native place unknown^e.

20. Root perennial. Stems frequently purple and much branched. Leaves connate, much swelling at the base, shorter than the internodes, frequently in bundles from the axils of the larger, which are the rudiments of branches^f. Calyx generally smooth, but frequently a little hairy; the leaflets much acuminate or awned, with two green lines underneath. Petals broad-lanceolate, shorter by half than the calyx^g, white. Anthers small, purple. Styles three, white, with white blunt stigmas. Capsule ovate. Seeds (twenty-seven) small, roundish, brown^h.

Haller has two plants (n. 865. & 866), the first of which, he says, has ten stamens, the second only five: they are both varieties of the *Arenaria tenuifolia* of Villars; the first he calls *A. hybrida*, the second *A. Barrelieri*. La Chenal mentions another, about Basil, with eight stamens. Leers, who has described *A. tenuifolia* at large, and makes it an annual plant, says that the primary flowers have ten, and the later ones from seven to nine stamens: in truth, the number varies so much in this genus, that it is of no importance in determining the species.

Native of Spain, France, Germany, Switzerland, Italy, England, and Denmark. With us it is found on Gogmagog-hills and the borders of Triplow-heath in Cambridgeshire; near Bury in Suffolk; near Cley in Norfolk; Cornbury-quarry, near Charlbury, in Oxfordshire; Malvern-hill, in Worcester-shire; near London, at Battersea and Deptford, &c. flowering in june and july.

21. Root perennial. Stems many, half a foot high, harsh and rough. Peduncles roughish, one-floweredⁱ. Calyx oblong, marked with lines, cy-

lindric, pubescent^k. Petals ovate, marked with lines, large, quite entire, twice the length of the calyx^l. Fruit long cylindric^m.

Native of France; Switzerland, Savoy, Piedmont, and Westmoreland. It flowers in july and august.

22. Villars makes this and the foregoing, (if his plants be the same which Linneus intended under the same names) to be varieties only of the same species. They are both perennial; their leaves are narrow, bristle-shaped, in bundles, ash-coloured or dark green; their stems almost naked; calyx cylindric, the leaflets obtuse; parallel, channelled on the outside, a little hairy, as is also the upper part of the stem.—N. 21. has the leaves more green, the stems couchant, ascending a little, having several branches towards the top, much divaticating, in the manner very well represented in Magnol's figure; petals marked with transparent lines at the base, and exceeding the calyx about a third of their length.—N. 22. or *A. striata*, has the leaves a little ash-coloured; the stems straight; the flowers two or three, on very short, terminating peduncles; petals very large, a little concave, wider, with transparent lines from end to end, exceeding the calyx by half their length; by the help of a glass, an infinity of yellowish glands appear on the leaves of this, which are not on those of the other.

Allioni has described and figured a much smaller species under the name of *A. striata*, differing from all the other species. The leaves are rude, striated, but capillary; the leaflets of the calyx are striated, but oval and pointed; the petals are much smallerⁿ.

He gives the *A. cherleroides* of Villars as a synonym of this plant. Villars thus describes it.—Perennial, creeping, very small; stems hard, twisted, almost woody, forming tufts; the flowering-stems rise one or two inches, and support one or two, seldom three pretty large flowers; leaves all equal, resembling those of the calyx, stiff, small, pointed, channelled, scarcely hairy; the lower, or those that terminate the young barren branches, are so close as to form four-cornered prisms like those of *Saxifraga oppositifolia*; those of the stem, to the number of two or three pairs, are a little more detached, and are two or three lines in length; the petals are open, spreading from the middle, narrow at their base, and drawn in though obtuse at the end; the ten stamens are fixed on a circle of glands interposed between them and the petals; the capsule is conical^o.

A. striata is a native of Switzerland, and was introduced in 1768, by Professor De Saussure. It flowers from june to august^p.

23. Root annual. Stem four inches high, pubescent. Leaves linear, acuminate, erect, subciliate. Flowers in bunches, dichotomous, on very short pedicels. Calyx erect, with subulate, striated, subciliate, long leaflets. Petals ovate-oblong, white, very small. Anthers twin, globose. Capsule shorter by half than the calyx. It has the habit of *Minuartia*^q. Native of the south of France, the alps of Piedmont, Austria, &c. It flowers in august; and was introduced in 1787, by Mr. Zier^r.

24. Root perennial. Stem branching, leafy, with one or two flowers on each branch. Leaves furrowed, awned, with the edge and nerve a little hairy. Peduncles erect, long, with two leaves. Petals white, ovate, very large^s. Leaflets of the calyx broader than the stem-leaves, with several streaks, and rigid. Capsules oblong, the length of the calyx^t.

Gouan remarks, that Linneus and Allioni have made their descriptions from dwarf plants, growing on a dry soil bordering on the snow. He thus describes it. Stems several, three inches long, commonly undivided, having from two to eight pairs of leaves on them. Leaves flat, lanceolate or ovate, those next the root especially bright green, pubes-

^b Lin. mant. ^c Lightfoot. ^d Lin. spec. ^e Smith ic. ined. ^f Woodw. M. S. ^g Linn. syst. ^h Pollich. ⁱ Haller.

^k Linn. syst. ^l Allioni. ^m Haller. ⁿ Villars's dauph. 631. ^o Dauph. p. 626. ^p Hort. kew. ^q Lin. syst. ^r Hort. kew. ^s Haller. ^t Lin. syst.

cent when viewed by a glass. Flowers terminating, one to four, upright. Peduncles an inch long, therefore solitary or alternate, as the stem is simple or branched. Calyxes large, with unequal leaflets, the outer ones broader as in most of the *Cistus* kind, ovate, lying over each other at the base.

Villars affirms that the *A. grandiflora* of Linneus and Allioni holds the middle place between his *A. juniperina* and *cherleroides*^a. Native of Switzerland, the south of France, near Geneva, Mont Cenis, the Vaudois, Carniola, &c.

25. Perennial. Stems ascending, at top dichotomous, or trichotomous with the middle peduncle longest. Leaves linear, subvillose, with a sharp end, not nerved, thickish, connate, but not perfoliate at the base. Stems, peduncles and calyx villose. Leaflets of the calyx ovate with a sharp end. Petals obovate, very slightly emarginate. Capsule five-valved, shorter than the calyx, which is pressed close to it. Seeds pale brown^x.

Native of the mountains of Austria, Switzerland, and Piedmont.

26. Perennial. Stems short, distorted, perennial; branches annual, very simple, upright. Leaves round, sharp, even. Peduncles subpubescent, terminating, generally two, one succeeding the other. Calyxes subpubescent; leaflets lanceolate, with two streaks. Petals obovate, white. The stem is much longer than in *A. grandiflora*, and is suffruticose at the base; the leaves also are not flat, and the leaflets of the calyx have not many streaks. It is a native of the southern countries of Europe^y.

27. Root biennial, consisting of many, long, round, yellowish, tough fibres, collected into one head, and producing a tuft of stems, a finger's length, with bundles of leaves in form of a rose at their base. Leaves somewhat striated, even, round, flattish above, ending sharp: on each stem usually three, sometimes four pairs. The top of the stem commonly forks once, and bears two or three flowers. Calycine leaflets ovate-lanceolate, ending in an awn, and marked with three streaks. The stem and peduncles very slightly hirsute. Petals white, a little longer than the calyx, awned, entire^z.

Gerard describes his plant as perennial; stems many, three inches high, simple, straight, having very small scattered hairs towards the top. Leaves towards the root very many, aggregate, forming tufts, bristle-shaped. Stem-leaves upright, linear-setaceous, unequal, flattish above, with the edges rolled back to the midrib below, marked with two streaks; they are shorter than the internodes, and become both shorter and broader the higher they are. Peduncles terminating, unequal, two or three together; the middle one longer than the others, the side ones being subsessile. Leaflets of the calyx lanceolate, acuminate, striated, subvillose. Petals and stamens the length of the calyx. Styles three, short. Capsule oblong^a. Native of Provence, and the high alps of the Vaudois in Piedmont, in rocky pastures. Also of St. Gothard, St. Bernard, Enzeindaz, and other very high mountains of Switzerland, if it be n. 868 of Haller.

28. Perennial. Stems several, procumbent, branched. Leaves connate, soft, green. The branches are usually terminated by two flowers on long peduncles. Leaflets of the calyx ovate-lanceolate, green. Petals ovate, quite entire, scarcely larger than the calyx. Stamens shorter than the petals. Fruit conical five-valved. It is distinguished from the species which most resemble it, by its linear, blunt leaves not revolute; its weak, branching, procumbent stem; and the leaflets of the calyx being neither acute, nor deeply striated^b.—Native of the high alps of Switzerland, St. Bernard near the Hospice, Fenestrelles, &c.

29. Root perennial, dark-coloured, tough, with very few fibres, creeping. Stems filiform, in a tuft, branching, creeping, very finely hairy. Leaves

^a Dauph. 625. ^x Allioni. ^y Lin. syst. & suppl. ^z Allioni.
^a Fl. gallo-prov. p. 405. ^b Allioni.

smooth, or sometimes a little hairy, firm, at first upright, then spreading, lanceolate, acute, with three raised nerves. After having borne three pairs of leaves, the stem divides into two peduncles (seldom three), diverging very little, either naked or with one pair of leaves. Corolla spreading, large, a little larger than the calyx; petals ovate, quite entire. Stamens longer than the petals, alternately shorter; anthers small, purple. Leaflets of the calyx like the other leaves. Fruit conical, five-valved^c.

Villars refers to *A. lanceolata* of Allioni under his *A. juniperina*; and this is supposed to be the same with *A. grandiflora*, n. 24.—Allioni has referred to n. 864. both under this and *A. austriaca*.

The confusion of species and synonyms in this genus requires a masterly hand to extricate it. Villars is of opinion, that *A. multicaulis* of Linneus, is nothing but a variety either of *A. ciliata* or *serpyllifolia*. He describes and figures a species under the name of *A. apetala*^d, which Monf. Gouan thinks is the same with Linneus's *A. biflora*. He doubts whether *A. austriaca* of Allioni may not be *A. triflora* of Linneus; and whether *A. montana* is not a variety of the same. Dr. Smith affirms, and who can doubt it, that *A. juniperina* of Villars is *A. grandiflora* of Linneus. Villars doubts whether *A. lanceolata* of Allioni be the same with his *juniperina*. He refers Gerard's seventh species to *A. verna* of Linneus; Dr. Smith refers it to *A. recurva* of Allioni; to which M. Villars thinks the *verna* nearly allied, as also to *A. laricifolia*. M. Villars joins the *laricifolia* and *striata* under one species, and suspects that the *striata* of Allioni is different. He seems to think that the plant which he describes under the name of *saxatilis* is the *tenuifolia* of Linneus, and he splits his *tenuifolia* into three varieties, the first of which he takes to be the same with Linneus's *Alpine* or *Arenaria mucronata*; the second to be Haller's n. 866; and the third to be Haller's n. 865. He calls it *hybrida*, and thinks it may be a mule arising from *A. saxatilis* impregnated by the pollen of *A. serpyllifolia*. M. Villars even doubts whether *Cerastium pentandrum* may not be a variety of *A. mucronata*.

30. Root woody, perennial. Stems numerous, upright, a foot high, round, smooth, having six or seven joints. Leaves connate-stem-clasping, acute, smooth, except at the edge where they are serrulate-scabrous, usually longer than the internodes, the upper ones shorter and resembling the bractes. Flowers in a terminating spike or close head, on short filiform peduncles, fenced with bractes, monoeous. The lower bractes very large, membranaceous, keeled, mucronate, ventricose, longer than the calyxes; the upper ones shorter and more slender. Leaflets of the calyx ovate, obtuse, membranaceous, smooth. Petals white, obovate, with claws, three times as long as the calyx. In the male flowers, five of the stamens the length of the corolla, and five shorter; anthers sagittate, all fertile: germ ovate, abortive; styles three, very short, shrivelling. In the female flowers, all the ten stamens very short; with membranaceous effete anthers: germ ovate; styles three, the length of the corolla; stigmas reflex, pubescent at top. Found in Armenia, by Tournefort.

31. Root perennial, somewhat woody. Stems numerous, upright, a foot high, round, smooth. Leaves connate-stem-clasping, acute, smooth except at the edge, the upper ones shorter. Panicle terminating, patulous, viscid. Flowers the size and appearance of common Flax. Bractes acute, scarious at the edge, only one-fourth of the length of the peduncles. Leaflets of the calyx ovate, keeled, striated, acute, pubescent, viscid, with a scarious edge. Petals white, with subpellucid streaks. Five of the stamens the length of the corolla, and five shorter. Germ roundish; styles three, the length of the corolla. Capsule one-celled, ventricose, shining, clothed with the calyx. Seeds very many.

Found in Armenia, by Tournefort^e.

^c Allioni. ^d Dauph. 622. t. 48. ^e Smith ic. ined.

PROPAGATION AND CULTURE.

The greater part of these plants are natives of Europe, and most of them affect mountainous situations. They have neither size nor brilliancy enough to be generally cultivated in gardens; many of them however are neat elegant plants. The perennial sorts may easily be increased by slips, or parting the roots. Both these and the annual sorts may be propagated from seeds. They require no other care but what is necessary for all hardy vegetables.]

[ARETHUSA. (The name of one of Diana's nymphs, who was fabled to be changed into a fountain in Sicily.—The name of a city in Syria. Lin.)

Gron. Lin. gen. n. 1014. Reich. 1099. Schreb.

1373. Juss. 65. Orchidion. Mitch. 19. Bipinnula. Commers. Juss. 65.

Class. 20. 1. Gynandria Diandria.

Nat. order of Orchideæ.

GENERIC CHARACTER.

CAL. Spathe leafy. Perianth none.

COR. ringent. Petals five, oblong, subequal, two outer, all converging into a helmet.

Nectary one-leaved, tubular at the base, within the bottom of the corolla, two-parted: lower lip reflex, broad, wrinkled, the length of the petals, hanging down forwards; upper lip linear, very tender, fastened to the style, lobed at the top.

STAM. Filaments two, very short, sitting on the top of the pistil: anthers ovate, compressed, covered with the folding of the inner lip of the nectary.

PIST. Germ oblong, inferior: style oblong, incurved, clothed with the inner lip of the nectary: stigma funnel-shaped.

PER. Capsule oblong-ovate, one-celled, three-valved, gaping at the angles.

SEEDS numerous, acerose.

ESSENTIAL CHARACTER.

Nectary tubular, within the bottom of the corolla: the lower lip fastened to the style. (The upper lip. Gen.)

SPECIES.

1. *Arethusa bulbosa*. Bulbous-rooted *Arethusa*.

Lin. spec. 1346. Reich. 4. 32. amæn. 3. p. 15.

Gron. virg. 184.

Helleborine mariana, &c. Pluk. mant. t. 348. f. 7.

Orchidi affinis. Gron. virg. 110.

Root globose, scape sheathed, spathe two-leaved.

2. *Arethusa ophioglossoides*. Adder's-tongue leaved *Arethusa*.

Lin. spec. 1346. Reich. 4. 33.

Helleborine virginiana, &c. Pluk. alm. t. 93. f. 2.

Cypripedium. Gron. virg. 1. 110. hort. cliff. 430.

Root fibrous, leaf of the scape oval, spathaceous; leaflet lanceolate.

3. *Arethusa divaricata*. Lily-leaved Helleborine or *Arethusa*.

Lin. spec. 1346. Reich. 4. 33. Gron. virg. 139.

Serapias. Gron. virg. 1. p. 184.

Helleborine lilii folio, &c. Catesb. car. 1. t. 58.

Root subpalmate, leaf of the scape and leaflet of the spathe lanceolate, the outer petals rising.

4. *Arethusa capensis*. Cape *Arethusa*.

Lin. syst. 817. suppl. 405.

Bulb round, stem two-leaved, simple, one-flowered.

5. *Arethusa villosa*. Villose *Arethusa*.

Lin. syst. 817. suppl. 405.

Bulb round, leaves ovate ciliate, pubescent.

6. *Arethusa ciliaris*. Ciliated *Arethusa*.

Lin. syst. 817. suppl. 405.

Orchis burmanniana. Lin. syst. ed. 13. p. 405. spec. 1334.

Root fleshy, leaf kidney-shaped orbiculate, lip ciliate.

7. *Arethusa biplumata*. Two-feathered *Arethusa*.

Lin. syst. 817. suppl. 405. Smith ic. ined. t. 23.

Scape sheathed, spathe coveled, the two lower petals elongated bearded on the upper side.

DESCRIPTIONS, &c.

The three first of these plants are inhabitants of watery places and bogs in Virginia, Carolina and Canada. The three next are from the Cape. And the last was found at Buenos Ayres in South Ame-

rica, by Commerson. The first was introduced here in 1784, by Mr. William Young^a.

4. Leaves two, alternate, sheathing, awl-shaped. Found at the Cape of Good Hope, by Thunberg^b.

5. This, which was also found at the Cape, by Thunberg, resembles the *Commelina*^c.

6. Bulb villose, double, longish. Scape six or seven inches high, scarcely pubescent. Leaf one-subradical, heart-shaped, suborbiculate, nerved, stem-clasping, subsessile, subpubescent. Spathe ovate, stem-clasping, rather acute, small, pubescent. Flower one nodding. Germ hairy, the length of the petals. The three upper petals rather erect, lanceolate: the two lower longer, lanceolate-ensiform. Horn of the nectary moon-shaped, shorter than the germ: lip large, subtripartite, ciliated, the middle division bifid: raments setaceous, longer than the lip itself: column of stamens rising, half the length of the petals: styles parallel, standing out, the length of the column: stigmas oblong, a little narrower than the styles. Found at the Cape by Sparrmann^d. Introduced in 1787, by Mr. Fr. Masson^e.

7. Stem quite simple, a foot high, upright: radical leaves linear-lanceolate, acute, membranaceous at the base, equitant: stem-leaves six or seven, membranaceous, acute, sheathing, alternate, cloathing the stem, the uppermost broader, serving for a spathe, the height of the flower. Flower terminal, solitary, erect, handsome, purple. Germ inferior, obconical, smooth. The three outer petals of the corolla longer, irregular; the upper somewhat vaulted, acute, naked; the two lower ones subulate, very broad at the base, ascending, bearded on the upper side towards the top with club-shaped hairs or stipitate glands; the two inner petals shorter, opposite, somewhat rhomb-shaped, acute, netted with purple veins^f. Roots fascicled or in bundles^g.

PROPAGATION AND CULTURE.

The three first are hardy, and will endure the rigour of our climate. The three next must be kept in the conservatory or cape-stove. The last must be preserved in the bark-stove. But none of these plants have been yet introduced in England, except the first and sixth. Considering their places of growth, in bogs or watery places, it will be no easy matter to preserve them long with us.]

[ARETIA. (Given by Haller in honour of Benedictus Aretius, a clergyman of Berne, in the 15th century; from whom the famous Gesner learnt Botany.)

Hall. belv. t. 8. f. 1. Lin. gen. n. 195. Reich.

208. Schreb. 256. Juss. 96.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Preciæ*. *Lyfimachia* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, bell-shaped, semiquinifid, bluntish, permanent.

COR. monopetalous, falver-shaped: tube ovate, the length of the calyx, contracted at the neck: limb five-parted: divisions obovate.

STAM. Filaments five, conic, in the middle of the tube, very short: anthers erect, sharpish, within the throat of the corolla.

PIST. Germ roundish: style filiform, the length of the tube: stigma flat-headed.

PER. Capsule one-celled, five-valved.

SEEDS five. Jacq. three and five. Reich.

ESSENTIAL CHARACTER.

Cor. falver-shaped five-cleft, tube ovate. Stigma flat-headed. Caps. one-celled, globular; with about five seeds.

SPECIES.

1. *Aretia helvetica*. Imbricated *Aretia*.

Lin. syst. 191. Reich. 1. 407. Hall. belv. n. 617. t. 11.

Diapensia helvetica. Lin. spec. 203. mant. 335. Jacq. vind. 303.

Androsace Diapensia. Villars dauph. 2. 472.

Leaves imbricate, flowers subsessile.

^a Hort. kew. ^b Linn. suppl. ^c Ibid. ^d Ibid. ^e Hort. kew. ^f Linn. suppl. corrected from Smith. ^g Jussieu.

2. *Aretia alpina*. *Linear-leaved Aretia*.
Lin. spec. 203. *syft.* 192. *Reich.* 408. *mant.* 335.
Jacq. austr. 5. 36. *app. t.* 18. *Hall. belv.*
n. 618. *t.* 11. *f. sup.*
Androsace caulescens, &c. *Amæn. acad.* 1. 164.
Andr. Aretia. *Villars dauph.* 2. 473.
Leaves linear, spreading; flowers pedunculated.
3. *Aretia Vitaliana*. *Grass-leaved Aretia*.
Lin. syft. 192. *Reich.* 408. *Hall. belv. n.* 616.
Primula Vitaliana. *Lin. spec.* 206. *Amæn.* 1. 160.
Allion. pedem. n. 333. *Villars dauph.* 2. 470.
Vitaliana perennis, &c. *Sest. epist. t.* 10. *f.* 1.
Sedum alpinum, &c. *Column. ecphr.* 2. *t.* 65. *f.* 1.
Raii hist. 1044. 1.
Sanicula alpina, &c. *Pluk. alm. t.* 108. *f.* 6.
Leaves linear, recurved; flowers subsessile.

DESCRIPTIONS, &c.

These are small, perennial, alpine, creeping plants; the little stems are covered with leaves; the flowers are axillary and almost solitary.

This genus is very nearly allied to *Primula*, differing from it principally in having the tube of the flower contracted at the neck, whereas it is open in that. It is still more nearly allied to *Androsace*, and is therefore united with it by Scopoli, Allioni, Villars, and others. Haller leaves only *A. maxima* in the genus *Androsace*, and places all the other species under *Aretia*. Amidst this diffention it seems best to arrange these genera as Linneus left them.

1. Root perennial, producing innumerable stems forming thick tufts, which cover the rocks where it grows; they rise only two or three inches, and are entirely covered with hard, dry, small, very short leaves, having a pile of forked hairs on them. One flower terminates each branch: a large calyx, rough with hairs like the leaves, covers the whole: corolla white, with five bifid yellow glands and a greenish-yellow circle at the entrance of the tube. Fruit roundish with angles, inclosed in the calyx, opening at top by five valves, whence issue two or three blackish, oblong seeds, convex on the outside, angular on the inner side, plunged in a spongy receptacle which partly fills the capsule^a.

The seeds are longer, darker and fewer in number than in *Primula* and *Androsace*. The germ contains rudiments of five seeds, two or three of which are abortive^b.

Native of the western alps of Switzerland, and of Dauphiné.

2. This forms a less hard turf than the foregoing with its tufts of leaves, which are linear, wider than the other, and drop from the base of the stems every year. Peduncles filiform, five or six lines in length. Calyx cylindric, cut half way into five hairy divisions resembling the leaves. Corolla a little larger than the calyx, with the five divisions rounded. Fruit frequently abortive, but sometimes it has ten or twelve seeds in dry airy situations^c.

Haller has three varieties of this plant. *α*. Harder, and the leaves almost smooth. Stems covered with the old leaves, finishing at top in a rose of leaves that are elliptic, ciliate, marked with lines, diverging, much longer. From the middle of this issues a scape two lines in length. Calyx hirsute, not angular, divided two thirds of its length, with straight narrow segments. Flower larger; tube short, cylindric; segments emarginate, serrate, white. From the tube of the flower two longish glands go to each segment, so that each is split into two. The five stamens are in the middle of the tube of the flower. Fruit round, compressed, five-valved.

β. More tender, with the leaves more villose, not spreading so much, and shorter. The flowers are like the others, and issue from rose-like tufts of leaves, frequently from the side, but from the top also, on peduncles two lines in length. Calyx similar, white with five raised lines, ending in stout lanceolate segments. Flower rose-coloured; segments roundish, ovate, with five glands, and a five-cornered star. Stamens at the top of the tube.

^a Haller and Villars.^b Villars.^c Ibid.

γ. With the leaves and calyx covered with a close white pile; the flower purple on somewhat longer peduncles; the stems purple; the fruits four-valved.

These are found on different parts of the Swiss alps; the second on Mont St. Bernard, Simplon, &c.; the third in the Grisons, and the valley of St. Nicholas.

Monf. Villars has also given three varieties, which he suspects may possibly be distinct species. *a*. *Hoary*, with the hairs of the leaves branching; the flowers white, often terminating. *b*. *Hirsute*, with the hairs of the leaves branching; the flowers purplish, axillary. *c*. *Hirsute*, with the hairs of the leaves simple; the flowers white, with a purple eye. This last is sometimes found with round, dry, very close leaves, approaching to the foregoing species, but removed from it by the axillary leaves, and the simple hairs. The first resembles it still more in its terminating flowers, but these flowers are larger, and the leaves wider, though gathered on the same rock. The second forms very fine tufts of red flowers on Mont St. Bernard, 400 toises perpendicular to the east of the hospice, which is 1260 toises above the level of the sea; and thus carries vegetation there to the height of near 1700 toises, not a great deal less than two miles^d.

This species occurs also in Austria. Both this and the foregoing were introduced in 1775, by Drs. Pitcairn and Fothergill^e.

3. This is a very small plant, always lying on the ground. The root, which is perennial, puts up many distant tufts, forming roses, like the *Sedum*, of hardish, narrow, pointed leaves, which are villose, a little ash-coloured, ciliate round the edge. Stems very short, one-flowered. Calyxes the length of the tube of the corolla, villose, five-cleft beyond the middle, segments long, lanceolate. Corolla deep yellow, with a long tube, half of it naked; in the opening are five large glands: the five divisions of the border ovate-oblong. Fruit round, small; with five kidney-shaped seeds^f.

According to Allioni, the fruit is deeply divided into five parts, and contains only three seeds, two of which only ripen; they are black, large, triangular with the outer side arched. Columna observed long since that there are only two seeds in a capsule.

Villars remarks, that there are the rudiments of five seeds in the germ, but that two always, and very often three, are abortive: he adds, that the receptacle is very large and spongy; and that the hairs on this plant are branched, as in the other *Aretias*. He has not been able to discover the glands which Haller describes; and Allioni observes, that if these glands are to separate this genus from *Primula*, the *farinosa*, having them, would also be an *Aretia*.

Native of the Pyrenees, the high alps between the Valais and Italy, and in Dauphiné.

Introduced here in 1787, by Monf. Cels^g.

PROPAGATION AND CULTURE.

These little alpine plants are not preserved in gardens without some difficulty. They require a shady situation; and if the seeds can be procured, they should be sown as soon as possible. They may also be propagated from offsets or slips, and by parting the roots.]

ARGAN. See *Sideroxylon*.

ARGEMONE. (*Ἀργεμώνη* Diosc. from *Ἀργέμα*, a disorder of the eye, which this plant is said to cure.)

Lin. gen. n. 649. *Reich.* 705. *Schreb.* 882.

Tournef. 121. *Gertn. t.* 60. *Juss.* 236.

Class. 13. 1. Polyandria Monogynia.

Nat. order of *Rhoeadeæ*. *Papaveraceæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* three-leaved, roundish: *leaflets* roundish with a point, concave, caducous.

COR. *Petals* six, roundish, from erect spreading, larger than the calyx.

^d Dauph. 474. ^e Hort. kew. ^f Haller, Villars, Linn. ^g Hort. kew.

STAM. *Filaments* numerous, filiform, the length of the calyx: *anthers* oblong, erect.

PIST. *Germ* ovate, five-angled: *style* none: *stigma* thickish, obtuse, reflex, quinquefid, permanent.

PER. *Capsule* ovate, five-angled, one-celled, half-valved.

SEEDS numerous, very small. *Receptacles* linear, fastened to the angles of the pericarp, not gaping.

OBS. *The half-valved capsule distinguishes this from Papaver. The second species is three-valved; the third four-valved; and the first six-valved.*

ESSENTIAL CHARACTER.

Cor. six-petalled. Cal. three-leaved. Caps. half-valved.

SPECIES.

1. *Argemone mexicana*. Prickly *Argemone* or Poppy.
Lin. spec. 727. *Jyst.* 490. *Reich.* 2. 575. *hort. cliff.* 201. *upf.* 135. *Gertn. fruct.* 1. 287. *Merian. sur.* 1. 24. *Mill. fig.* 1. 50. *Brown. jam.* 244.

Papaver spinosum. *Baub. pin.* 171. *prodr.* 93. *t.* 92. *Clus. hist.* 2. *p.* 93. *Mor. hist.* *f.* 3. *t.* 14. *f.* 5. *Ger.* 993. *f.* 2. (*Carduus*) *Park. theat.* 366. *f.* 5. *Best. exst. æst.* 12. *t.* 5. *f.* 1. *Raii hist.* 856. 8. *Capsules* six-valved, leaves spiny.

- [2. *Argemone armeniaca*.

Lin. spec. 727. *Reich.* 2. 575. *Papaver orientale*, *hypecoi folio*, *fructu minimo*. *Tournef. cor.* 17. *Capsules* three-valved.

3. *Argemone pyrenaica*.

Lin. spec. 728. *Reich.* 2. 575. *Capsules* four-valved, stem naked.

DESCRIPTIONS, &c.

1. This is an annual plant, rising to the height of two or three feet, with stems armed with prickles. Leaves sinuate or jagged, soft, shining; stem-clasping, the points of the jags ending in sharp yellow spines; on the upper side are milky veins, as in our Lady's Thistle, on the under are small prickles along the midrib and veins. Flowers solitary at the ends of the stem and branches: corolla yellow, with from four to six petals; the calyx consists of two or three prickly leaves; stigma capitate, small, with five notches. Capsule superior, having five or six ribs from top to bottom, and between the ribs armed with bristle-shaped spines; at the top is the flattened stigma. Seeds very numerous, round, black, rough, with a compressed scar on one side. The valves of the capsule vary in number, as well as the petals, from four to six^a.

It is common in Mexico and all the islands of the West-Indies, where it is a troublesome weed in their cultivated lands. The Spaniards first brought it into Europe under the title of *Figo del inferno*, or Devil's Fig, which name it obtained from the form of the fruit, armed, as Parkinson expresses it, with cruel sharp prickles or thorns. It is now found in a wild state in some of the southern countries of Europe; and was cultivated by Gerard in 1597. It flowers in July and August^b.

The whole plant abounds with a milky glutinous juice, which turns in the air to a fine bright yellow, and when reduced to consistence is not distinguishable from Gamboge. In very small doses it is probably of equal efficacy given in dropfies, jaundice, and cutaneous eruptions^c. It is esteemed very detensive, and generally used in diseases of the eyes: but the infusion is looked upon as a sudorific and resolute, which may be used, with success, on many occasions^d.

The seeds are said to be a much stronger narcotic than Opium^e. They are thought to be an excellent remedy, and are frequently administered by the inhabitants, in the sugar colonies in diarrhoeas and bloody fluxes: they have a pungent warm taste; but it does not manifest itself for some time upon the palate. They work both by stool and vomit, and have been frequently administered in the dry belly-

ach; but we have much safer and better medicines for both these disorders; though this may be given with success, when the parts are relaxed or weakly, or the disorder proceeds from indigestion, which is frequently the case in hot climates^f. It is called the Yellow Thistle in the West-Indies.

2. This was discovered in Armenia by the celebrated Tournefort.

3. This approaches much in habit to *Papaver alpinum*; and is a native of the Pyrenees. Linneus distinguishes the species by the number of valves, which seems to be inconstant; at least it is so in the first. He remarks, that they may either be kept together under a distinct genus, or may be referred to *Papaver*. They are certainly allied very nearly to that genus, but are sufficiently distinguished from it, by the capsule opening half way by valves, instead of being perforated with holes under the cap, as in *Papaver*. Mr. Miller says, that the second and third sorts more properly belong to the genus *Papaver*, where Tournefort had placed them, because they agree in their character with the Welsh Poppy (*Papaver cambricum*); but Gærtner observes, with more reason, that *P. cambricum* is a genuine species of *Argemone*, because the capsule opens by valves and not by holes^g.]

PROPAGATION AND CULTURE.

1. The seeds must be sown on a bed of light earth in the spring, where they are to remain: if they come up too thick, the plants must be thinned to four inches distance; and when once they have shed their seeds, a supply of plants will not be wanting for several years after.

The two other sorts have not yet been introduced into cultivation.

ARGEMONE. See *Papaver*.

ARGENTINA. See *Potentilla*.

[ARGOPHYLLUM. (*Ἀργός* and *φύλλον*, *White-leaf*. The leaves being of a silky whiteness beneath.)

Forster. gen. n. 15. *Linn. suppl.* p. 22. *gen. Schreb.* n. 393. *Juss.* 161.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Ericæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* short, quinquefid: *divisions* sharp.

COR. *Petals* five, lanceolate-spreading, three-times greater than the calyx. *Nectary* five-angled, pyramidal, open at the top, consisting of many converging papillas, connate at the base.

STAM. *Filaments* five, subulate, inserted into the receptacle; shorter than the nectary: *anthers* ovate.

PIST. *Germ* turbinate, fastened at bottom to the calyx, flat above: *style* filiform, the length of the nectary: *stigma* globular.

PER. *Capsule* hemispherical, flat above, growing to the calyx, three-celled, opening into three parts.

SEEDS very many, globular, porous.

ESSENTIAL CHARACTER.

Caps. three-celled. Nectary pyramidal, five-angled, the length of the corolla.

SPECIES.

1. *Argophyllum nitidum*.

Forst. gen. n. 15. *Lin. Jyst.* 242. *suppl.* 156.

DESCRIPTION.

Perennial. Stems, petioles, leaves underneath, and panicles with the calyxes shining with a silky down. Leaves alternate, petiolate; ovate, pointed at both ends, quite entire, green above, smooth. Peduncles axillary, solitary, elongated, terminating in a panicle. Found in New Caledonia^h.

Loureiroⁱ has a genus of plants which he calls *Argyreia*, from the silvery appearance of the leaves. He has set down three species, two shrubs and a tree. The habit of the first and second resembles that of this genus. They are of the same class and order with *Argophyllum*, but the character of the fructification is different: the calyx being five-leaved, the corolla one-petalled divided into five parts, and having no remarkable nectary, and the

^a Gærtner. ^b Hort. kew. ^c Long's jam. 3. 845. ^d Browne. ^e Long.

^f Browne.

^g Fruct. 1. 288.

^h Linn. suppl.

ⁱ Fl. cochinch. 134.

seed-vessel a four-celled berry, with one seed in each cell.

ARGUZIA. See *Messerschmidia*.

ARGYROCOME. See *Baccharis*, *Gnaphalium*, and *Xeranthemum*.

ARGYRODENDROS. See *Protea*.]

[ARGYTHAMNIA. (From *argyros*, white, and *thamnion*, a little shrub.)

Lin. gen. Schreb. n. 1418. Brown. 338. Swartz. prodr. 39. Juss. 386.

Class. 21. 4. Monoecia Tetrandria.

Nat. order of *Tricoccæ*. *Euphorbiæ* Juss.

GENERIC CHARACTER.

* Male flowers.

CAL. Perianth four-leaved: leaflets lanceolate, erect.

COR. Petals four, lanceolate-ovate, ciliate on the margin, shorter than the calyx. Nectary: four glands between the petals, roundish, depressed.

STAM. Filaments four, longer than the petals, approximated at the base, dilated. Anthers simple.

PIST. rudiment of a style.

* Female flowers in the same raceme under the male ones.

CAL. Perianth five-leaved: leaflets lanceolate.

COR. none.

PIST. Germ ovate, somewhat three-cornered. Styles three, spreading, half-two-cleft: each of the clefts bifid. Stigmas lacerate.

PER. Capsule tricoccous, three-celled, six-valved.

SEEDS solitary, roundish.

ESSENTIAL CHARACTER.

MALE. Cal. four-leaved. Cor. four-petalled.

FEM. Cal. five-leaved. Cor. none. Styles dichotomous. Caps. tricoccous, with solitary seeds.

SPECIES.

1. *Argythamnia candicans*.

Swartz. prodr. 39. Brown. jam. 338.

Ricino affinis odorifera fruticosa minor, &c. Sloan. jam. 1. 133. t. 86. f. 3.

DESCRIPTION, &c.

This shrub seldom rises above five feet in height; and the trunk and branches are covered with a whitish bark^a. The branches are four or five feet long, sometimes rising upright, and at other times lying along the surface of the earth. The twigs have leaves at their ends, standing round them, about an inch and one-third in length, and an inch in breadth; they are oval, ferrate, and of a very dark green colour, something like *Germander*. Flowers axillary, on very short peduncles. Calyx five-leaved. Stamens six, greenish. Seed-vessel tricoccous, green, becoming as big as that of *Heliotropium tricoccon*, only it is smooth, and of a very pleasant pale purple colour. The leaves when bruised are very odoriferous^b.

Adanson refers the *Ateramnus* also of Browne to this genus; uniting both to the order of *Euphorbias*, and giving them six ciliate stigmas, alternate leaves, and axillary flowers in spikes^c.

This shrub is a native of Jamaica, where it is pretty frequent in the lower hills, on a dry gravelly soil^d.

ARIA-BEPOU. See *Melia*.

ARIA Theophrasti. See *Cratægus*.

ARIA-YEELA. See *Cleome*.

ARISARUM. See *Ambrosinia* and *Arum*.]

[ARISTEA.

Lin. gen. Schreb. n. 1712. Aiton kew. 3. p. 506.

Class. 3. 1. Triandria Monogynia.

Nat. order of *Ensatæ*. *Irides* Juss.

GENERIC CHARACTER.

CAL. Spathes bivalve.

COR. Petals six, oblong, spreading, nearly equal.

STAM. Filaments three, filiform, shorter than the petals. Anthers oblong, erect-incumbent.

PIST. Germ inferior, three-cornered. Style filiform, longer than the filaments, declinate. Stigma funnel-form, gaping, fimbriated on the margin, somewhat three-cornered.

^a Browne.

^b Sloane.

^c Juss. gen. 386.

^d Browne.

PER. Capsule oblong, three-cornered, three-celled, three-valved.

SEEDS very many.

ESSENTIAL CHARACTER.

Pet. six. Style declinate. Stigma funnel-form, gaping. Caps. inferior, with many seeds.

SPECIES.

1. *Aristea cyanea*. Grass-leaved *Aristea*.

Ait. hort. kew. 1. 67.]

Ixia africana. Lin. spec. 51. Reich. 1. 98. hort. cliff. 490. Mill. dict. n. 2. *Burm. afr.* 191. t. 70. f. 2.

Moræa africana. Lin. syst. 93.

DESCRIPTIONS, &c.

This is a low plant, which rarely rises more than three or four inches high. The leaves are narrow and veined. The flowers are small, growing in a downy head on the top of the stalk, but they make little appearance. It grows naturally at the Cape of Good Hope.

[In the catalogue of the royal botanic garden at Kew, it is said to have been introduced by Mr. Francis Masson; and to flower from april to june.

ARISTELLA. See *Stipa*.]

[ARISTIDA. (From *arista*, an awn or beard.)

Lin. gen. n. 94. Reich. 100. Schreb. 125.

Class. 3. 2. Triandria Digynia.

Natural order of *Gramina*, *Gramineæ* or *Grasses*.

GENERIC CHARACTER.

CAL. Glume one-flowered, bivalve; valves linear-subulate, membranaceous, unequal.

COR. Glume bivalve, thicker than the calyx: outer valve linear, converging longitudinally, hirsute at the base, terminated by three awns, subequal, patulous: inner valve lanceolate, sharp, very short, wrapped within the outer valve. Nectary two-leaved; leaflets lanceolate, obtuse.

STAM. Filaments capillary: anthers oblong.

PIST. Germ turbinate: styles capillary: stigmas villose.

PER. none. Glume converging, involving, gaping.

SEED one, filiform, the length of the corolla, naked.

ESSENTIAL CHARACTER.

Cal. two-valved. Cor. one-valved: with three terminal awns.

SPECIES.

1. *Aristida adscensionis*.

Lin. spec. 121. Reich. 1. 229. Swartz. obs. 40.

Brown. jam. 135. 1.

Gramen avenaceum, &c. Sloan. jam. 1. p. 16. t. 2. f. 56.

Panicle branching, spikes scattered, corollas one-valved.

2. *Aristida americana*.

Lin. spec. 122. Reich. 1. 229. amæn. acad. 5.

p. 393. Swartz. obs. 41. t. 2. f. 2. Brown.

jam. 135. 2.

Panicle simple, corollas two-valved, one with dorsal, the other with terminating awns.

3. *Aristida plumosa*.

Lin. spec. 1666. Reich. 229.

Panicked, the middle awn longest and woolly, culms villose.

4. *Aristida arundinacea*.

Lin. syst. 124. Reich. 230. mant. 186.

Panicked, corollas two-valved, middle awn longer, smooth.

5. *Aristida gigantea*.

Lin. syst. 124. suppl. 113.

Panicle elongated, loose, one-ranked; calyxes one-flowered; awns of the corolla subequal straight.

6. *Aristida Hystrix*.

Lin. syst. 124. suppl. 113. Pluk. alm. 1. 191. f. 3.

Panicle divaricated, very spreading; flowers quite simple, smooth, awns straight, divaricated.

DESCRIPTIONS, &c.

1. Culms in tufts, from one to two feet high, decumbent, jointed, simple, loose, even. Leaves very slender, filiform, upright, even. Panicle branched, somewhat contracted; branches pressed close, subdivided, upright; florets on short pedicels, narrow, brown. Valves of the calyx nearly equal; the outer a little lower, subulate, awnless; the other similar, shining, awnless, keeled, inclosing the

the glume of the corolla; the valve of which is subulate, convoluted, longer, awned at the tip, thinning, villose at the base. Awn three-parted at the base: bristles capillary, cartilaginous-ferrate. Anthers dark purple. Stigmas villose, of the same colour. Seed very minute, acuminate^a.

Linneus says, it has the habit of *Festuca ovina*, but that it is rather larger; that the culms branch at bottom; that the leaves from a broader base narrow gradually, are flat, channelled and subulate; that the panicle is oblong, with the single glume of the corolla filiform, longitudinally convoluted, and terminated by a triple awn; and that it is one of the four plants in the isle of Ascension, which constitute its entire Flora. The other three are, *Schardiana fruticosa*, *Euphorbia origanoides*, and *Portulaca*^b. It will be curious to compare this with the state of the island in future times.

It is also native of Jamaica, in dry sands. Browne calls it the bearded Grass.

2. Culm half a foot high, rising, jointed, subdivided. Leaves linear, stiff, even. Panicle with simple, alternate spreading branches; the florets mostly pointing one way, alternate, approximated, pressed close (8—10). Rachis compressed, somewhat flexuose. Valves of the calyx awnless: outer keeled, lanceolate, acute; inner linear, smaller. Glume of the corolla two-valved: outer valve lanceolate, awned outwardly at the base, awn three-parted, twice as long as the valve; lower valve keeled, three-awned at the tip, awns short, the middle one longest. Anthers red. Stigmas feathered, white. Seed linear, acuminate. Native of Jamaica with the foregoing^c. This being less than that, Dr. Browne calls it the smaller bearded Grass.

3. The woolly awns give this species the air of *Stipa pennata*, but the panicle is more compound, all the parts smaller, and the culm villose: the awn also is naked towards the base, where it has two bristles or little awns, which are opposite, short, capillary, and spreading^d. By the reference to Tournefort's corollary we may presume this to be a native of the east; and Linneus says, that it was found in America by Schreber.

4. Culms four feet high, narrow, even, full. Leaves rolled inwards, narrow, even, striated. Panicle oblong, upright, with capillary pedicels. Flowers oblong, hoary with white hairs intermixed. The calyx has about five flowers, is two-valved, and attenuated. The outer valve of the corolla is awned at the tip; the awn is the length of the flower, naked, and somewhat curved backwards; at the base of this on each side is a minute awn, scarcely visible without attentive observation.

Found in the East-Indies, by Koenig^e.

5. This is a very lofty Grass, branching and very smooth. Panicles terminating, about eight inches long, not contracted as in the first species. Calyxes very smooth, unequal, blueish. Corolla smooth, with equal, short awns, almost naked. Found on the island of Teneriffe by Masson^f.

6. This is a creeping, stoloniferous, and very smooth Grass. Culms very tough, leafy, and short. Leaves convoluted. Panicle terminating, large: peduncles and pedicels binate: rachis angular. Flowers filiform, long. Calyx one-flowered; valves unequal, the longer subulate. Corolla longer than the calyx, convoluted, terminated by three, equal, straight, spreading awns, scabrous backwards, twice the length of the flower. Observed in Malabar by Koenig.—It varies with downy sheaths to the root-leaves^g.

ARISTOLOCHIA. (Αριστολοχία Diosc. ἄριστος and λόχια or λοχία; because it was supposed to be of sovereign use in disorders incident to child-birth.)

Lin. gen. 1022. Reich. 1111. Schreb. 1383.

Tournef. 71. Juss. 73. Gærtn. 14.

Class. 20. 5. Gynandria hexandria.

Nat. order of Samentaceæ. Aristolochiæ Juss.

^a Swartz. ^b Osbeck in Linn. spec. ^c Swartz. ^d Linn. spec. ^e Linn. mant. ^f Linn. suppl. ^g Ibid.

GENERIC CHARACTER.

CAL. none.

COR. monopetalous, tubulous, irregular; base swelling, subglobular, torulose: tube oblong hexagon-cylindric: limb dilated, extended below into a long tongue.

STAM. Filaments none: anthers six, fastened at bottom to the stigmas, four-celled.

PIST. Germ oblong, inferior, angular: style scarcely any: stigma subglobular, six-parted, concave.

PER. Capsule large, six-angled, six-celled.

SEEDS several, depressed, incumbent.

OBS. Fruit varies in figure; being in some species roundish, in others long.

ESSENTIAL CHARACTER.

Stigmas six. Cal. none. Cor. monopetalous, tongue-shaped, entire. Caps. six-celled, inferior.

SPECIES.

[1. Aristolochia bilobata. Two-lobed Birthwort.

Lin. spec. 1361. Reich. 4. 56. Jacqu. misc. austr. 2. p. 346. Swartz. obs. 340.

A. longa scandens, foliis ferri equini effigie. Plum. spec. 5. amer. 91. t. 106. Raii suppl. 395. n. 11. Leaves two-lobed, stem twining.

2. Aristolochia trilobata. Three-lobed Birthwort.

Lin. spec. 1361. syst. 823. Reich. 4. 56. Jacqu. obs. 8. t. 3. Plum. spec. 5. Brown. jam. 329. 3. Swartz. obs. 341.

Leaves three-lobed, stem twining, flowers very large, bagged at the base, tongue linear very long.

3. Aristolochia pentandra. Five-stamened Birthwort.

Lin. spec. 1361. Reich. 4. 56. Jacqu. amer. 232. t. 147. pict. p. 115. t. 224.

Leaves cordate, hastate-subtrilobate, stem twining, bracte cordate, embracing.

4. Aristolochia peltata. Peltated Birthwort.

Lin. spec. 1361. syst. 824. Reich. 4. 57. Jacqu. obs. 1. 4. t. 4. amer. pict. p. 114. t. 222.

Plum. spec. 5. ic. 32. f. 2. Swartz. obs. 341. Leaves kidney-shaped, subpeltate, stem twining.]

5. Aristolochia maxima. Greatest Birthwort.

Lin. spec. 1361. syst. 824. Reich. 4. 57. Jacqu. amer. 223. t. 146. pict. p. 114. t. 223.

Leaves oblong, acuminate, stem twining, peduncles many-flowered.

[6. Aristolochia bilabiata. Two-lipped Birthwort.

Lin. spec. 1361. Reich. 4. 57. Plum. spec. 5. ic. 32. f. 1. Swartz. obs. 342.

Leaves cordate-tongue-shaped obtuse, stem twining, corollas two-lipped.]

7. Aristolochia erecta. Upright Birthwort.

Lin. spec. 1362. Reich. 4. 57. A. repens. Mill. dict. n. 12.

Leaves lanceolate, sessile, subbifurcate: stem erect, peduncles solitary, one-flowered, flowers very long.

8. Aristolochia arborescens. Tree Birthwort.

Lin. spec. 1362. Reich. 4. 57. Pluk. alm. 50. t. 78. f. 1?

Leaves cordate-lanceolate, stem erect, shrubby.

[9. Aristolochia caudata. Tailed Birthwort.

Lin. spec. 1362. syst. 824. Reich. 4. 58. Jacqu. amer. 233. t. 145. pict. p. 114. t. 221.

Leaves cordate, obtuse, emarginate at the tip, lobes incumbent, lip tailed.]

10. Aristolochia odoratissima. Sweet-scented Birthwort.

Lin. spec. 1362. Reich. 4. 58. Brown. jam. 329. 1. Sloan. jam. 1. p. 162. t. 104. f. 1. Raii suppl. 394? Plum. spec. 5. ic. 34?

A. indica. Mill. dict. n. 8. Leaves cordate; stem twining, shrubby, peduncles solitary, lip of the corolla very large.

[11. Aristolochia Siphon. Broad-leaved Birthwort.

L'Heritier. stirp. nov. 1. p. 13. t. 7. Ait. hort. kew. 3. 311.

Leaves cordate, petioled; flowers solitary, border trifid, equal, bracte ovate; stem twining, shrubby.

12. Aristolochia anguicida. Snake-killing Birthwort.

Lin. spec. 1362. syst. 864. Reich. 4. 58. Jacqu. amer. 232. t. 144. pict. p. 114. t. 220. Mor.

hist. 3. f. 12. t. 17. f. 7. Leaves cordate, acuminate, stem twining, shrubby, peduncles solitary, stipules cordate.

13. *Aristolochia maurorum*. Moorish Birthwort.
Lin. spec. 1363. *Reich.* 4. 59. *Gron. orient.* n. 280. *Tourn. cor.* 161. *Baub. pin.* 307. n. 9. *Mor. hist.* 3. f. 12. t. 17. f. 11. *Clus. hist.* 2. p. 71. *Rauw. itin.* 121. t. 23. *Clus. hist.* 2. 72. *Raii hist.* 763.
Leaves basate, quite entire; stem weak, simple; flowers solitary, recurved.
14. *Aristolochia indica*. Indian Birthwort.
Lin. spec. 1362. *Reich.* 4. 59. *zeyl.* 323. *Lour. cochinch.* 528. *Gærtn. fruct.* 1. 45. *Burm. ind.* 191. *zeyl.* 32.
Carelu-vegon. *Rheed. mal.* 8. p. 48. t. 25. *Raii suppl.* 394. n. 10.
Leaves cordate, rather acute, stem twining, peduncles many-flowered.
15. *Aristolochia boetica*. Spanish Birthwort.
Lin. spec. 1363. *Reich.* 4. 59. *Baub. pin.* 307. *Mor. hist.* 3. f. 12. t. 17. f. 6. *Clus. hist.* 2. p. 71. *Ger.* 697. f. 3. *emac.* 847. 3. *Park. theat.* 292. n. 6.
Leaves cordate, rather acute, stem twining, peduncles about three, longer than the petiole.]
16. *Aristolochia sempervirens*. Evergreen Birthwort.
Lin. spec. 1363. *Reich.* 4. 59. *hort. cliff.* 432. *Sauv. monsp.* 111. *Sabb. hort.* 2. t. 82.
Pistolochia cretica. *Baub. pin.* 307. *Mor. hist.* f. 12. t. 17. f. 16.
Pist. altera. *Clus. hist.* 2. p. 260.
Leaves cordate-oblong, acuminate, waved; stem weak, flowers solitary.
17. *Aristolochia Serpentaria*. Virginia Birthwort or Snake-root.
Lin. spec. 1363. *syft.* 824. *Reich.* 4. 60. *mat. med.* 196. *Woodv.* 291. t. 106. *Gron. virg.* 140. *Pluk. alm.* 50. t. 148. f. 5. *Catesb. car.* 1. 29. *Raii suppl.* 394. n. 6. *Mor. hist.* t. 17. f. 14. *Ger. emac.* 848. f. 6. *Park. theat.* 420.
Leaves cordate-oblong, flat; stems weak, flexuose, round: flowers solitary.
18. *Aristolochia Pistolochia*.
Lin. spec. 1364 *syft.* 824. *Reich.* 4. 60. *hort. cliff.* 433. *Gouan. fl. monsp.* 476. *Sauv. monsp.* 111. *Baub. pin.* 307. n. 7. *Hall. belv.* n. 1029. p. 444. *Villars dauph.* 274. *Raii hist.* 763. n. 7.
Pistolochia. *Clus. hist.* 2. p. 72. *Dod. pempt.* 525. *Ger. emac.* 847. 5.—vulgatior. *Park. theat.* 292. f. 7.
Leaves cordate, crenulate, netted underneath, petioled; flowers solitary.
19. *Aristolochia rotunda*. Round-rooted Birthwort.
Lin. spec. 1364. *Reich.* 4. 60. *mat. med.* 196. *hort. cliff.* 432. *Gouan. monsp.* 476. *Sauv. monsp.* 111. *Scop. carn.* n. 1135. *Villars dauph.* 275. *Sabb. hort.* 2. t. 80. *Blackw.* 256. *Ger. herb.* 696. 2. *emac.* 846. 2. *Park. theat.* 291. 1. *Baub. pin.* 307. n. 1. *Clus. hist.* 2. p. 70. *Baub. hist.* 3. 559. *Raii hist.* 761.
Leaves cordate, subsessile, obtuse; stem weak; flowers solitary.
20. *Aristolochia longa*. Long-rooted Birthwort.
Lin. spec. 1364. *Reich.* 4. 61. *mat. med.* 197. *Gouan. monsp.* 477. *Sauv. monsp.* 111. *Scop. carn.* n. 1136. *Sabb. hort.* 1. t. 81. *Mill. fig.* t. 51. f. 2. *Baub. pin.* 307. *hist.* 3. 560. *Clus. hist.* 2. p. 70. *Woodv. med. bot.* 294. f. 107. *Ger.* 696. 1. *emac.* 846. 1. *Raii hist.* 762. *Park. theat.* 291. 3.
A. longa hispanica. *Baub. pin.* 307. *Park.* 292. n. 4. *Raii hist.* 762. 4.
Leaves cordate, petioled, obtuse; stem weak, flowers solitary, fruits ovate.
21. *Aristolochia hirsuta*. Rough Birthwort.
Lin. spec. 1365. *Reich.* 4. 61. *Tournef. itin.* 1. t. 147.
Leaves cordate, rather obtuse, shaggy: flowers solitary, pendulous, recurved, subtruncate.
22. *Aristolochia clematitis*. Common Birthwort.
Lin. spec. 1364. *syft.* 825. *Reich.* 4. 61. *mat. med.* 197. *hort. cliff.* 432. *Huds. angl.* 394. *Willb.* 1003. *Relb. cantabr.* n. 665. *Hall.*

- belv.* 1029. *Mill. illust.* *Mill. fig.* t. 51. f. 1. *Sauv. monsp.* 111. *Scop. carn.* n. 1137. *Pollich pal.* n. 863. *Villars dauph.* 275. *Baub. pin.* 307. *Clus. hist.* 2. p. 71. *Fuchs. hist.* 90. *Dod. pempt.* 326. *Lob. obs.* 332. 2. ic. 1. 697. 2. *Blackw.* t. 255. *Rivin. mon.* t. 116. *Mor. hist.* 12. t. 17. f. 5. *Ger.* 697. *emac.* 847. 4.
Leaves cordate, stem erect, flowers axillary, crowded.
 * *New species.*
23. *Aristolochia scandens*.
Mill. dict. n. 10.
Leaves cordate, on very long petioles; stem climbing, flowers terminal, on very long peduncles.
24. *Aristolochia conferta*.
Mill. dict. n. 11.
Leaves cordate, petioled; stem climbing: flowers axillary, crowded.
- [25. *Aristolochia bracteata*.
Retz. obs. 5. 29. n. 80.
Leaves cordate obtuse, stem weak, flowers solitary, bractes cordate petioled.
26. *Aristolochia obtusata*.
Swartz. prodr. 126. *Plum. ic.* 27. t. 33.
Leaves cordate, rounded at the tip, three-nerved, beneath netted and tomentose; stem twining; peduncles solitary.
27. *Aristolochia grandiflora*.
Swartz. prodr. 126. *Brown. jam.* 327. n. 2.
Leaves broad-cordate, stem twining subherbaceous, peduncles solitary, lip of the corolla very large, with a very long tail.

DESCRIPTIONS, &c.

Roots perennial. Stems of some shrubby, but of most dying to the ground annually; erect in some, but in most, especially the exotic sorts, twining. (1—6. 9—11. 13, 14, 15. 23. 27.) Leaves alternate. Flowers axillary, irregular and of a singular form, the tube in some shaped like a drinking-glass, but bent inwards; allied to *Cylindrus* by their short style, and their large stigma to which the anthers are fastened at bottom.

1. Stem filiform, subdivided, round, smooth. Leaves petioled, patulous, cordate; lobes oblong, obtuse, entire, nerved, smooth, glaucous beneath. Petioles short, filiform, crooked, smooth. Peduncles longer than the leaves and petioles, thickish, round, one-flowered, shrivelling after flowering time. Corolla ligulate, superior: tube globose at the base, many-keeled, glaucous, narrower above the base, curved; hexagonal, blueish; throat funnel-shaped, pale with longitudinal brown lines; limb or border elongated, spatulate, compressed at the base, acuminate at the tip, the edges rolled back, villose in front with a blueish-purple pile, purplish within, glaucous on the outside. Anthers six, longitudinal, ovate, fastened to the stigmas at the bottom of the tube, yellow. Germ columnar, elongated, hexagonal: style none: stigmas six, upright, triangular, with the edges rolled back. Capsule oblong, hexagonal, black, marked with six streaks, shaped like a basket, opening from the top into six parts, with a peduncle divided into six parts, hanging down, six-valved: partitions membranaceous. Seeds very many, incumbent, compressed, membranaceous, cordate, acuminate, smooth, brown^a.

Native of Dominica and Hispaniola, covering the trees and shrubs, and flowering from november to january.

2. This also is a climbing plant. The stem is aromatic. The flowers are very large and ventricose^b.

The roots of this and of the tenth species have a strong smell, and are looked upon as warm attenuants, and active diaphoretics and stomachics: they are administered in infusions, and greatly used among the slaves in Jamaica, where they grow naturally. This species is most common on the north side of the island, and is therefore called there Contrayerva of the north side^c. It is native not only of the islands, but also of the continent of South

^a Swartz.^b Linn. syft.^c Browne.

America. It was introduced here about 1775, and flowers in June and July^d.

3. The flowers of this are smaller, and have only five stamens. It is a native of America^e.

4. Root woody, corky, perennial. Stem twining, filiform, subdivided, round, striated, smooth. Leaves petioled, smaller, nerved, entire, smooth, somewhat rigid. Petioles embracing the stem like tendrils. Peduncles longer and thicker than the petioles, and opposite to them, smooth, round, one-flowered. Corollas middle-sized, brown, dotted and spotted: tube globose at the base, crooked, reflex, an inch in length, brown dotted with green; throat and tube pubescent at bottom, and funnel-shaped; border having a lip an inch in length, tongue-shaped, reflex at the tip, slightly emarginate, set with convex, acute, dark-purple dots, green below the tip to the throat. Anthers ovate, yellow, fixed to the stigmas under their revolute edges. Germ attenuated at the base, hexangular: style none: stigmas six, triangular. Capsule oblong, opening from the top, six-valved. Seeds compressed. It is not very properly named *peltata*, for the petiole is at the edge of the leaf, and makes an obtuse angle with it. In Jacquin's figure, the tube should have been represented more crooked, reflex, and slightly angular, and the lip less hairy; in other respects it is a good one.

Native of St. Domingo, in very dry coppices, flowering there in February and March^f; also of the continent of South America.

5. Stem corky next the root. Flowers curved. Fruit like a purse, very large, six-valved, cohering at the top, opening at the base even in the peduncle; it is all interwoven with transverse threads^g.]

It has strong climbing stalks, by which it mounts up to the top of the tallest trees; the leaves are four inches long and two broad, of an oval shape, rounded at their ends, and nearly as thick as those of the common Laurel; the flowers come out in loose clusters at the ends of the shoots, each standing on a very long peduncle; the seed-vessels are four inches long, and as much in circumference, with six longitudinal ribs which are very prominent. Seeds heart-shaped. This sort was discovered, and sent to England by Mr. Robert Millar, from Carthagen in New Spain. [It has been found also since by Professor Jacquin, who has given an elegant figure of it.

6. Stem twining, filiform, subdivided, round, smooth; branchlets alternate, spreading, loose, three-leaved or four-leaved. Leaves petioled, entire, stiffish, smooth. A short tendril at the base of each petiole. Peduncles longer than the petioles, round, one-flowered. Corollas middle-sized, brown-purple, striated: tube globose at the base, contracted in the middle, round, villose within; border elongated, oblong, blunt, reflex; the funnel of the tube is split into two parts, when the corolla is, as it were, bilabiate. Capsules roundish, hexagonal, blunt, smooth, pendulous. Native of Hispaniola, in hedges, on a calcareous soil; flowering in spring^h: also of the continent of South America.]

7. This rises with an upright stalk to the height of three feet. Leaves long, narrow, hairy, growing close to the branches, having scarce any foot-stalk. The flowers come out singly from the axils, are near four inches long, of a dark purple colour, and grow erect; these are succeeded by slender vessels, about one inch long, filled with flat heart-shaped seeds. It was discovered at La Vera Cruz in New Spain, by the late Dr. Houstoun, who sent the seeds to Europe: [and was cultivated by Mr. Miller before 1733, in which year the doctor died.]

8. This rises about two feet high. The branches are not very woody, but are strong enough to support themselves. The flowers come out singly at the axils. It grows naturally in North America, and is by some called *Snakeroot*, but is not near so strong as the seventeenth sort. The branches of this grow erect, and are perennial, whereas those of the other sort decay to the root every winter.

[9. The lobes of the leaves lap over each other at the base. The lip of the corolla ends in a bristle-shaped tailⁱ. Jacquin's figure is excellent. The synonym from Browne will be found under the 27th species^k. Native of America.

10. This has a long, round, geniculated root, as thick as a finger; whence rises a round, green, climbing stem, taking hold of any tree or shrub it comes near, to the height of six or eight feet, covering them with its numerous branches, and putting forth leaves at every two or three inches. Leaves cordate or triangular, roundish at the base, where they are three inches and a half long from one round ear to the other, their length is four inches, they are of a dark green colour, smooth, and have longitudinal ribs, taking their origin from the end of the foot-stalk, which is an inch and half long. Peduncles three inches in length. Corolla yellowish, the lip covered with a purple farina. Fruit two inches long, hexangular, containing in six cells so many rows of small, flat, brown seeds, exactly the shape of a heart, the points lying inwards, and the bases to the angular capsule, which, when ripe, opens, and the seeds drop out. The whole plant smells very strongly, and very gratefully^l.

This is a native of Jamaica, where it is called Contrayerva of the south side, to distinguish it from the second species. It has the same qualities with that, and is used for the same purposes^m.

It was cultivated in 1752, by Mr. Millerⁿ.

11. This is a tall twining shrub. Root woody, sparingly branched, fragrant, having the smell of camphor. Stems wrinkled, gray, fragrant. Branches and twigs alternate, farmentose, obscurely flexuose, round, even, green, becoming gray. Leaves spreading, remote, roundish, sinuate-cordate, acuminate or scarcely acute, entire, villose and paler beneath, veined; the nerves prominent on the lower surface; flat, in length and breadth six inches. Petioles shorter than the leaves, semicylindric, grooved above, somewhat villose. Peduncles lateral, at the joints below the leaf, pendulous, longer than the petiole, one or two together, one-flowered. Bracte embracing the middle of the peduncle, decurrent a little, leafy, roundish, cordate, villose beneath, spreading, caducous. Corolla purplish-brown, one inch and a half long, ten or twelve lines broad: tube shaped like a siphon, marked with lines, bellying at the base, in the middle broader and flatted a little, at the end narrow and cylindrical; border marked with brown lines, spreading, inclined, waved, trifid, the clefts rounded and slightly acuminate. Filaments none: anthers six, fastened to the stigma by pairs beneath, ovate, two-celled, yellow. Germ a hexangular column, finely villose: stigma at the bottom of the corolla, very large, roundish, three-valved, furnished with three points. Capsule cylindrical, with a blunt point, six-nerved, six-valved, splitting into six parts from the very peduncle; the cells covered with a transparent membrane forming a sort of common aril for the seeds; it is three or four inches long, and one inch broad. Seeds numerous, obovate, flat, rufous, incumbent; fastened to each other by pairs, only one of which is fixed to the partition.

This species is distinguished by the form of its flower, bent like a siphon or some tobacco-pipes; by the trifid, flat border; by the very large bracte placed on the middle of the peduncle; by the disposition of the seeds, and the aril common to all the seeds of each cell^o. Native of North America. Mr. John Bartram introduced it here about 1763. It flowers in June and July^p. Mons. L'Heritier says, that it flowers in the spring, and ripens its seed in autumn, but rarely.

12. Root long, thick, pale-coloured. Stems slender, long, jointed, purple. Corollas purple^q, straight, truncated, as it were, with a lanceolate lip^r.

^d Hort. kew. ^e Linn. spec. ^f Swartz. ^g Linn. syst. ^h Swartz. ⁱ Linn. spec. ^k Swartz. ^l Sloane. ^m Browne. ⁿ Hort. kew. ^o L'Heritier. ^p Hort. kew. ^q Morison. ^r Linn. spec.

If the juice of the root mixed with the saliva, be put into the mouth of a serpent, it may be handled with safety; but will return to itself after some hours^a.

Several of the other species have the reputation of being fatal to serpents. This is a native of Mexico and the West-Indies.

13. Stems several, slender, filiform, whitish, from the upper part of which come seven or eight leaves on each side, ash-coloured, opposite, in size and situation resembling those of *Osmunda regalis*, but eared at the base, like some sorts of Sage; among the lower of these, which are somewhat more distant from each other than the upper ones, come out the flowers, rather larger than those of common Birthwort, of a browner colour, and on longer peduncles. The plant has an unpleasant smell; and the root, which runs deep into the ground, appears to be of the same quality with several other sorts of Birthwort^b. Rauwolf observed it about Aleppo, in olive-grounds.

14. Stems shrubby, round, slender, striated, branched, long, interwoven. Leaves quite entire, smooth, frequently retuse or emarginate, never acuminate, on petioles two or three lines in length; on the twigs they are blunt, almost transverse at the base. Peduncles many-flowered, axillary, about the same length with the petioles, with alternate, acute bractes, within each of which is a single flower on its proper pedicel: corolla dusky-purple; anthers six, on a very short, thick style. Capsule roundish, hexagonal^c.

Native of the East-Indies and Cochinchina. The whole plant is bitter, without much smell. The root is thought to be attenuant and deobstruent^d.

15. Root very long, pale-coloured, somewhat astringent with manifest acrimony. The whole plant is odorous. Stems slender and striated, ramping over hedges and bushes. Leaves acuminate, the upper surface smooth and green, the lower whitish purple, on long petioles. Flower crooked, oblong, very dark purple, pubescent within, on very long peduncles^e. The stipules are ovate-rhomboid and mucronate^f. Found by Clusius about Seville, and in several other places of Andalusia. Evergreen, and flowering in January and February.

Cultivated by Gerard, in 1597, and called by him and Ray *Climbing Birthwort*.^g

16. Roots many, slender, odorous. Stems many, trailing, slender, a foot or eighteen inches in length, angular, striated, branched, tough, and pliable, dark green, spreading on the ground. Leaves nerved, very dark coloured, evergreen, on long petioles. Flowers axillary, crooked, longer than the leaves, of a dark purple colour on the outside, but yellowish within. Fruits like those of long-rooted Birthwort, but smaller^h. Native of the island of Crete or Candia. It flowers in May and June; and was cultivated in the botanic garden at Chelsea, in 1739ⁱ.

17. Root a congeries of small fibres, of a yellow colour, and aromatic smell and taste. One or two stems rise from it, smooth or very little hairy, the joints very knotty, generally erect. Leaves, one at each knot, slender, long, acuminate, somewhat hairy above, rough with protuberant nerves underneath, rather glutinous. One or two flowers grow close to the ground; these differ in form from the other species, terminating in a broad, round heel, supporting the lip, the centre of which opens into the hollow of the flower, and is of a dark purple, the rest of the flower is of a muddy colour. Capsule pear-shaped, near an inch in diameter. After the seeds are ripe, the stems decay. It flowers in May, and perfects its seeds in August^j.

The root is a warm diaphoretic and diuretic. It is reckoned one of the principal medicines of the alexipharmic kind; and as such is in general use in low malignant fevers and epidemic diseases. It is

given in substance from a few grains to a scruple or half a dram; in decoction or infusion, to a dram and upwards. A tincture of it is prepared by digesting three ounces in a quart of spirit of wine eight days; and a spirituous alexeterial water mixed with one-sixth its quantity of distilled water. It is also an ingredient in the compound tincture of Bark, and the *Cataplasma Cumini*^k.

Native of Virginia and Carolina. Cultivated by Mr. John Tradescant at South Lambeth in 1632^l. Introduced in 1770, by Mr. William Young^m.

18. Roots round, numerous. Stems angular, branching, seldom rising to a foot in height, and scarcely able to support themselves. A small heart-shaped bract sits close at the base of the peduncle. The flower is small, the lip is bent inwards: the tube and beginning of the petal are yellow, the broader end is blood-coloured. The fruit is petioled, ovate and groovedⁿ.

Native of the south of France, Switzerland, and Spain. Cultivated by Gerard in 1596.^o

19. Roots roundish, growing to the size of small Turneps, in shape and colour like those of the common Cyclamen, which are frequently sold for roots of the round Birthwort in the markets. They send out three or four weak trailing branches, which lie on the ground where they are not supported, and extend to the length of two feet. The leaves are rounded at the end. The flowers come out singly, close to the petioles, towards the upper part of the stalk: they are of a purplish black colour. Capsules oval.

[The stems are angular: the lip of the corolla curved inwards^p; the tube hexagonal below the middle; the peduncles pentagonal^q.]

The leaves of this species have scarcely any petioles; but there is a variety, named by Caspar Bauhin *A. rotunda, flore ex albo purpurascens*, which has the leaves on longer petioles^r. It differs, he says, from the other, not only in the colour of the flower, but in the leaves and fruit^s. It is said also to be hardier, and to flower earlier^t.

Round-rooted Birthwort is a native of the south of Europe, and flowers from June through the autumn.^u

20. This has long tap roots, shaped like those of Carrots; these send out weak trailing branches, which extend little more than a foot: the leaves are paler, and have longer foot-stalks than the foregoing: the flowers are not so long, and are of a pale purple colour. Capsules oblong. The stalks of both decay in the autumn, and new ones are produced in the spring.

[Long-rooted Birthwort is a native of the south of Europe, and also of Japan; it flowers at the same time with the other. Linnaeus indeed thinks, that they are scarcely distinct species. They were both cultivated by Gerard, in 1596^v.]

21. This has some resemblance to the foregoing, but the leaves are hairy, and not so deeply eared at the bottom; the flowers also are much larger. [The stem is striated and hairy; the leaves obtuse with a dagger point; the corolla incurved and recurved without an elongated lip^w. It is thus described by the elegant Tournefort, who first observed it. The root is a foot and half or two feet in length, and two inches in thickness, hard, woody, yellowish marbled with rays of white and russet, covered with a rough bark of a purplish colour: it has only few fibres, and is insupportably bitter. Stems two feet high, firm, solid, two lines in thickness, pale green, channelled, purplish at the base, lying on the ground. At each knot is a single leaf, three inches long, and two wide at the base, which is rounded into two ears, above these it becomes sensibly narrower; the upper surface is brownish-green, shining, and veined in trapeziums. From their axils spring a flower, bent in shape of an S, three inches and a half long, on a peduncle from one to two inches in length: the base is eight or nine lines wide, pale-green mixed

^a Jacquin. ^b Rauwolf. ^c Loureiro & Linn. zeyl. ^d Loureiro. ^e Clusius. ^f Linn. spec. ^g Clusius. ^h Hort. kew. ⁱ Baniſter in Ray's hist. vol. 3.

^j Lewis. ^k Johnson in Ger. herb. ^l Woodville. ^m Haller, Linn. Villars. ⁿ Linn. spec. ^o Scopoli. ^p Linn. spec. ^q Bauh. pin. 307. 2. ^r Clusius. ^s Hort. kew. ^t Linn. spec.

with purple, and angular; the tube is half an inch over, terminated by a throat eighteen or twenty lines in diameter, and almost oval; the hollow of it is beset with white hairs, a line and half in length; the bottom is purple, black, and livid, with some streaks of a paler colour inclining to yellow; and it has a large swelling where the throat begins to contract; the inside of the tube is blackish-purple, and covered with hairs, as is also the base, which is of a paler colour. This flower has no smell. The whole of the plant is bitter.

It is a native of the island of Scio or Chios^p.

22. Common Birthwort has an erect stem, from two to three feet high, simple, striated, round and smooth, taking a different direction at each joint, which is smooth and shining. Leaves obtusely heart-shaped, above bright, beneath pale green, smooth, veiny, on footstalks nearly as long as the leaves. Flowers axillary, sometimes six or more, on peduncles erect or hanging down, yellowish green, striated, the lip often tinged with purple. Capsule ovate, obtuse, hanging down^q. *Ti-pula pennicornis* is said to fecundate the flowers^r. It dyes wool of a good yellow; and is in flower from June to September. Native of France, Spain, Italy, Austria, Carniola, Germany, Hungary, and Tartary. Haller thinks it hardly a native of Switzerland. Mr. Miller will not allow that it grows wild in England; it is however found, though rarely remote from gardens, in hedges and woods; as in a wood two miles from Thorndon in Essex^s; near Maidstone, and other places in Kent^t. Mr. Woodward observed it near Stuston in Suffolk^u; and Professor John Martyn, in the hedges at Whittleford in Cambridgeshire, before the year 1732.

All the Birthwort roots (n. 18, 19, 20, and 22) have an aromatic smell, and a warm, bitterish taste. Boerhaave says they are the hottest of the aromatic plants: he probably speaks of the fresh roots, for those which are usually met with in the shops, have no great pungency. The long and round sorts, on first chewing, scarcely discover any taste, but in a little time prove nauseously bitterish; the round somewhat the most so. The other two instantly fill the mouth with a kind of aromatic bitterness, not very ungrateful.

They are celebrated as warm attenuants and deobstruents, particularly in suppressions of the uterine purgations: the dose is from a scruple to a dram and upwards. They have been likewise recommended, particularly the 21st, as alterants in the gout: Boerhaave observes, that the pituitous gout, as he calls it, is often relieved by an infusion of these roots in spirit of juniper-berries, sweetened with sugar, and taken to the quantity of a spoonful at a time; but that in other kinds of the gout, and in subjects of a tender constitution, this medicine occasions a loss of appetite, a weakness of the stomach, and a languidness, less supportable than the gout itself: a powder composed of this and other similar materials, which was prescribed by the ancients as an antiarthritic, and has come again into esteem, has also produced complaints of the same kind. Externally these roots have been used as discutients, detergents, and antiseptics: Simon Paulli relates, that the long Birthwort roots applied as an epithem or in fomentation, were found remarkably serviceable in stubborn ulcers of the legs^v.]

23. This sends out climbing stalks, which support themselves by fastening to the neighbouring trees, and thereby rise to a very great height: the leaves are very broad, and have several longitudinal veins; the flowers grow in loose bunches at the extremities of the branches, each have a long peduncle. It grows naturally about Tolu in New Spain, where it was discovered by Mr. Robert Millar, who sent the seeds to England.

24. This seldom climbs above three or four feet high: the leaves are short, in some measure like

those of the 19th sort: the flowers come out in small clusters from the axils, and are of a dark purple colour. It was discovered by Mr. Robert Millar at Campeachy in New Spain, whence he sent the seeds. [These two species are not noticed by Linnæus or any other author. The three following species are also new ones.

25. Stem flexuose, striated. Leaves petioled. Flowers peduncled, shorter than the leaf, with a long, curved lip. Found by Koenig about Madras. It is used in medicine by the Indians^w.

26. Native of the Caribbee islands^x.

27. This bears very large flowers, which are seldom under five or six inches round the margin; but the *rima*, or opening of the flower, continues glewed up, longitudinally, for a considerable time; and terminates in a long slender appendix, at the lower extremity. Native of Jamaica, where it is very common in St. Ann's^y.]

PROPAGATION AND CULTURE:

All these sorts, which are natives of hot climates, (as n. 1 to 7; 9, 10, 12, 14, 23—27.) are too tender to thrive in the open air in this country, therefore require a stove to preserve them. They are propagated by seeds, which must be procured from the countries where they grow naturally, for they do not produce any here. As the seeds are a considerable time in their passage, they should be brought over in their pods; for many of the sorts have very thin light seeds, which are soon dried in a hot country, when they are out of their covers, which will prevent their growing. So soon as the seeds arrive, they should be sown in small pots filled with light earth; and if this happens in the autumn, or winter, the pots should be plunged into the tan in the bark-stove, between some of the pots with large plants, which will screen them from the sun; for as these plants delight in shade, so, by thus placing the pots, the earth will not dry very fast, which will be of great advantage to the seeds, which should not be too often watered. Here the pots may remain till March, at which time they should be removed, and plunged into a hot-bed, under frames, where, if the seeds are good, the plants will appear in May; but if the seeds arrive in spring or summer, they must be immediately sown in small pots, and plunged into a moderate hot-bed, observing to shade them constantly in the heat of the day; but the seeds sown at this season seldom grow the same year; therefore if the plants do not appear, the pots should be plunged in the tan-bed of the stove in autumn, and in the spring following, treated as before directed, which will bring up the plants. When these are strong enough to transplant, they should be each put into a separate small pot, and plunged into the tan-bed in the stove, and treated as other tender plants from the same countries.

8. Tree Birthwort will live abroad in a warm border, with a little protection in hard frosts. It is generally kept in a pot, and sheltered in winter, but will thrive much better when planted in the full ground.

11. Is hardy: and may be increased by seeds, and suckers, or by parting the roots.

13, 15, 16, 18. Are propagated by parting the roots. They are too tender to thrive in the open air in hard winters: they are preserved therefore in pots, and placed under a common frame, where they may have as much free air as possible in mild weather, but may be screened from severe frost: some plants at least should be sheltered to preserve the species.

17, 19, 20, 21. Are propagated by seeds, which should be sown in the autumn, in pots filled with light earth, and placed under a frame, to be screened from the frost; but the glasses should be taken off at all times when the weather is mild. If these pots are put into a gentle hot-bed in March, it will bring up the plants much sooner than they other-

^p Tournefort voyage, 2. p. 79. edit. 1717. 8vo.

^q Woodw. M.S. With. ^r Schreber in Linn. syst. ^s Blackstone.

^t Hudson.

^u Withering.

^v Lewis.

^w Retz.

^x Swartz.

^y Browne.

wife would rise. As the season advances, the plants should be inured by degrees to bear the open air: when the pots are taken out of the bed, they must be placed where they may enjoy the morning sun, but screened from it in the heat of the day. Gentle refreshings of water must be in dry weather given to the plants during the summer, but in the autumn, when their stalks begin to decay, they must have little wet. In the winter the pots must be sheltered as before; and in march, before the roots begin to shoot, they should be transplanted into separate small pots filled with light earth, and set under the frame, where they should remain till spring; then they may be removed into the open air, and treated in the same manner as in the former summer, and sheltered also the following winter. The next spring they may be turned out of the pots, and planted in a warm border, where, during the summer, they will require no other care but to keep them clean from weeds; and in the autumn when their stalks are decayed, if the border is covered with old tanners bark to keep out the frost, the roots will be secured; but where this care is not taken, the roots are frequently killed by frost. With this management the roots will thrive much better than those which are kept in pots, and continue longer; and when they are three years old, they will flower and produce plenty of seeds, whereas those in pots seldom perfect their seeds in England.

When the seeds of these plants are sown in the spring, the plants will not appear till the spring following; so that a whole season is lost, and many times they fail, therefore they should always be sown in the autumn.

22. Is a terrible plant for creeping at the root; so that if it has once taken in a garden, it will be difficult to extirpate it again, and it will overrun whatever plants grow near it; therefore it should be planted in some abject part of the garden, and it will thrive in any soil and situation.

[The Birthworts are all perennials, and the greater part of them having weak stems, require some support. When seeds cannot be procured, most of them may be increased by the roots, or by cuttings, in the spring.]

[ARISTOTELIA. (From the celebrated ancient philosopher and naturalist, Aristotle.)

Lin. gen. Schreb. n. 816. L'Heritier Stirp. nov.

31. t. 16. Juss. 433.

Class. II. 1. Dodecandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth one-leaved, five-parted; divisions lanceolate, concave, acute, upright.

COR. Petals five, wedge-shaped, concave, erect, lying over each other at the sides, scarcely longer than the calyx.

STAM. Filaments fifteen; (to each petal three, one of which is interior, opposed to the petal:) very short; anthers linear, shorter than the germ.

PIST. Germ superior, roundish, rather three-cornered; style filiform, longer than the corolla; stigmas three, recurved.

PER. Berry subglobular, obtusely three-cornered, three-celled.

SEEDS two, or solitary in each cell, angular.

OBS. All the anthers seen by M. L'Heritier being barren, it may perhaps be dioecous.

ESSENTIAL CHARACTER.

Cal. five-leaved. Cor. five-petalled. Berry three-celled. Seeds two in each cell.

SPECIES.

1. Aristotelia Macqui. Shining-leaved Aristotelia.

L'Heritier stirp. nov. 31. t. 16. Ait. hort. kew. 2.

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DESCRIPTION, &c.

This is a small shrub, native of Chili, whence it was first sent to Europe by Dombey. It is known there by the name of *Macqui*. The root is woody, branching, very full of fibres, and of a brownish

colour. Stem upright, brachiate, round, gray with tubercles of a paler colour. Branches and twigs patulous, opposite, round, green or red, with wart-like glands. Leaves opposite, spreading or hanging down a little, oblong-ovate, acuminate, serrate, the point almost entire, the base towards the petiole obscurely glandular, nerved, beneath three-nerved and veined, the midrib beneath red and prominent, but scarcely rising on the upper surface; smooth, dry, green, flat, three inches long, and from fifteen to eighteen lines broad: the younger leaves are shining, bright green, and a little viscid. Petioles spreading very much, round on the outside, and scarce visibly furrowed on the inside, reddish, pubescent when young, one-third of the length of the leaves. Stipules in pairs, very minute, resembling glands, scarcely subulate, becoming tubercles as the twig advances, and then vanishing. Peduncles racemed, nodding, terminating or from the upper axils; from the uppermost of all they come out by threes; the middle peduncle being longest, and bearing from three to five flowers, the others only two or three; they are patulous, pubescent, bracted, and eight or nine lines in length. Flowers pedicelled, drooping, globose, herbaceous, one or two lines in length and breadth. Pedicels one-flowered, bent back a little, all except the middle ones jointed. Bractes under the pedicels, minute, very narrow, villose. Calyx villose, one line and a half in length. Style sometimes three-cleft, sometimes quite separate into three. Berry the size of a pea, very dark purple becoming at length black^a.

Jussieu remarks, that the number in the parts of the flower is uncertain; the calyx being five or six-cleft; the petals five or six; the stamens fifteen to eighteen, or three to each petal: there are three distinct styles.

It flowers in april and may; and was introduced here about 1773, by Messrs. Kennedy and Lee^b.

The berries are slightly acid, and eatable. The inhabitants of Chili make a wine from them, which they give in malignant fevers. Dombey used this remedy with success in Chili, against the plague, in 1782^c.

It is hardy enough to bear the open air, in general. Severe winters will probably kill it, unless it has the protection of a greenhouse.

Loureiro has given the name of *Aristotelea*, to a genus of the class Gynandria, resembling *Ophrys spiralis*, and found near Canton in China.]

ARMENIACA. See *Prunus*.

ARMERIA. See *Dianthus*.

ARMERIUS. See *Dianthus* and *Silene*.

ARMORACIA. See *Cochlearia*.

ARNICA. (From *ἀρνικαί*, *sternuo*, to sneeze.)

Lin. gen. 958. Reich. 1038. Schreb. 1296.

Juss. 182. Gertn. t. 173.

Class. 19. 2. Syngenesia Polygamia Superflua.

Natural class of *Compositæ Discoideæ*.—*Corymbifera*. Juss.

GENERIC CHARACTER.

CAL. Common imbricate, shorter than the ray of the corolla: leaflets lanceolate, the length of the calyx, erect.

COR. Compound radiate. Corollules hermaphrodite in the disk very numerous. Females in the ray about twenty. Proper of the hermaphrodite tubular, erect, five-cleft, equal. Female lanceolate, very long, three-toothed, spreading.

STAM. to the hermaphrodites. Filaments very short: anther cylindric.—to the females. Filaments subulate, erect: anthers none.

PIST. Germ oblong: style simple, the length of the stamens: stigma bifid.

PER. none. Calyx unchanged.

SEEDS solitary, oblong. Down simple—in the hermaphrodites pubescent, long.

REC. naked.

OBS. Corollules of the disk often trifid: with the outer division twice as broad as the others.

^a L'Heritier.

^b Hort. kew.

^c L'Heritier.

ESSENTIAL CHARACTER.

Recept. naked. Down simple. Corollules of the ray have five filaments without anthers.

SPECIES.

1. *Arnica montana*. Mountain Arnica.
Lin. spec. 1245. *Reich.* 3. 833. *mat. med.* 187. *suec.* 760. *Gærtn. fruct.* 2. 451. *Fl. dan.* t. 63. *Hall. helv.* n. 90. *Allion. pedem.* n. 743. *Scop. carn.* n. 1086. *Leers herb.* n. 651. *Pollich pal.* n. 809. *Krock. fles.* n. 1420. *Villars dauph.* 207. *Blackw. t.* 595.
Doronicum. Lin. lapp. n. 304. *Gmel. fib.* 2. p. 153. *Baub. pin.* 185.
β. Arn. alpina. Lin. spec. 1245. *lapp.* n. 305. *Tabern. icon.* 336.
Caltha alpina. Tabern. ic. 336. *Best. eyf.* *æst.* 14. t. 8. f. 2. *Dod. pempt.* 254.
Leaves ovate entire, stem-leaves twin, opposite.
- [2. *Arnica piloselloides*.
Lin. spec. 1245. *Reich.* 3. 833. *amæn.* 6. *afr.* 73. *After æthiopicus, &c. Raii hist. suppl.* 165. n. 95. *Leaves quite entire, elliptic, villose; scape one-flowered, woolly; calyx equalling the ray.*]
3. *Arnica Scorpioides*. Alternate-leaved Arnica.
Lin. spec. 1246. *syft.* 768. *Reich.* 3. 833. *Hall. helv.* n. 89. *Gouan. monsp.* 446. *Allion. ped.* n. 744. *Jacqu. vind.* 152. *fl. austr.* 4. 26. t. 349. *Villars dauph.* 208.
Doronicum. Baub. pin. 184. 2. *Clus. pann.* 520. 521. 3. *Dalech. hist.* 1203. *Lob. ic.* 649. *Blackw. t.* 503. *Gefn. de acon.* 11. fig.
After scorpioides. Scop. carn. n. 1075.
Aconitum pardalianches minus. Camer. epit. 824.
α. Doronicum radice dulci. Baub. pin. 184. 1. *Lin. spec.* 1246.
Leaves alternate, toothed.
- [4. *Arnica Doronicum*.
Lin. syft. 768. *Jacqu. fl. austr.* 1. t. 92.
Arn. Clusii. Hall. helv. n. 91. *Allion. pedem.* n. 745. t. 17. f. 1. 2.
A. stiriaca. Villars dauph. 210.
Doronicum primum vel minus. Clus. pann. p. 518. & 2.—*austriacum. hist.* 17.
Leaves alternate, subserrate, oblong, rough.
5. *Arnica maritima*. Sea Arnica.
Lin. spec. 1246. *Reich.* 3. 834.
After f. Helenium maritimum, &c. Gmel. fib. 2. p. 175.
Leaves lanceolate, the lower ones serrate: stem leafy, many-flowered.]
6. *Arnica crocea*. Saffron-flowered Arnica.
Lin. spec. 1246. *syft.* 768. *Reich.* 3. 834.
Gerbera. Burm. afr. 157. t. 56. f. 2.
Dens leonis enulæ folio. Pet. mus. 393. *Raii suppl.* app. 238.
Doronicum pumilum, &c. Pluk. mant. t. 343. f. 4.
Carlina. Burm. afr. 154. t. 55.
Leaves ovate, repand-toothletted, tomentose underneath.
- [7. *Arnica ciliata*. Ciliate-leaved Arnica.
Lin. syft. 768. *Thunb. jap.* 318.
Leaves stem-clasping, ovate, toothed, ciliate, smooth; stem simple, one-flowered.
8. *Arnica japonica*. Japanese Arnica.
Lin. syft. 768. *Thunb. jap.* 319.
Leaves gasb-palmated, toothletted, flowers terminal, sub-binate.
9. *Arnica palmata*. Palmate-leaved Arnica.
Lin. syft. 768. *Thunb. jap.* 319.
Arn. japonica. Linn. suppl. 376.
Leaves gasb-palmated, toothed; flowers panicled.
10. *Arnica Gerbera*.
Lin. spec. 1246. *Reich.* 3. 834.
Gerbera. Burm. afr. 155. t. 56. f. 1.
After africanus, &c. Raii suppl. 161. n. 44.
Doronicum africanum, &c. Buxb. cent. 5. p. 12. f. 24.
Scolopendriæ, &c. Pluk. alm. t. 313. f. 5.
Leaves pinnatifid, lobes rounded.
11. *Arnica coronopifolia*.
Lin. spec. 1247. *Reich.* 3. 835.
Leaves pinnate, divisions linear.

12. *Arnica oporina*.

Forst. fl. austr. n. 299.

Shrubby, leaves lanceolate callous-crenate tomentose beneath, peduncles one-flowered solitary terminating scaly.

DESCRIPTIONS, &c.

Some of the species are caulescent, but more have scapes bearing one flower only; sometimes these have one pair of leaves. The flowers are yellow^a.

1. Root woody, blackish, superficial, appearing as if cut off, having bunches of long fibres, perennial. Stem a foot or a foot and half high, not more than six inches in alpine situations, obscurely angular, simple, terminated by three (sometimes only two or even one) upright peduncles, each bearing one flower, two inches in diameter, of a deep yellow colour, tinged with brown or russet and orange. Calyx dirty green, cylindric and hairy, composed of fifteen or sixteen scales: in the ray about fourteen ligulate florets, twice as long as the calyx, a line or more in breadth, striated, three-toothed, having hairs at their base. Seeds oblong, blackish, roughish and hairy, crowned with a straw-coloured, or russet-coloured down. Receptacle with deep excavations, on the edges of which are very small bristles, which makes the whole seem a little hairy.—The root is aromatic; the whole plant has a strong scent, and is acrid^b.

Linneus remarks^c, that the florets of the ray have not only pistils, but five distinct stamens, with as many anthers, distinct, and longer than the filaments. Haller and Jussieu affirm that there are no barren filaments in this species; but Villars, Krock, and Gærtner have seen them.

The flowers follow the sun. Kine do not touch the plant; but goats are very fond of it. In Smoland, they snuff the powder of the leaves up the nostrils, to make them sneeze, and smoke them as tobacco. Linneus, in his *Flora Lapponica*, separated the alpine from the meadow plant, but he afterwards considered them as one species. The former has very narrow leaves, like *Plantago lanceolata*; the latter has broad ones, like *P. major*; so that they have the appearance of being very different^d: but this difference is probably owing to situation; the former being an alpine plant, and the latter growing among grass on open hills. It is a native of most parts of the continent of Europe, and also of Siberia. It flowers with us in July, and was cultivated by Mr. Miller, in 1759^e.

In Germany it is esteemed a specific for resolving coagulated blood, occasioned by falls or bruises. It is recommended likewise in sundry obstinate chronical disorders. It appears to be too violent in its operation for general use, unless repeated small doses should be accompanied with the good effects, without the disturbance, which a full dose is said to produce^f.

Dr. Collin, of Vienna, recommends beginning with an infusion of one dram of the herb in flower, morning and evening, increasing the dose gradually to half an ounce, and keeping the body open. Infused in small beer, and taken as common drink, it is reported to have cured the chronical rheumatism of the loins; and in one or two doses, taken two hours before the fit, to have put a stop to intermittents of long standing^g. Bergius tried this infusion, and also the powder of the root, in quartan agues without success^h.

Allioni relates his having cured the palsy by the flowers; but that it did not answer with him in putrid fevers. He adds, that his patients could not endure an ounce of the flowers in infusion, which is what Dr. Collin recommends; and that he never ventured on more than three drams, and that divided into several doses.

Villars celebrates the *Arnica* as one of the best remedies in the vegetable kingdom: as eminently diuretic and tonic; as a febrifuge, antiparalytic and

^a Jussieu. ^b Krock, Villars, Haller. ^c Fl. suec. ^d Ibid.
^e Hort. kew. ^f Lewis. ^g Soc. med. hafn. collect. vol. 2.
^h Mat. med. 2. 685.

antiarthritic. He says, that all parts of it may be used in infusion or decoction, in a dose of half a grain: or, if given in substance, less, especially at the beginning, because it is apt to discourage patients by giving them the heart-burn. How many sick, he exclaims, have I benefited, and even cured of the dropsy, by this simple remedy!¹

2. A copious down issues from the crown of the root, involving the leaves and stem. The leaves are two or three inches long, and an inch and half broad, hairy, especially on the back, entire and ending in a point^k. The scape is twice as long as the leaves, more woolly towards the top^l. The flower is large^m. The calyx is tomentose, but smooth above, the same length with the ray of the corollaⁿ: the florets of the ray are very narrow, dark red^o, or purple, and male; the down is russet-coloured^p. Native of the Cape of Good Hope.]

3. Roots much jointed, dividing into many irregular fleshy offsets, which are variously contorted; whence superstitious persons were formerly led to imagine, that they would expel the poison of scorpions, and cure the wounds made by the bite of that animal. [Stems several, from six or eight inches to a foot in height, terminated by one handsome flower, of a deep yellow colour, two inches over. Root-leaves almost round or oval, deeply serrate, terminating suddenly in a short point, and placed on long petioles: stem-leaves few, almost sessile: all soft, shaggy, and viscid. Calyx shaggy, open; the outer scales longer and wider. Ray of the corolla very open. Seeds a little hairy, short, crowned with an egret. The root and the whole plant has a strong disagreeable smell, especially in the shade and exposed to the north^q.

Monf. Villars has found this plant with the florets of the ray hermaphrodite. He has also found a plant like it, but with the marginal seeds naked, the leaves wider, heart-shaped, and the whole plant more robust: he thinks it may be *Doronicum majus officinarum* of Morison, III. 127.; and perhaps *D. austriacum* of Jacquin, *fl. austr.* 2. t. 130. but it has more resemblance to an *Arnica* than a *Doronicum*^r.

A. scorpioides is native of Switzerland, Savoy, Dauphiné, and Austria.] Mr. Miller says, that he received the seeds from Bohemia, and Siberia. [He cultivated it in 1759^s.

4. This plant varies in its leaves, which are ovate or elliptic, or especially on the stem very long ellipses; sometimes they are quite entire about the edge, but they have generally a few teeth; these are sometimes large, and so remote that the leaf becomes angular: the surface of the leaves is hairy more or less, shorter or longer. The height is generally four inches, but sometimes it is twice as high. The stem always bears one flower^t.

Haller says, from Clusius, that the root-leaves are ovate; the stem-leaves petioled, tongue-shaped, obtuse, soft and shaggy: the flower golden. He adds, from Scheuchzer, that the root-leaves are not serrate, and that they stand on long petioles; that the stem-leaves are sessile, shaggy, rough, and broader than in Clusius's figure.

According to Villars, his *A. stiriaca* is a middle species between *A. scorpioides* and *Senecio Doronicum*. The root-leaves are oval and pointed, quite entire and petioled: the stem-leaves are few and narrower; they are all pale-green inclining to yellow, though covered with straight short hairs. The florets in the ray have neither stamens nor filaments. All the seeds are crowned with down. The root-leaves are sometimes toothed^u.

Native of the high alps of the Grisons, Dauphiné, Piedmont, and Austria.

5. Native of Kamtschatka and North America.

6. Crown of the root woolly. Root-leaves petioled, an inch and half or two inches long and an inch broad, rigid, smooth on the upper surface, ge-

nerally oval, but sometimes heart-shaped. Scapes one-flowered, with a few linear bractes. The florets of the ray are furnished with stamens. Native of the Cape of Good Hope^x.

7. Stem angular, hispid with white bristles, upright, a foot high. Leaves alternate; the lower attenuated at the base, obovate, gash-toothed, with unequal teeth, the edge and keel beneath ciliate, smooth above, two inches long; the upper ones roundish, scarcely toothed, ciliate, smaller. Flower terminating, red, the size of a small pear.

8. Stem hollow, round, striated, smooth, upright, a foot or more in height. Leaves petioled, alternate, smooth, green above, pale beneath, the lobes gash-pinnatifid, toothed. Petioles of the lower leaves long and striated; of those on the branches broad, stem-clasping, striated and short. Flowers peduncled, two or few at the most, red.

9. Stem round, very finely streaked, upright, smooth, two feet high. Leaves alternate, petioled, smooth, green above, pale beneath, the lobes of the lower leaves unequal, toothed; the upper undivided, serrate. Petioles of the lower an inch long, of the upper scarcely a line in length. Flowers terminating, small, yellow. This, and the two foregoing are natives of Japan^y.

10. Crown of the root woolly. The leaves have the lobes imbricated backwards, and whilst young they are tomentose underneath. The scape is surrounded with very slender leaves, and supports one large flower, with a dark purple disk; and a yellow ray purple underneath. Native of the Cape of Good Hope^z.

11. Very nearly allied to the foregoing; and a native also of the Cape^a.

12. Native of New Zealand^b.]

PROPAGATION AND CULTURE.

1, 2, 3, 4, 5. The European sorts are hardy, and require a moist shady situation. They may be propagated by parting the roots in autumn when the stalks begin to decay; or by the seeds sown in autumn, soon after they are ripe, for those sown in the spring often fail: but if the seeds are permitted to scatter, the plants will often come up of themselves, without any other care but to keep them clean from weeds.

[The other species must be kept in pots under a frame, or in a dry stove. They may be increased by seeds, cuttings, or parting the roots; and must be treated as other plants from the Cape of Good Hope.

ARNICA. See *Doronicum*.

ARNOSERIS. See *Lapsana*.

ARNOTTO. See *Bixa*.

ARONIA. See *Orontium*.

ARROW-HEAD. See *Sagittaria*.

ARROW-HEADED GRASS. See *Triglochin*.

ARROW-ROOT, Indian. See *Maranta*.

ARSMART. See *Polygonum*.

ARTANICA. See *Cyclamen*.]

ARTEDIA. (From Peter Artedi, student of medicine in Sweden. He arranged the umbellate plants from the calyx, and died in 1735.)

Lin. gen. n. 332. Reich. 363. Schreb. 465.

Juss. 224. Gært. t. 85.

Class. 5. 2. Pentandria Digynia.

Nat. order of Umbellatæ or Umbelliferae.

GENERIC CHARACTER.

CAL. Umbel universal spreading, flat, manifold. Partial small, similar.—Involucre universal about ten-leaved: leaflets ovate-oblong, three-bristled at the end, nearly the length of the umbel.—Partial two or three-leaved, verging outwards: leaflets linear, pinnate, longer than the umbellule.

COR. universal difform, radiate. Floscules of the disk abortive. Proper of the disk male: petals five, cordate-inflex, erect—of the ray hermaphrodite, with similar petals, but the outmost larger.

¹ See more in Krock, Allioni, Haller, Collin, Bergius, Murray, Woodville, &c. ^k Ray. ^l Linn. amæn. ^m Ray.

ⁿ Linn. amæn. ^o Ray. ^p Amæn. ^q Villars and Haller.

^r Villars dauph. 210. ^s Hort. kew. ^t Allioni. ^u Dauph. 211.

^x Linn. spec. & syst. ^y Thunberg. ^z Linn. spec. & Ray hist.

^a Linn. spec. ^b Forster.

STAM. Filaments five, capillary in all the flowers: anthers simple, roundish.

PIST. of the ray, germ small, inferior: styles reflex: stigmas simple.

PER. none. Fruit roundish, compressed, leafy-scaled on the edge, bipartite.

SEEDS two, oblong, set about the edge with roundish, spreading, scales.

ESSENTIAL CHARACTER.

Invol. pinnatifid. Hoscules of the disk male. Fruit rough with scales.

SPECIES.

1. *Artemisia squamata*.

Lin. spec. 347. Reich. 667. hort. cliff. 89. upf. 58.

Gron. orient. n. 81. Gært. fruct. 2. 33.

Thapsia orientalis. Tourn. cor. 22. 1. itin. 3. 298.

Mor. hist. f. 9. t. 18. f. 11. (bad).

Gingidium foeniculi folio. Bauh. pin. 151. Raii hist. 416. n. 3.

G. Dioscoridis. Rauw. itin. 287. t. 38.

G. Rauwolfii. Cam. hort. 67. t. 16.

DESCRIPTION, &c.

This is a native of the east. Rauwolff found it on mount Libanus; and Tournefort afterwards in Natolia. It is an annual plant, whose stalks rise about two feet high, sending out a few side branches, with linear multifid leaves, resembling those of Dill; the extremity of the stalk is terminated by a large umbel of white flowers.

[The fruit-bearing umbel converges; the involucre is many-leaved, the leaflets margined at the base, once or twice ternate at the tip; umbellules contracted, the florets of the disk male, involucre two or three-leaved; halved, pinnatifid. Petals as in *Tordylium*^a. Fruit orbicular, or ovate, compressed, pale, bay-coloured. Seeds slightly convex on one side, marked with five capillary longitudinal streaks, having a membranaceous edge, divided into ten or twelve lobes; flattish on the other side, mucricated with little scaly wrinkles, and having a rising longitudinal line in the middle^b.

It flowers in July, and was introduced in 1788, by Monf. Thouin^c.]

PROPAGATION AND CULTURE.

This plant decays as soon as the seeds are perfected, and many times in England before they are ripe; for unless they are sown in autumn, and the plants come up before winter, they rarely produce good seeds here. They should be sown on a warm border, where the plants are to remain, for they will not bear transplanting. All the care they require, is to keep them clean from weeds, and to thin the plants to six or eight inches distance. [But to secure their feeding here, they should be raised in a hot-bed, and kept in the greenhouse.]

ARTEMISIA muricata. See *Daucus*.

ARTEMISIA. (ΑΡΤΕΜΙΣΙΑ. Hippocr. & Diosc. from *Artemisia*, wife of Mausolus, king of Caria. Or from ΑΡΤΕΜΙΣ, Diana.)

Lin. gen. n. 945. Reich. 1025. Schreb. 1281.

Tournef. 260. Vaill. aët. gall. 1719. f. 23, 31,

36, 45. Juss. 184. Gært. t. 164. Engl.

Mugwort. Fr. Armoise.—*Abrotanum*. Tournef.

Engl. Southernwood. Fr. Aurone.—*Abfinthium*.

Tournef. 260. Gært. t. 164. Vaill. f. 32.

Engl. Wormwood. Fr. *Abfinthe*.

Class. 19. 2. Syngenesia Polygamia Æqualis.

Nat. order of Compositæ Nucamentaceæ. Corymbiferae.

Juss.

GENERIC CHARACTER.

CAL. Common roundish, imbricate: scales rounded, converging.

COR. compound: corollules hermaphrodite, tubular, several, in the disk. Females almost naked, in the circumference. Proper of the hermaphrodite funnel-shaped: border five-cleft.

STAM. in the hermaphrodites. Filaments capillary, very short: anther cylindric, tubular, five-toothed.

PIST. in the hermaphrodites. Germ small: style filiform, the length of the stamens: stigma bifid, revolute.—Females, germ very small: style filiform longer than in the hermaphrodites: stigma similar.

^a Jussieu gen.

^b Gærtner.

^c Hort. kew.

PER. none. Calyx scarcely changed.

SEEDS solitary, naked.

REC. flat, naked, or villose.

OBS. *Abfinthium* T. has a villose receptacle, and a more globular calyx.—*Abrotanum* T. and *Artemisia* T. have a naked receptacle.

ESSENTIAL CHARACTER.

Recept. subvillose, or almost naked. Down none.

Cal. imbricate with rounded, converging, scales.

Cor. of the ray none.

SPECIES.

* Shrubby, erect.

[1. *Artemisia vermiculata*.

Lin. syst. 743. Reich. 3. 737. mant. 281.

Abfinthium africanum arborescens, folio vermiculato incano. Tournef. inst. 358.

Frutex cineraceus mucosus. Breyn. cent. 24. t. 12.

Leaves acerose, crowded, very small; panicle racemed, flowers sessile.

2. *Artemisia capillaris*.

Lin. syst. 743. Thunb. jap. 309.

Leaves simple, capillaceous.

3. *Artemisia judaica*.

Lin. syst. 743. Reich. 3. 738. mant. 281. III.

mat. med. 183. Stechm. artem. 20. Lour.

cochin. 489?

Abfinthium halepense, &c. Pluk. alm. t. 73. f. 2.

Leaves obovate, obtuse, lobed, small; flowers panicled, pedicled.]

4. *Artemisia æthiopica*.

Lin. spec. 1184. syst. 743. Reich. 3. 738. mant. 283.

Abrotanoides africanum, &c. Raii suppl. 233. n. 14.

Leaves palmate, linear, very minute; flowers racemed, peduncled.

[5. *Artemisia contra*.

Lin. syst. 743. Reich. 3. 738. mant. 282.

Leaves palmate, linear, minute, panicled racemed, flowers sessile.]

6. *Artemisia Abrotanum*. Southern-wood.

Lin. spec. 1185. Reich. 3. 739. hort. cliff. 403.

upf. 257. mat. med. n. 412. p. 183. Gouan.

monsp. 432. Scop. carn. n. 1034. p. 144.

Allion. pedem. n. 605. Krock. fles. n. 1364.

Blackw. t. 555. Woodv. 326. t. 119. Stechm.

artem. 22. Lour. cochinch. 490.

Abrotanum vulgare. Bauh. hist. 3. p. 192.

Abrot. mas. Dod. pempt. 21. Ger. 947. f. 2. emac.

1105. f. 2. Raii hist. 371.—*vulgare*. Park.

theat. 92. f. 1.

α. Stem erect. Common Southernwood.

β. *Abrot. humile*. Dwarf Southernwood.

Hort. par. Mill. dict. n. 7. fig. t. 2. f. 1. Tournef.

inst. 459.

Leaves setaceous, pinnatifid; stem decumbent, under-shrubby.

Leaves setaceous, very branching.

7. *Artemisia arborescens*. Common Narrow-leaved Tree Wormwood.

Lin. spec. 1188. Reich. 3. 739. Allion. pedem.

n. 611.

Abfinthium arborescens. Lob. ic. 753. Park.

theat. 93. f. 3.

Leaves tripinnatifid, silky, cinereous, leaflets linear, flowers globose; flower-bearing branchlets simple.

[8. *Artemisia argentea*. Broad-leaved Tree Wormwood.

L'Herit. fert. angl. tab. 28. Ait. hort. kew. 3.

p. 170.

Leaves bipinnatifid, silky, white: leaflets lanceolate-linear; flowers globose, flower-bearing branchlets wand-like.

9. *Artemisia aragoniæ*.

D'Affo arag. n. 811.

Leaves linear, bipinnate, hoary: flowers racemed.

10. *Artemisia Messerschmidii*.

Stechm. p. 19. n. 9.

Leaves linear, multifid; racemes erect, slender, loose.

11. *Artemisia tatarica*.

Stechm. p. 19. n. 10.

Lower leaves bipinnate, pinnae equal; upper leaves pinnate, linear: racemes erect, loose, many-flowered.

3 L

12. *Artemisia*

12. *Artemisia nitrosa*.
Stechn. p. 24. n. 17. Gmel. fib. 2. p. 113. n. 98. t. 50. f. 1.
 Lower leaves finely multifid; upper entire, obtuse: corymbs erect, hoary, oblong, spiked, sessile.
13. *Artemisia Lerchiana*.
Stechn. n. 18. Gmel. fib. 2. n. 99. t. 50. f. 2. 3. β. Gmel. fib. n. 97. t. 49. f. 2.
 Lower leaves pinnate, short, finely divided, pinnae palmate; upper leaves linear, undivided: corymbs sessile, very copious, spiked, oblong.
14. *Artemisia tenella*.
Stechn. 20. Pluk. phyt. t. 1. f. 3.
Abf. seriphium hispanicum. Tournef. inst. 458. Quer. fl. Espan. 2. p. 143. 3.
 Leaves short, very finely multifid; panicles slender, loose, leafy, peduncles one or two-flowered.
15. *Artemisia pauciflora*.
Stechn. n. 21. Gmel. fib. 2. n. 101. t. 52. f. 1. 2.
 Branches virgate; filiform: corymbs one-ranked, spiked, subsessile.
16. *Artemisia italica*.
Stechn. n. 23. Hall. gott. p. 373. Zinn. cat. p. 398. Vaill. act. par. 1719. p. 287. 24. Pluk. phyt. t. 121. f. 2. Tournef. inst. p. 459.
 Leaves tomentose, loosely pinnate; pinnae long, linear; root-leaves dotted, spikes dense: flowers erect.
17. *Artemisia hispanica*.
Stechn. n. 24.
 Leaves loosely pinnate; pinnae long, linear, spikes very dense; calyxes oblong.
18. *Artemisia Gmelini*.
Stechn. n. 27. Gmel. fib. 2. n. 106. t. 56. f. 1.
 Leaves doubly pinnate, obtuse, linear; corymbs green, roundish, nodding.
19. *Artemisia Lobelii*.
Allion. pedem. n. 607.
A. camphorata. Villars dauph. 242.
Abrot. mas angustifolium minus. Baub. pin. 136. Raii hist. 371.
Abrot. odoratum humile, dense fruticosum. Lob. ic. 769. obs. 444.
 Leaves petiolate, palmate-multifid, linear; the upper ones simple, angular.
 ** Procumbent before flowering.
20. *Artemisia fantonica*. Tartarian Southernwood, or Worm-seed.
Lin. spec. 1185. syst. 743. Reich. 3. 739. Stechn. artem. 25. Woodv. 335. t. 123.
A. fruticosa incana, &c. Gmel. fib. 2. p. 115. t. 51. Semen sanctum. Lob. ic. 756.
Abf. fantonicum alexandrinum. Baub. pin. 130. Raii hist. 368.
β. Abf. fantonicum gallicum. Baub. pin. 139. Camer. epit. 457.
 Stem-leaves pinnate multifid, branches undivided, spikes one-ranked, reflex: flowers with five florets.
21. *Artemisia campestris*. Field Southernwood.
Lin. spec. 1185. syst. 743. Reich. 3. 740. hort. cliff. 403. fl. suec. 732. Hudf. angl. 357. With. 889. Gmel. fib. 2. p. 117. Hall. belv. n. 131. Scop. carn. n. 1037. Pollich palat. n. 780. Krock. files. n. 1365. Villars dauph. 247. Baub. hist. 3. p. 194. 2. Stechn. artem. n. 26. Camer. epit. 597.
Abrotanum campestre. Baub. pin. 136. Raii hist. 371. syn. 190. Garid. p. 2. t. 1. Ger. 948. 5. emac. 1106. 5. Park. 94. 7. Pet. brit. 20. 4.
β. Abrot. camp. incanum Carlinæ odore. Baub. pin. 136. Prodr. 71. Mill. fig. t. 2. f. 2.
 Leaves multifid, linear; stems procumbent, wand-like.
- [22. *Artemisia palustris*. Marsh Southernwood.
Lin. spec. 1185. Reich. 3. 740. Gmel. fib. 2. p. 119. t. 55.
Abf. sinthium. Amm. ruth. 197.
 Leaves linear, pinnate, quite entire; flowers glomerate, subsessile.]
23. *Artemisia erithmifolia*. Sampire-leaved Southernwood.
Lin. spec. 1186. Reich. 3. 740.
Abrot. hispanicum maritimum, &c. Tournef. inst. 459.
- Abrot. inodorum, &c. Mor. hist. 3. p. 11. Raii suppl. 232. n. 5.*
 Leaves compound, divaricate, linear, fleshy, smooth; stem rising, panicled.
- [24. *Artemisia vallesiaca*. Downy Southernwood.
Allion. pedem. n. 614. Ait. hort. kew. 3. 170. Hall. belv. n. 128.
Artemisia filaginoides. Stechn. n. 28.
Art. Herba alba. D'Asso Arrag. n. 810. t. 8. f. 1.
Abf. sinthium Scirphium montanum candidum. Baub. pin. 139. Tournef. inst. 458. Scheuch. it. 4. 328. 1. 29. t. 3. f. 1. (very bad.)
Abf. vallesiaca tenuifolium candidum, seu, Herba alba. Baub. hist. 3. 179. Mor. hist. 3. p. 9.
Abf. album vallesianum. Park. theat. p. 99. 8. Raii hist. 369.
Herba alba. Gesn. hort. 244.
 Leaves pinnate, many-parted, filiform, tomentose; flowers sessile, erect, subcolumnar, having few florets.]
25. *Artemisia maritima*. Sea Wormwood.
Lin. spec. 1186. Reich. 3. 741. suec. n. 734. Hudf. angl. 358. With. 890. Sauv. monsp. 264. Stechn. artem. 17. Woodv. 334. t. 122. Krock. files. n. 1366.
Abf. sinthium maritimum album. Ger. 940. 1. emac. 1099. 1. Raii hist. 370. syn. 188. Petiv. brit. t. 20. f. 2. Mor. hist. f. 6, t. 2. f. 19, 20.
Abf. seriphium belgicum. Baub. pin. 139. hist. 3. p. 178.
α. Abf. maritimum Scirphio belgico simile, latiore folio, odoris grati. Pluk. Raii syn. n. 3. Petiv. t. 20. f. 3.
β. Abf. Scirphium gallicum—item, germanicum. Baub. pin. 139. Raii syn. n. 4. Lin. spec. β. syst. γ.
γ. Abf. Scirphium tenuifolium maritimum narbonense. Baub. hist. 3. 177. Raii syn. n. 5.
δ. Abf. maritimum nostras. Raii suppl. 231. syn. n. 6.
 Leaves many-parted, tomentose; racemes drooping, female florets three.
26. *Artemisia glacialis*. Silky Wormwood.
Lin. spec. 1187. syst. 743. Reich. 3. 741. Jacqu. austr. 5. app. t. 35. Allion. pedem. n. 617. t. 8. f. 3. and t. 9. f. 1. Villars dauph. 243.
Abf. sinthium. Hall. belv. n. 125. Raii suppl. 231. 8. Baub. pin. 139. 3. prodr. 71. 3.
 Leaves palmate, multifid, silky; stems ascending; flowers glomerate, level-topped.
27. *Artemisia rupestris*. Creeping Wormwood.
Lin. spec. 1186. Reich. 3. 741. suec. n. 733. Fl. dan. t. 801. Allion. pedem. n. 615. Gmel. fib. 2. p. 111. t. 49. f. 1. Scop. carn. n. 1038. Stechn. artem. n. 9. Krock. files. n. 1367.
α. Muttellina. Villars dauph. 244.
Apf. sinthium. Hall. belv. n. 126.
α. Abf. viride, foliis multifidis linearibus. Gmel. fib. 2. t. 64. f. 2.
 Leaves pinnate, stems ascending; flowers globose, nodding, receptacle pappose.
- [28. *Artemisia spicata*. Spiked Wormwood.
Lin. syst. 744. Jacqu. fl. austr. 5. app. t. 34. Hall. belv. n. 127. Allion. pedem. n. 616. t. 8. f. 1. Stechn. p. 17. Villars dauph. 246. Bocc. mus. t. 71.
 Root-leaves biternate, stem ascending, spiked, flowers erect.
 *** Erect, herbaceous, with compound leaves.
29. *Artemisia anethifolia*. Dill-leaved Wormwood.
Stechn. n. 25. Gmel. fib. 2. n. 103. t. 54.
 Leaves multifid, very slenderly divided; corymbs roundish, nodding, one-ranked, loosely spiked.]
30. *Artemisia pontica*. Roman Wormwood.
Lin. spec. 1187. Reich. 3. 742. hort. cliff. 404. upf. 257. mat. med. 184. Jacqu. austr. 1. t. 99. Hall. belv. n. 129. Pollich pal. n. 781. Stechn. artem. p. 31. Krock. files. n. 1368.
Abf. sinthium ponticum tenuifolium incanum. Baub. pin. 138. Dod. pempt. 24. Raii hist. 367. n. 5.
 Leaves many-parted, tomentose beneath; flowers roundish, nodding; receptacle naked.
- [31. *Artemisia*

- [31. *Artemisia austriaca*. *Austrian Wormwood*.
Lin. syst. 744. *Jacqu. austr.* 1. t. 100.
Leaves many-parted, tomentose, hoary; flowers oblong, nodding, receptacles naked.]
32. *Artemisia annua*. *Annual Wormwood*.
Lin. spec. 1187. *Reich.* 3. 743. *hort. upf.* 257.
Gmel. sib. 2. p. 125. n. 108. *Amm. ruth.* 142.
n. 193. t. 23. *Lour. cochinch.* 490.
- β. *Absointhium folio tenui multifido, camphoram spirans*. *Boerb. lugdb.* 1. p. 126.
Leaves three-fold pinnate, smooth on both sides, flowers sub-globose, nodding; receptacle smooth, conical.
33. *Artemisia tanacetifolia*. *Tansy-leaved Wormwood*.
Lin. spec. 1188. *Reich.* 3. 743. *Stechm. artem.* n. 12. *Allion. pedem.* n. 608. t. 70. f. 2. and t. 10. f. 3. *Gmel. sib.* 2. p. 122. t. 58. *Villars dauph.* 248.
Leaves bipinnate, underneath tomentose shining; pinnae transverse, racemes simple.
34. *Artemisia Absinthium*. *Common Wormwood*.
Lin. spec. 1188. *Reich.* 3. 743. *hort. cliff.* 404. *fl. succ.* n. 735. *mat. med.* 184. *Gertn. fruct.* 2. 393. *Huds. angl.* 358. *With.* 890. *Allion. pedem.* n. 610. *Scop. carn.* n. 1035. *Leers herb.* n. 636. *Stechm.* 14. *Woodv.* 328. t. 120. *Krock. files.* n. 1369. *Villars dauph.* 241.
Apsointhium. *Hall. helv.* n. 124.
Absinthium ponticum. f. *romanum*, &c. *Baub. pin.* 138. *Blackw.* t. 17.
Abf. vulgare majus. *Baub. hist.* 3. 168. *Mor. hist.* f. 6. t. 1. f. 1. row. 3.
Abf. vulgare. *Park.* 98. 1. *Raii hist.* 366. *syn.* 188.
A. latifolium, seu ponticum. *Ger.* 937. 1, 2. *emac.* 1096. 1.
β. *A. inodora*. *Mill. dict.* n. 16.—*insipida*. *Villars dauph.* 249.
Abf. insipidum. *Baub. pin.* 139. n. 7. *Ger.* 943. 4. *emac.* 1102. 3. *Park. theat.* 98. n. 5.
Leaves compound, multifid; flowers subglobose, pendulous; receptacle villose.
35. *Artemisia vulgaris*. *Mug-wort*.
Lin. spec. 1188. *Reich.* 3. 744. *mat. med.* 184. *fl. succ.* n. 731. *lapp.* n. 297. *Huds. angl.* 359. *With.* 891. *Lightf. scot.* 468. *Allion. pedem.* n. 609. *Hall. helv.* n. 130. *Scop. carn.* n. 1033. *Pollich pal.* n. 782. *Krock. files.* n. 1370. *Villars dauph.* 248. *Stechm. artem.* 32. *Woodv.* 331. t. 121. *Lour. cochinch.* 491. *Thunb. jap.* 310.
Art. vulgaris. *Baub. hist.* 3. 184. 3. *Raii hist.* 372. *syn.* 190. *Park.* 90 & 91. 2.
A. vulg. major. *Baub. pin.* 137.
A. mater herbarum. *Ger.* 945. 1. 2. *emac.* 1103. 1.
A. latifolia vulgaris major. *Mor. hist.* f. 6. t. 1. f. 1. row 2.
Leaves pinnatifid, flat, gashed, tomentose underneath; racemes simple, recurved; ray five-flowered.
- [36. *Artemisia pectinata*.
Lin. syst. 744. *suppl.* p. 362. *Pallas itin.* 3. p. 755. t. H. b. f. 2.
Leaves pinnate, pectinate, smooth, sessile; flowers axillary, solitary, sessile, having four florets.]
**** *Leaves simple.*
37. *Artemisia integrifolia*. *Entire-leaved Mugwort*.
Lin. spec. 1189. *Reich.* 3. 744. *Gmel. sib.* 2. p. 109. t. 48. f. 1.
Leaves lanceolate, tomentose underneath, quite entire or with one or two teeth; female florets five.
- [38. *Artemisia japonica*. *Japonefe Mugwort*.
Lin. syst. 744. *Thunb. jap.* 310. *Kämpf. amæn.* 5. p. 897.
Leaves smooth; those on the branches lanceolate and entire, on the stem oblong and trifid; flowers racemed nodding.]
39. *Artemisia cærulescens*. *Lavender-leaved Wormwood*.
Lin. spec. 1189. *Reich.* 3. 745. *hort. cliff.* 403. *Huds. angl.* 359. *With.* 892. *Scop. carn.* n. 1036. *Stechm. artem.* 36. *Gmel. sib.* 2. 131. t. 64. f. 1.
Abf. maritimum lavandulæ folio. *Baub. pin.* 139.

- Mor. hist.* 3. f. 6. t. 1. f. 5. *Raii hist.* 370. *Dub. arb.* 1. t. 24. f. 5.
A. marina. *Ger.* 946. *emac.* 1104. 3.
Abf. angustifolium. *Dod. pempt.* 26. 2.
Abrotanum latifolium rarius, artemisiæ folio. *Col. ecphr.* 2. p. 75. t. 76.
Stem-leaves lanceolate, entire; root-leaves multifid; female florets three.
40. *Artemisia Dracunculus*. *Tarragon*.
Lin. spec. 1189. *Reich.* 3. 745. *hort. cliff.* 403. *upf.* 256. *Gmel. sib.* 2. p. 126. t. 59 and 60. f. 1. *Scop. carn.* n. 1032. *Krock. files.* n. 1371. *Stechm. artem.* 37. *Gron. orient.* 106.
Dracunculus hortensis. *Baub. pin.* 98. *Blackw.* t. 116.
Draco herba. *Dod. pempt.* 709. *Ger.* 193. *emac.* 249. *Park. parad.* 500. *Raii hist.* 373.
Leaves lanceolate, smooth, quite entire.
- [41. *Artemisia chinensis*. *Chinese Mugwort*.
Lin. spec. 1190. *Reich.* 3. 745. *Gmel. sib.* 2. p. 61. f. 1. 2. *Lour. cochinch.* 492.
Abf. maritimum Sinarum, &c. *Pluk. amalb.* 3. t. 153. f. 5.
Leaves simple, tomentose, obtuse, lanceolate; the lower ones wedge-shaped, three-lobed.
42. *Artemisia maderaspatana*. *Madras Wormwood*.
Lin. spec. 1190. *Reich.* 3. 746.
Tanacetum ægyptiacum. *Jacq. hort.* 3. p. 46. t. 88.
Absinthium maderasp. &c. *Pluk. amalb.* 3. t. 357. f. 3.
Abf. gangeticum, &c. *Pluk. alm.* 2. t. 1. f. 2. (bad.)
Nelampala. *Rheed. mal.* 10. p. 97. t. 49.
Leaves simple, lyrate-sinuate; stems procumbent; flowers pedunculate, solitary, globose, opposite to the leaves.]
43. *Artemisia minima*. *Least Wormwood*.
Lin. spec. 1190. *syst.* 745. *Reich.* 3. 746. *Burm. ind.* 1. t. 58. f. 3. *Thunb. jap.* 311.
Centipeda orbicularis. *Lour. cochinch.* 493.
Leaves wedge-shaped, repand, stem procumbent, flowers axillary, sessile.
- [44. *Artemisia littoralis*.
Retz. obs. 5. 28. n. 77.
Procumbent, strigose; leaves spatulate-ferrate-toothed, calyxes naked, pedicelled.

DESCRIPTIONS, &c.

The plants of this genus are either undershrubs or herbs. The leaves are usually multifid, in some species hoary. The flowers are commonly disposed in panicles.

1. This is a stiff, upright shrub, inclining to ash-colour, and paniced. Leaves linear, tomentose and flat on the upper surface, naked and rather convex beneath. Panicle very copious, consisting of racemes, which are formed of sessile, ovate, imbricate spicules. Flowers tomentose, with the lowest scale naked. Native of the Cape of Good Hope.

2. Stem striated, reddish, smooth, branching a foot or more in height. Branches scattered, subfastigate, from upright spreading, like the stem. Leaves frequent, smooth, half an inch long. Flowers in close racemes on the extreme twigs. Native of Japan, where it flowers in October.

Loureiro has a species which he names *Artemisia aquatica*, because it delights in the water, and will grow many years and flower in a vessel filled with water, without any earth. He suspects that it may be the same with this species of Thunberg; and thus describes it. Stem arborescent, twisted, knotty, eight feet high, about the thickness of the human leg: branches distorted, spreading, smooth; twigs, petioles and peduncles reddish-brown. Leaves scattered, roundish, deeply many-parted, with the segments capillary, slender, smooth on both sides, dark green, inodorous. Flowers white, very small, globular, on long, terminating racemes, ending in linear spikes. All the florets are tubulose. Re-

Jussieu.

Linn. mant.

Thunberg.

receptacle

receptacle and seeds naked. It is cultivated both in China and Cochinchina^d.

3. Stem suffruticose, a foot and half high; panicled, subpubescent, ash-coloured. Leaves three or five-lobed, flat, subtomentose, ash-coloured, the middle division broadest. Panicle racemed; the last racemes peduncled and pedicelled. Flowers roundish, rather depressed, the size of coriander seeds^e.

Native of Caramania, the Mogul country, China, Judea, Arabia, &c. Rauwolfi found it about Beth-lehem; and Shaw in Arabia and the deserts of Numidia, plentifully. It has a bitter taste. Both leaves and seeds are used in medicine, in the eastern countries; and are reputed to be tonic, stomachic, and anthelmintic.

4. This is a shrubby plant, a foot high, branching, white and very obscurely tomentose. Leaves the size of heath, in clusters, subtomentose; the divisions linear, and very narrow. Flowers nodding, subglobose, the size of those of Wormwood. Receptacle naked. Native of the Cape of Good Hope, and of Spain^f.

5. This also is a shrub, panicled, upright; tomentose and white; the branches more tomentose than the stem. Leaves often crowded, rather obtuse, tomentose. The spikes sit close to the branches, are alternately dispersed, ovate, very small, consisting of very small flowers, imbricate and less tomentose. Found by Lerche in Persia^g.]

6. Common Southernwood is an under-shrub seldom rising more than three or four feet high. [Columna however mentions, that it sometimes grows in gardens, with a stout straight stem, almost to the height of a man. In mountainous situations, on the contrary, it is low and slender, with the stems lying on the ground, and only from a foot to two feet in length. Mr. Miller has made a distinct species of this; and Mr. Ray observed long since, that these differences occasioned false species to be enumerated by the older botanists^h. Leaves alternate, petioled, multifid; leaflets linear, very narrow, pale green, tomentose-scabrous; less divided towards the top, till they become trifid and even linear next the flowers; which come forth in linear, upright racemes, or spikes, from the axils at the extremities of the branches, on one-flowered peduncles; they are small, abundant, nodding, and yellow; but rarely open in England. It is a native of Italy, Spain, the south of France, Silesia, and Carniola, in Europe; of Siberia, Syria, Galatia, Cappadocia, China and Cochinchina, in Asia. It was cultivated by Gerard in 1596ⁱ, and probably much earlier.

Southernwood is called in Greek *Ἀβροτόνον*, which is variously derived, from *ἄβροτον*, *inhumanum*, bitterer than Wormwood; from *ἄβρωτον*, unfit for food; *διὰ τὸ πρὸς ὀφιν ἄβρον καὶ ἀπαλὸν φαίνεσθαι*, from the delicacy and softness of its appearance; or from *ἄβρος* & *τόνος*, *οὐκ ἄβρος τείνεται*, because it is extended or grows in a very soft manner. I know not therefore why Linneus and others write it *Abrotanum*.—In Latin, *Abrotonum*. In Italian, Spanish, and Portuguese, *Abrotano*. In French, *L'aurone des jardins*, *la Citronelle*, *la Garde-robe*. In German, *Stabwurz*, *Aberrante*, *Gartenwurz*, &c.

Southernwood is bitter and aromatic, with a very strong smell. It is not much in use, but promises considerable effects, outwardly in discussing contusions and tumours, inwardly for destroying worms, and in disorders peculiar to the female sex. In catarrhal malignant fevers, it may have great efficacy, by its quality of promoting perspiration, which it possesses in a high degree. A table spoonful of the expressed juice may be given, half an ounce of the decoction, or a whole ounce of the infusion of the herb^k. In the present practice it is scarcely otherwise made use of than as an ingredient in discutient and antiseptic fomentations; and for this purpose only it is ordered by the medical college of London. The branches dye wool a deep yellow.]

^d Fl. cochinch. 490.

^e Linn. mant.

^f Linn. spec. & mant.

^g Linn. mant.

^h Hist. 371.

ⁱ Hort. kew.

^k Allioni.

7. This rises with a woody stalk six or seven feet high, sending out many woody branches, with leaves somewhat like those of common Wormwood, but more finely divided, and much whiter. The branches are terminated by spikes of globular flowers in the autumn, but are seldom followed by seeds here.

[It is so nearly allied to common Wormwood, that Linneus doubts whether it be a distinct species. Allioni observes, that the taste and smell are much weaker in this than in that. It is a native of the Levant, and was cultivated here in 1640^l. Mr. Miller says that it grows naturally near the sea in Italy; and Allioni gives it as a native of Piedmont.

8. The whole plant is of a silvery colour. The receptacle is villose. It is a native of Madeira, where it was found by Masson^m. It was introduced here in 1777, and flowers in June and Julyⁿ.

9. Scarcely a foot high. The lower leaves linear, bipinnate at the end; pinnae linear, acute, hoary; upper leaves simple, linear. Small racemes proceed from the axils of these. It seems to be a distinct species, but should be examined more accurately^o. Perhaps it may be the same with the *bispanica* of Stechmann (n. 17.); but he says that the leaves are not tomentose.

10. This is tomentose all over. The stem is upright and suffruticose.

11. This also is an undershrub, and is tomentose all over. Both these were found in Tartary, by Messerschmidt.

12. Shrubby and rather hoary. Native of Siberia.

13. Shrubby and hoary. Observed in Astracan, and on the banks of the Volga: and the variety between the rivers Jenisea and Irtysh, by Gmelin.

14. Stem woolly. Native of Spain.

15. Shrubby. Calyxes three or four-flowered. Native of the banks of the Volga.

16. An undershrub. Native of Italy.

17. An undershrub. The leaves not tomentose. Native of Spain.

18. Shrubby. Leaves ash-coloured underneath, found by Gmelin, near the rivers Lena and Angara^p.

19. This species is of lower growth than common Southernwood, and has a strong, balsamic, camphorated smell. The leaves are less hoary, and those about the flowers broader, longer, and not so much cut. The corymbs are much larger and thinner, and the flowers are of a fine yellow. The receptacle is hirsute^q.

Monf. Villars says that it differs from Southernwood (n. 6.) in having procumbent stalks, a more agreeable smell, and a hairy receptacle. It has also much larger flowers, coming out long before those of common Southernwood. Sometimes it becomes almost green, and has then less smell, but always camphorated and pleasant; usually it is entirely white, resembling n. 24. in its colour, and the fineness of its leaves; but the habit is different.

Native of Piedmont, the Genoese alps, and Dauphiné.

20. This has the habit of the next species, but is upright. Stem panicled, rather hoary. The lower leaves pinnate-multifid, linear, hoary. Branches wand-like. Racemes or spikes alternate, recurved, with the flowers all directed the same way; the pedicels with here and there linear, bluntish, recurved leaves. Flowers solitary, cylindric. In the fruiting plant all the stems are upright, and lose their hoariness. The leaves on the branches are very small, linear and undivided. Receptacle naked^r.

Native of Persia and Tartary.—Cultivated in 1768, by Mr. Miller. It flowers from September to November^s.

The seeds both of this and of the third sort are brought over for *Semen Santonicum*, or Worm-feed;

^l Hort. kew.

^m D'Affo.

ⁿ L'Heritier.

^o Stechmann.

^p Allioni.

^q Hort. kew.

^r Linn. spec.

and are used in worm-cases: they are reckoned a good balsamic, tonic, stomachic medicine.

21. The root of Field Southernwood is perennial, hard, woody, and branching. Stems numerous, angular, declining, much branched; branches opposite, the middle ones longest. Upper leaves frequently simple, very narrow. Flowering heads very small, scarcely exceeding one line in breadth, numerous, single, either sessile or in short branched spikes. Scales of the calyx few, bluntly ovate, green and slightly pubescent at the back, with whitish membranaceous margins, shining, converging. Flowers few, not longer than the calyx. Receptacle naked^t.

It grows on open dry heaths, and by road sides, in most parts of Europe. With us, at Elvedon or Elden in Suffolk, between Newmarket and Lynn; also near Barton mills and Thetford; flowering in august. Our old authors call it Wild Southernwood; and Ray fine-leaved May-wort.

It has the same qualities with Garden Southernwood, but is much weaker. Linneus recommends an infusion of it in the pleurisy.

β. Caspar Bauhin describes the variety as having an oblong, fibrose, reddish root: the stem a foot high; the leaves divided in the same manner as the lower ones of Garden Southernwood, hoary, and with the same smell and taste as those of *Carlina*. Burser sent it from Lintz in Austria, where he found it by road sides^u.

Mr. Miller received the seeds both from Austria and Spain; and says, that it approaches near to the common Field Southernwood, but that it has strong woody branches, which grow erect, and are of long duration; whereas that has trailing branches, which seldom continue longer than two years, and the flowers generally hang downwards, but these have erect spikes, and the whole plant has a much stronger scent, and is hoary^x.

22. The leaves are like those of *Coronopus* or Buck's-horn Plantain with five or seven segments. Flowers yellow. Receptacle naked. Native of Siberia^y.

23. This has the habit of Field Southernwood (n. 21), but is smooth. Stems from half a foot to a foot in height. Leaves pinnatifid, and trifid. It has the flowers of Field Southernwood; and the receptacle is naked. Native of Portugal, and found by Loeffling on the sandy shores there^z. Cultivated in 1768, by Mr. Miller. It flowers from august to october^a.

24. This is an erect shrub, a foot high. Leaves hoary, bipinnate; the pinnae pinnate, and also trilobate. Flowering branches tomentose, alternate. Flowers solitary, with linear bractes. Scales of the calyx concave, the outer tomentose, the inner membranaceous. Florets four or five, hermaphrodite (no females), red at the end^b. Receptacle naked^c. Sheep feed on it. Sometimes it occurs with green smooth leaves^d.

Native of Spain, Piedmont and the Valais.—Introduced in 1775, by the Doctors Pitcairn and Fothergill. It flowers in july and august^e.

25. Sea Wormwood is a low undershrub, creeping at the root. The whole plant is white with a thick down, and has a very strong smell of Marum or Camphor in its native soil; but becomes much less grateful when cultivated^f. The leaves vary much in their division; the upper ones are generally simple, linear and blunt^g. Receptacle naked^h.

Native of Britain, Sweden, Germany, Holland, France, Egypt, &c. on the sea coast; flowering in august.

It is used as an ingredient in distilled waters. A conserve of the tops, made by beating them with thrice their weight of fine sugar, is directed by the London college; and they are an ingredient in the decoction for fomentations.

This is less unpleasant, but weaker than common Wormwood: it is less effectual therefore as an antiseptic and anthelmintic, but more eligible as a stomachicⁱ.

There is a considerable variation in this species, with respect to the leaves, stems, branches and corymbs. The leaves are broader or narrower, more or less hoary and even greenish: the stems and branches are sometimes thicker and more diffused, sometimes stiffer, more upright and closer together: the corymbs also are thicker, or narrower; scattered and diffused, or closer together and heaped into spikes; pendulous and nodding, or upright: all which differences are owing to age, situation, and other accidents^k.

α. Leaves hoary, lanuginose, branches spreading, heads smaller, pendulous. Near Sheerness in the isle of Shepey.

β. Leaves broader. In the same place; and in Mersey island, near Colchester.

γ. Heads of flowers narrow, upright, in spikes. Leaves narrow. In the same places, and at Harwich^l.

δ. About a foot high. Leaves small, white, finely cut. Flowers oblong, yellow, in spikes along the stem. About Fifeneis in Scotland^m.

26. This is of the same stature with *A. rupestris*. Leaves small, three-parted, linear with trifid segments, subfastigate, silky-white, tomentose, very short, on long petioles; those of the lower ones sheathing the stem; which is a span in height, quite simple, subtomentose, leafy. Flowers globose, yellow, terminating, on very short peduncles: calyxes subtomentose. Receptacle hairyⁿ.

Monf. Villars describes some particulars not mentioned by Linneus. Stems straight, three or four inches long; terminated by three, four, or five large yellow flowers; calyx equal, rounded, and a little open. Root-leaves numerous, and more cut, divided into five segments, subdivided into three smaller ones, each about a common centre, and terminating in a rounded circumference. They are white and silky; as is the whole plant. The scales of the calyx are brown at the tip: it incloses from forty to fifty flowers, and as many seeds, on a hairy, conical receptacle^o. Native of Switzerland, the Valais, Austria, Dauphiné, and Piedmont. Cultivated in 1748, by Mr. Miller. It flowers in july and august^p.

27. Stems somewhat higher than in the *glacialis*, but not exceeding a foot, somewhat hirsute. Leaves silky, flat, on long petioles, narrow, having two or three pairs of pinnae with an odd one; each pinna petioled, three and five-parted: the stem-leaves have only two or three pairs, and the top ones are simple and lanceolate. The flowers proceed from the axils all along the stem, on long peduncles, the lower ones only nodding. The flowers are also smaller; the calyxes paler, with the edge less brown, and even white, they are likewise much more hairy. The florets in the circumference female; the others bell-shaped, yellow. Receptacle hairy^q.

Native of Oeland, Siberia, Switzerland, and many other parts of Europe, in alpine situations. Cultivated in 1748, by Mr. Miller; flowering in august^r.

28. Linneus made this only a variety of the foregoing, differing in having longer branches, and in some other circumstances owing perhaps to situation. Allioni, who names it *A. Boccone*, commends Haller for separating it from the *rupestris*. Stechmann calls it *A. Genipi*, and makes it a distinct species. Haller thus distinguishes it.—This has the same habit with the foregoing. The root-leaves are silky, petioled, and three-parted, as in that. Each pinna is palmate, trifid from the petiole, the middle segment equally, the side one less. The last divisions lanceolate, obtuse; in the stem-leaves even more so. The leaves are much broader than in

^t Woodw. M. S. ^u Prodr. p. 71. ^x Miller's figures.
^y Linn. spec. ^z Ibid. ^a Hort. kew. ^b D'Affo.
^c Haller. ^d D'Affo. ^e Hort. kew. ^f Lin. succ.
^g Woodw. M. S. ^h Lin. spec.

ⁱ Lewis. ^k Dillen. in Raii syn. ^l Raii syn. ed. 3. p. 189.
^m Raii hist. 3. 231. ⁿ Linn. spec. ^o Villars. ^p Hort. kew.
^q Haller. ^r Hort. kew.

A. rupestris; the nerve especially is very broad. On the stem they are sessile, semipinnate, with four pairs, the last largest, shortly trifid. The stems are like those of the foregoing, but not branching, scarcely a long span in height. Peduncles one-flowered, straight, the lower longish, the upper very short, forming from the axils a leafy spike, thicker towards the top. Leaflets of the calyx ovate, generally dark-coloured, whence its alpine name of *Genipi noir*. From the paleness of these in the foregoing species, that is called *Genipi blanc*. Florets as in that, but the receptacle naked^a.

Native of the alps of Switzerland, Austria, Piedmont, and Dauphiné.

These three sorts of alpine Wormwood are in great request among the inhabitants of the alps, under the common name of *Genipi*, for restoring a suppressed perspiration, in pains of the side, and in intermitting fevers. They are an useful medicine in cases where strong diaphoretics are serviceable, as in the rheumatism, and in intermittent and catarrhal fevers; but are dangerous in the pleurisy, though they are used indiscriminately by the peasants in all inflammatory disorders^b.

29. Stems herbaceous. Florets reddish; calyxes rather large, green and white streaked. Native of Siberia.

30. Root creeping. Stems one or two feet high, (in gardens four feet); below smooth, reddish-brown; above hoary, leafy, with many axillary branches, almost upright. Stem-leaves bipinnate, tomentose on both sides, with sharp linear segments: those at the bottom of the branches and top of the stem are simply pinnate: the uppermost are quite entire and simple. Flowers in racemes, nodding, roundish and hoary; disk yellow: leaflets of the calyx about fifteen, and imbricate; the outer oblong, glaucous, the inner more rounded, concave, membranaceous, whitish, subpellucid: florets twenty-four, smooth, often furnished with pedicelled glands; in the circumference about six females, apetalous and greenish yellow; the others hermaphrodite. Seeds naked. Receptacle conical, naked. The whole plant has a pleasant aromatic smell; and is less bitter to the taste than common Wormwood^c. Its bitterness indeed is so mixed with a kind of aromatic flavour as scarcely to be disagreeable. It appears to be more eligible than either common or sea Wormwood as a stomachic and corroborant; for which purpose a conserve of the tops has been greatly recommended; and it is undoubtedly an elegant and useful preparation^d.] Mr. Miller says, that it is now never used in any of our shops, though it might be had in as great plenty as Sea Wormwood, which is universally substituted for it, and is indeed ordered by the London college, if it were cultivated by those who supply the markets with medicinal herbs.

Native of Hungary, Germany, Austria, Piedmont, &c.—Cultivated in 1683, by Mr. James Sutherland. It flowers in september^e.

31. Stems upright, annual, but at the base woody and permanent, round, smooth below, the rest covered with a white nap, from six inches to a foot and half in height. Branches axillary, numerous, decreasing towards the top and rising, sending forth very short twigs, simple and one-flowered on the shorter stems, but on the greater many-flowered. Leaves glaucous-hoary, tomentose, flat; on the twigs first coming out quite entire, then trifid, and so on increasing the divisions, till they become subtriplicate-pinnate and roundish: the divisions in the first being more obtuse and spreading; in the latter linear, more narrow, acute and converging. The upper leaves again decrease. Flowers ovate-oblong, scarcely two lines in length, nodding, externally villose-tomentose, brown in the disk, in sessile racemes on the tops of the twigs. Scales of the calyx imbricate; the outer linear, and like the leaves; the inner longer, ovate, obtuse, membranaceous, con-

cave, pale, subpellucid, erect, hairy. Hermaphrodites about eight, brownish and almost hid in white villose hairs: females apetalous, from four to seven. Seeds naked, oblong. Receptacle naked. The whole plant is pleasantly and strongly aromatic; and the taste very bitter. It differs from Sea Wormwood (n. 25), in the leaves being much less tomentose and hoary, roundish not oblong. Native of Austria^f.

32. This is an annual plant, with an upright, simple, round, streaked, smooth stem, very straight, growing to eight feet in height, (with us seldom much more than two), green when young, but becoming reddish brown when old, and somewhat woody at the base: branches oblique, three-fold alternate. Flowers pale yellow, in many, oblong, upright, axillary racemes, on longish peduncles, with a lanceolate bracte, which is quite entire. Calyx hemispherical, imbricate in two rows; leaflets oblong, bent in, somewhat converging. All the florets hermaphrodite. Receptacle ovate, subvillose. The whole flower is smaller than a pepper-corn. The plant has a most agreeable scent, which it retains a long time after it has been dried^g.

Native of Siberia, and China near Pekin, whence Loureiro introduced it into Portugal, where the seeds produced plants ten feet in height^h. It was cultivated in England by Mr. Miller, in 1759, and flowers in july and augustⁱ. Loureiro recommends the leaves and flowers in hectic fevers, the dysentery, and putrid ulcers.

33. Root perennial. Stems numerous, simple, from six inches to a foot in height. Root-leaves petioled, sheathing, ovate-pointed, ashy-coloured: pinnas five to eight without an odd lobe, not entirely opposite: pinnules three or four deeply three-toothed, with long, elliptic, sharp lobes; they are sometimes four-toothed, and sometimes have only two teeth. Stem-leaves the same, only the pinnules are simple; the upper ones oval-lanceolate, entire. The stems are terminated by a compound spike of flowers, with spikelets or rather racemes coming out of all the axils; the first five-flowered, and then decreasing to one-flowered: in the terminating spike there is a stipule to each peduncle, which is one-flowered. Calyx hemispherical; with two rows of imbricate ovate scales, green with a black membranaceous edge. Disk almost flat: naked female florets in the circumference, having a deeply bifid style: in the hermaphrodite florets the style scarcely extends beyond the corolla; the tube is green, but the border sulphur-coloured. The flowers nod in pairs all towards the same side. Receptacle and seeds naked: according to Haller, the former is hairy. The stems and peduncles are more evidently tomentose than the other parts: but in different situations the upper surface of the leaves is either hairy or smooth, the pinnules fewer, or the spikes simple^j.

Native of Dauphiné, Piedmont, and Siberia. It has no sensible odour. On very high situations it is sometimes entirely tomentose^k.

34. Common Wormwood has a perennial branching root. Stems from a foot and half to two feet and upwards in height, upright, grooved, whitish with a very short nap, especially towards the top, branched, the branches making half a right angle with the stem. Leaves petioled, pinnate-multifid, pinnas alternate (five to seven), the subdivisions, especially of the lower leaves wide, irregular and unequal, the extreme segments blunt; they are tomentose on both sides, and very soft; the young ones silvery white, but as they advance the whiteness wears off till they become green to the eye on the upper surface: the lower leaves are on very long angular petioles, deeply channelled above: the leaflets are decurrent along the partial footstalks: on the stem-leaves they are narrower, and retain their whiteness longer: the uppermost leaves among the flowers

^a Haller.

^b Allioni and Villars.

^c Hort. kew.

^d Jacquin.

^e Lewis.

^f Jacquin.

^g Loureiro.

^h Allioni.

ⁱ Ibid.

^j Villars.

^k Hort. kew.

are trifid or even simple, sessile and bluntly lanceolate. Flowers in racemes, continued half the length of the stem, each from the axil of a leaf, directed one way, nodding: calyx hemispherical, with scales bluntly ovate, very tomentose, having membranaceous edges: florets fifty and upwards in a single flower, dusky yellow, scarcely longer than the calyx; with about fifteen naked, female florets in the circumference. Seeds small, ovate, oblong, pale, naked. Receptacle flattish, covered with white silky villose hairs, shorter than the calyx.

Common Wormwood is found wild in almost every part of Europe, in rocky places, by road sides, among rubbish, about farm-yards, &c. flowering from July to October.

The leaves and flowers are very bitter; the roots are warm and aromatic. A considerable quantity of essential oil rises from it in distillation. This oil is used both externally and internally to destroy worms. The leaves put into four beer soon destroy the acedency. They resist putrefaction, and are therefore a principal ingredient in antiseptic fomentations. An infusion of them is a good stomachic, and with the addition of fixed alkaline salt, a powerful diuretic in some dropical cases. The ashes afford a more pure alkaline salt than most other vegetables, excepting bean-stalks, broom, and the larger trees. Linneus (Amæn. acad. 2. 160.) mentions two cases, wherein an essence prepared from this plant, and taken for a considerable time, prevented the formation of stones in the kidneys or bladder; the patients forbearing the use of wine and acids. It will, like other bitters, weaken the action of the nervous system, but in these instances no such effect took place. An infusion of it given to a woman that suckles, makes her milk bitter: and it gives a bitterness to the flesh of sheep that eat it. The plant steeped in boiling water, and repeatedly applied to a bruise, will remove pain in a short time, and prevent the swelling and discoloration of the part^f.

Wormwood leaves give out nearly the whole of their smell and taste both to aqueous and spirituous menstrea. The watery infusions, prepared without heat, are the least ungrateful. The quantity of essential oil, which comes over in distillation varies greatly, according to the soil and season, ten pounds having afforded two ounces, and twenty pounds little more than one.

Wormwood as a stomachic and corroborant has given place to bitters less unpleasant. A bitter however sufficiently elegant, of little or no particular flavour, may be obtained from it, either in a solid form, or in that of a watery or spirituous solution.

The spirituous extract seems preferable as a vermifuge to the pure oil, as it contains, along with the oil, all the bitter matter of the herb.

The roots, being moderately warm and aromatic, promise to be applicable to some useful purposes. Their virtue resides in the bark^g.

This powerful plant, though it appears in the list of materia medica, is not admitted into any preparation in the London Pharmacopœia. It is however more efficacious than either the sea or roman Wormwood, and may be had in quantity, in most places, without cultivation: which recommends it much, most plants in their wild state being abundantly stronger, and more fit for medicinal purposes, than when cultivated in a garden.

Our common or broad-leaved Wormwood is called in French *Abstinthe commune*, in Italian *Assenzio* or *Abintio*, in Spanish *Ajenjo* or *Alozua*, in Portuguese *Abintbio* or *Losna*, in German *Wermuth*, in Dutch *Alsem*, in Swedish *Malört*, in Danish *Malurt*, in Russian *Polin* or *Glistnik*. The Latin name *Abinthium*, by which it is commonly known among medical writers and practitioners, is from the Greek *Ἀψινθιον*, indelectable, unpleasant, from *α* and *ψινθος* the same with *τερψις*; others derive it from *Ἀπινθιον*, undrinkable; others again from *απλεσθαι*, to touch, by the ridiculous figure antiphrasis; because it is left untouched by cattle.

^f Withering.

^g Lewis.

β. Insipid Wormwood, or Wormwood without scent, resembles the common sort, says Dodonæus, as one egg does another, except that it is destitute of smell and taste. Ray supposes it only to be an accidental variety. Miller says, that the segments of the leaves are broader and whiter, and that it continues constant from seed.

[Monf. Villars gives it as a distinct species, observing that it bears a resemblance both to this and the thirty-third species.—He thus describes it. The creeping roots produce several straight stems, from one to two feet in height. Leaves petioled, flat, bipinnate; the segments a little raised and linear, cottony and like those of common Wormwood as to colour. The upper half of the stem has peduncled flowers on separate spikes, approximating to the stem, all turned one way, and pendulous. At the base of each is a pinnate leaf, on a petiole shorter and shorter as it approaches the top. The stem finishes in a pointed spike, in which the flowers and leaves are sessile. Calyx open; the scales tomentose, short, obtuse, scarcely membranaceous. Receptacle naked, conical. There are about forty hermaphrodite florets, and a few naked females. It has no sensible smell or taste; and differs from *A. tanacetifolia*, in having creeping roots, a higher stem furnished with a greater number of smaller flowers, and leaves with the circumference more lengthened and the segments obtuse.

Bauhin^h and others mention another variety, which Rayⁱ calls *Common Mountain Wormwood*. It is a more slender and lower plant than the other, with a pleasanter smell and taste; but these differences are probably occasioned only by its situation on mountains.

35. Roots of Mugwort perennial, creeping far. Stems angular, striated, branched, three, four or five feet in height. Leaves dark green above, white underneath; alternate, sessile and stem-clasping, four inches long and three or more wide; the pinnae or divisions are lanceolate and run one into another, the extreme ones having a tooth on each side; the upper ones among the flowers simple, lanceolate. Flowers small, upright, in small, simple, axillary racemes, mostly pointing one way, and containing four or five flowers, sessile or on very short peduncles, each having a bristle-shaped bractee. Scales of the calyx lanceolate, blunt, extremely woolly, converging; the outer ones shorter, with a pellucid edge, and a dark-green line running along the back. Florets (thirteen to twenty) purplish or red, with a few naked females in the circumference. Seeds columnar, smooth, naked. Receptacle flat, smooth, naked.

Mugwort is found wild over the greatest part of Europe, China, Japan, &c. on the borders of fields, and ditch banks, by way-sides, in waste places, and about farm-yards. It flowers with us in August and September.

Mugwort has been chiefly recommended for promoting the uterine evacuations, and abating hysteric spasms; for which purposes, infusions of it have been drank as tea, and used as a bath. It appears to be one of the mildest of the substances used in such intentions, and may perhaps be of service, where medicines of more activity would be improper. The flowery tops are considerably stronger than the leaves^k.

In some countries it is used as a culinary aromatic. A decoction of it is taken by the common people to cure the ague. A dram of the leaves powdered was given four times a day by Dr. Home, to a woman who had been affected with hysteric fits for many years. The fits ceased in a few days. In this patient Assafoetida and Æther had been given to no purpose^l.

Thunberg informs us that the *Moxa* is prepared in Japan from this species. The leaves are collected in June, dried in the shade, and beat in a

^h Pinax 138. 2.

ⁱ Ray hist. 367. 4. Park. theat. 98. n. 2.

^k Lewis.

^l Withering.

Mortar till they become like tow; this substance is then rubbed between the hands, till the harder fibres and membranes are separated, and there remains nothing but a very fine cotton. The Japanese use it for tinder; and twice in a year men and women, young and old, rich and poor are indiscriminately burnt with it, either to prevent disorders, or to cure the rheumatism, &c.^m

No quadruped seems to feed on this plant.

Mugwort is called in French *Armoise*, in Italian *Artemisia* or *erba di S. Giovanni*, in Spanish and Portuguese *Artemisia* or *hierba de San Juan*, in German *Beyfuss*, *Johannis gurtel*, in Dutch *Byvoet*, *S. Jans gordel*, in Swedish *Grabe*, *Rodbo*, in Danish *Bynke*, in Russian *Tschernobilnik*. It is remarkable that our English name is totally unlike the other European names, and the derivation is no where given, as far as I know.

There are several varieties of Mugwort—

1. With red stalks. *Blackw. t.* 431. *Tournef. inst.* 460. *Vaill. aët. par.* 1719. p. 285. 1, &c.
2. With white stalks. *Tournef. inst.* p. 460, &c.
3. With sulphur-coloured flowers. *Vaillant, ibid.* *Haller β.*
4. *A. vulgaris minor*: *Bauh. pin.* 137. *Park.* 91. f. 2. *Raii hist.* 372.
5. With variegated leaves. *Tournef. inst.* 460. *Zan. t.* 17. *Haller γ.*

Other varieties may be referred more properly to n. 41.

36. This is an elegant and most fragrant plant, with an annual root, and an upright herbaceous stem, about eight inches high. It is easily known by its simply pinnate leaves; the pinnae setaceous, parallel, pectinated, sometimes but seldom with a forked pinna; the flowers solitary from the axils along the stem. Found by Pallas, in the dry lands of Dauriaⁿ.]

37. This rises with single stalks about two feet high, with plain, narrow leaves, cut into acute segments on their edges, somewhat like those of Buck's-horn Plantain; flowers axillary, in small, loose spikes, and near the top they are often single; they are larger than those of the common sort, and are of a pale yellow colour.

[It has absolutely the air of Mugwort, but the leaves are lanceolate, rather rigid, smooth, hoary underneath, quite entire about the edge, or sometimes with one or two erect teeth. Racemes axillary, short, terminating, glomerate: flowers roundish. Native of Siberiaⁿ.]

38. This is an undershrub, with an erect, angular, streaked, wand-like, smooth stem, branching towards the top, two feet high and more. Branches alternate, filiform, divaricate-spreading, streaked, smooth, six or seven inches long, bending at top; with alternate, capillary, bending twigs, very short. Leaves on the stem alternate, sessile, attenuated and entire towards the base, but towards the top cut, serrate, spreading; on the branches alternate, sessile, attenuated both ways, acute, quite entire, from erect spreading; those on the twigs the same, only scarcely a line in length. Flowers at the ends of the branches and twigs, pointing the same way and peduncled. Peduncles capillary, reflex, scarcely a line in length. Bracte very small, at the base of the peduncle. It differs from the *cerulea* in having smooth leaves. Native of Japanⁿ.

39. This has woody stems, eighteen inches and more in height, whitish and full of leaves, which are sometimes entire, and as large as those of the Olive, sometimes cut into two, three, or four parts; they have the smell of Mugwort, and a taste not unpleasantⁿ: they are villose on both sidesⁿ. Racemes reflex, compound, smaller than those of Wormwoodⁿ. Flowers cylindric, noddingⁿ: calyxes sessile, with oblong scales. Florets fewⁿ. Seed small. It is very nearly allied to *A. maritima*, but the leaves are totally different. Native of the southern parts

of Europe, on the sea coastⁿ. It was found on the coast of Lincolnshire, near Boston, by Mr. Tosfieldⁿ: and was cultivated by Mr. John Tradescant, Jun. in 1656. It flowers from august to octoberⁿ.

40. Root perennial. Stem stiff, smooth, branching, from a foot to two feet in height. Leaves petioled, green on both sides. Two or three peduncles from the axils, pressed to the branch. Flowers in a kind of spike, all directed the same way. Calyxes roundish, with oblong, smooth, imbricate scales. Florets yellow, small, hermaphrodites twelve; females six. Seeds reddish-brown, streaked, naked. Receptacle flat, glutinous, honeycombed, nakedⁿ. Native of Siberia and Tartary. Cultivated in 1596, by Gerard. It flowers in augustⁿ.

Tarragon is frequently used in salads, especially by the French, to correct the coldness of other herbs. The leaves make an excellent pickle; they have a fragrant smell, and aromatic taste. The use of them in Persia has ever been general, at their meals, to raise an appetiteⁿ.

It is named in French *Estragon*, *Armoise âcre*, *herbe au Dragon*, in Italian *Dragoncello*, in Spanish *Estragon*, *dragoncillo*, *taragona*, in Portuguese *Estragão*, in German and all the northern languages *Dragon*.

41. Stem herbaceous, simple, two feet and a half high, straight, thick, white with abundance of cotton, branched. Lower leaves obtuse, three-lobed; upper lanceolate-linear, quite entire, tomentose on both sides, sessile, crowded and scattered. Flower small, pale, on terminating, upright racemes. The plant is inodorous and insipidⁿ.

Native of China and Siberia.

This is the species from which the *Moxa* is prepared in China, from the leaves dried and beaten. In Cochinchina and Japan the common Mugwort is used for this purpose, and is more efficacious than the Chinese sortⁿ. *Moxa* is celebrated in the east, for preventing and curing many disorders, by being burnt on the skin: it produces a dark-coloured spot, the exulceration of which is promoted by applying a little garlic, and the ulcer is either healed up when the eschar separates, or kept running as circumstances require. A fungous substance, found in the fissures of old birch trees is used by the Laplanders for the same purpose; and cotton impregnated with a solution of nitre, and then dried, will answer the end as well as the *Moxa*. All these applications are only means of producing an exulceration of the skin, and its consequence a drain of humoursⁿ.

The Chinese call it the Physician's herb, and employ it in hæmorrhages, dysenteries, pleurifies, and disorders of the stomach; girdles of the down are recommended in the sciatica, and those who are afflicted with the rheumatism in their legs quilt their stockings with itⁿ.

42. This is an annual plant of India, growing close to the ground. Branches alternate, round, flexuose, streaked, pubescent. Leaves soft, widening outwards. Peduncles one-flowered, naked, streaked, villose. Flowers large, yellow, with a convex disk: marginal florets female, trifid, with a bifid, slender style: in the disk hermaphrodites, with a simple styleⁿ. Native of the East-Indies. Introduced in 1780, by Mons. Thouin. It flowers in july and augustⁿ.

43. This is a very minute annual plant. Leaves smooth. Flowers very small, axillary, solitary, with six or seven florets. It is distinct from *Æthulia divaricata*. Native of China, where it was found by Lagerstromⁿ. Thunberg remarked it also in Japan. It was introduced here in 1788, by Mons. Thouin; and flowers in julyⁿ.

44. This resembles the forty-second sort, but the whole is covered with a strigose down or cotton, except the calyxes, which are rather large, scariose and naked. Leaves simple, spatulate, serrate-toothed. Flowers pedicelled, usually opposite to the

^m See more, under species 41.

ⁿ Linn. suppl.

^o Linn. spec.

^p Thunberg.

^q Ray.

^r Linn.

^s Ray.

^t Linn.

^u Scopoli.

^x Linn.

^y Hudf. angl.

^z Hort. kew.

^a Scop. Linn. Hall.

^b Hort. kew.

^c Bergius.

^d Loureiro.

^e Ibid.

^f Lewis. See Kämpfer, Bergius, &c.

^g Grosier.

^h Linn. spec.

ⁱ Hort. kew.

^k Linn. spec.

^l Hort. kew.

A R T

leaves, but also axillary and terminating; solitary, seldom in pairs. Gathered by Koenig, in the East-Indies, on the coast^a.

PROPAGATION AND CULTURE.

Most of the plants in this numerous genus are hardy perennials, and may be increased without great difficulty, by seeds, parting the roots, slips or cuttings. Many of them having no great beauty, are seldom seen in gardens.]

1. This, and a few others, that are rather tender, must be placed in the greenhouse, with myrtles and other hardy exotics, which require a large share of free air in mild weather, when they should be frequently watered. They love a light fresh soil, and may be propagated either by cuttings or slips.

4. 7. Require to be sheltered from frost; they are easily propagated from cuttings, planted in a shady border, any time during summer, and duly watered. In autumn some of the young plants should be potted, in order to be put into the frame in winter: the rest may be planted in a warm border, where they will live through a favourable winter.

6. Common Southernwood is propagated by slips and cuttings, planted in a shady border, the beginning of april, observing to water them duly in dry weather: here they may remain till the autumn, when they should be transplanted, either into pots or those parts of the garden where they are to remain.

20. Wormfeed may be increased in the same manner, but should be planted in a dry soil, and sheltered situation, where it will endure the cold of our ordinary winters; but it will be proper to have a plant or two in pots, which may be sheltered occasionally under a common hotbed frame.

21. 25. Wild Southernwood is rarely kept in gardens; and Sea Wormwood, when transplanted into a garden, seldom thrives well.

26. May be propagated by planting the side shoots in a shady border during any of the summer months; if duly watered they will put out roots, and in autumn may be transplanted where they are to remain.

27. Is very hardy, and may easily be increased by cuttings.

30 Roman Wormwood may be readily propagated by its creeping roots, which may be parted in autumn, and planted two or three feet asunder: the best time for this is the middle of october. It will grow in any soil which is not too wet.

32. 43. Are annual plants. They may be easily propagated by seeds, which should be sown in the autumn soon after they are ripe: or if they be permitted to scatter, the plants will come up without farther care.

33. May be propagated by parting the roots in the autumn.

34. Common Wormwood is easily propagated by parting the roots, by slips, or by seeds, sown in the autumn soon after they are ripe; or if they be permitted to scatter, the plants will come up without farther care.

[35. Mugwort, being so common a plant wild, is rarely admitted into gardens, except the variegated sort: this may be raised by slips, cuttings, or parting the roots.]

37. Is as hardy as the common, and multiplies as fast.

40. Tarragon is a very hardy plant, which propagates greatly by its creeping roots, or may be multiplied fast by planting the young shoots the beginning of may, in the same manner as is practised for Mint; and if they are duly supplied with water in dry weather, they will soon spread and meet.

ARTICHOKE. See *Cynara*.

ARTICHOKE of Jerusalem. See *Helianthus*.

[ARTOCARPUS. (*ἄρτος* & *καρπός*, Bread-fruit.)

Lin. gen. Schreb. n. 1393. suppl. 61. Forst. gen. 51. Juss. 402.

Sitodium. Soland. Gærtn. t. 71, 72.

Radermachia. Thunb. nov. gen. 24.

^a Retz.

A R T

Class. 21. 1. Monoecia Monandria.

Nat. order of *Urticæ* Juss.

GENERIC CHARACTER.

* Male flowers.

CAL. none. Ament cylindrical, all covered with florets.

COR. to each two petals, oblong, concave, blunt, villose.

STAM. Filament single within each corolla, filiform, the length of the corolla. Anther oblong.

* Female flowers, on the same tree.

CAL. and COR. none.

PIST. Germs very many, connected into a globe, hexangular. Style to each filiform. Stigma single, or two, capillary, revolute.

PER. Fruit ovate-globular, compound, muricate.

SEEDS for each germ solitary, oblong, covered with a pulpy aril, placed on an ovate receptacle.

ESSENTIAL CHARACTER.

MALE. Ament. Cal. none. Cor. two-petalled.

FEMALE. Cal. and Cor. none. Style one. Berries one-seeded, connected and forming a roundish muricated fruit.

SPECIES.

1. *Artocarpus incisa*. Bread-fruit tree.

Lin. syst. 838. suppl. 411. Forst. escul. austr. 23.

Sitodium incisum. Thunb. philos. trans. 1779. vol. 69. p. 465.

Radermachia incisa. Thunb. act. holm. 1776. vol. 36. p. 250.

Soccus lanosus-granulosus & fylvestris. Rumph. amb. 1. 110, 112, 114. t. 32, 33, 34.

Le Rima, ou Fruit à pain. Sonnerat voy. 99. t. 57-60.

Bread-fruit. Dampier voy. 1. c. 10. Anson voy. 305, 310. Hawksfw. voy. vol. 2. p. 80. fig. Cook's voy. vol. 2. 197. & last voy. 2. 145. King's narr. 3. 105, 114, 116, 120. Ellis monogr. 11, &c. fig.

α. Fructu apyreno. Fruit without seeds.

Forst. monogr. vom Brodbaum, 4to. 1784.

β. Fructu seminifero. With seeds in the fruit.

Sonnerat as above; Rumphius, &c.

Leaves gashed.

2. *Artocarpus integrifolia*. Indian Jaca Tree.

Lin. syst. 838. suppl. 412.

Sitodium macrocarpon. Thunb. philos. trans. vol. 69. p. 467.

S. cauliflorum, Gærtn. fruct. 1. 345.

Radermachia integra. Thunb. act. holm. vol. 36. p. 254.

Soccus arboreus. Nanc. Rumph. amb. 1. 104. t. 30, 31.

Tsjacca-maram, f. *Jacca*. Rheed. mal. 3. 17. t. 26, 27, 28.

Jacca indica. Baub. hist. 1. 115. Zanon. hist. 128. t. 91. Park. theat. 1639. fig. Raii hist. 1440. Baub. pin. 511. 8. (Palma).

Leaves entire.

DESCRIPTIONS, &c.

These are milky trees. Leaves alternate, stipuled; when young rolled up in the stipules, which presently fall off leaving vestiges of them as in the fig. Aments axillary or terminating. Fruits axillary on the stem and lower branches, in some varieties wholly destitute of seeds^a.

1. The subject of the Bread-fruit tree is so interesting, and the tree itself is so little known at present in Europe, that I shall collect together here the substance of what most authors of credit have reported concerning it.

The younger Linneus has thus described this remarkable tree. It grows to the height of thirty or forty feet, with a trunk the thickness of the human body. Leaves alternate, petioled, oblong, deeply gashed, scabrous, two feet long. Stipules two, lanceolate, large, hirsute on the outside, including the younger leaves, caducous. Aments on the outmost branches, violet-coloured, peduncled, male and female on the same twig. The whole tree, and the fruit, before it is ripe, abound in a very tenacious milky juice, that may be drawn out into threads^b.

^a Jussieu gen.

^b Suppl.

3 N

Forster's

Forster's description is more full in some particulars.—This tree is the thickness of a man, and forty feet high or more: the trunk is upright, the wood soft, smooth and yellowish, the inner bark white, composed of a net of stiffish fibres, the outer bark smooth, but full of chinks, pale ash-colour with small tubercles thinly scattered over it. Wherever the tree is wounded it pours out a glutinous milky liquor. The branches form an ample almost globular head; the lower ones, which are the longest, spring from the trunk ten or twelve feet above the ground, spreading out almost horizontally, scattered, and in a sort of whorl: twigs ascending, bearing flowers and fruits at their ends. Leaves alternate, petioled, ovate, deeply divided above the middle into seven or nine lanceolate acute lobes, with rounded sinuses; they are otherwise quite entire, smooth on both sides, even, spreading, bright green, paler underneath, membranaceous, a foot and half in length, eleven inches wide, veined, having a thick nerve to each lobe diverging from the common rachis. The younger leaves, like all the more tender parts of the tree, are glutinous to the touch. Petioles roundish, even, ascending, two inches in length. Stipules in pairs, involving the younger leaves, lanceolate, acuminate, concave, entire, smooth within, hairy on the outside, deciduous, three inches long. Peduncles at the ends of the twigs, and in the axils of the upper leaves, solitary, round, upright, having a few hairs on them, and two inches in length. The male flowers are among the upper leaves; and the female flowers at the ends of the twigs. The male ament is club-shaped, fleshy, upright, a span long, covered with innumerable, small, sessile florets. The proper perianth is very small, two-valved, the valves equal, oblong, blunt, concave, closely adhering, shut, yellowish-brown*. These have no spathes. The female flowers have bivalve spathes, ovate-lanceolate, compressed, acuminate, upright, bent in at the tip, soft, a span in length, at first closed, then deciduous, placed at the end of the peduncle. Spadix globular, covered with very many connate germs; these are obconical, immersed in the receptacle, somewhat convex at the top. Styles scarcely any. Stigmas, projecting points, withering: in some varieties these are bifid, according to Thunberg. The fruit is a globular berry, smoothish, marked with hexagons on the surface, pale green, when largest a long span or nine inches in length, filled with a white, farinaceous, somewhat fibrous pulp, which when the fruit is ripe becomes juicy and yellow: it is fastened to a club-shaped, fleshy receptacle, which is longitudinally fibrous; and a hand in length†.

Thunberg describes it thus*. It is an upright tree, with a trunk the thickness of a man's body, thirty feet high. Branches fastigate and opposite, somewhat verticillate by fours, spreading. Leaves alternate, petioled, oblong, deeply gashed beyond the middle, nine-lobed, quite entire, villose and rugged, spreading, green on the upper surface with pale nerves, pale underneath; two feet long, and a foot broad; when young plaited, and viscid. Petiole thick, somewhat triangular, villose, an inch in length. Stipules wrapping up the younger leaves, two, sessile, lanceolate, acuminate, concave, quite entire, smooth on the inside, hirsute without, deciduous. Flowers at the ends of the twigs, male and female distinct on the same twig. Peduncle roundish, villose, upright, two inches long, the thickness of a finger. Spadix a span in length, drooping, deciduous. Fruit the size of a child's head, sometimes having abortive seeds, and sometimes none. It flowers and produces ripe fruit twice in the year.

Dampier says, that the Bread-fruit grows on a large tree, as big and high as our largest apple trees. It hath a spreading head full of branches and dark leaves. The fruit grows on the boughs like apples: it is as big as a penny loaf, when wheat is at five

shillings the bushel. It is of a round shape, and hath a thick tough rind. When the fruit is ripe it is yellow and soft, and the taste is sweet and pleasant. The natives of Guam use it for bread: they gather it when full grown, while it is green and hard; then they bake it in an oven, which scorches the rind and makes it black: but they scrape off the outside black crust, and there remains a tender thin crust, and the inside is soft, tender and white, like the crum of a penny loaf. There is neither seed nor stone in the inside, but all is of a pure substance like bread. It must be eaten new, for if it is kept above twenty-four hours it becomes dry and choaky, but it is very pleasant before it is too stale. This fruit lasts in season eight months in the year; during which time the natives eat no other sort of food of bread kind. I did never see of this fruit any where but here; but the natives told us, that there is plenty of this fruit growing on the rest of the Ladrone islands.

According to the observation of Rumphius, this tree has a few spreading crooked branches, thinly covered with leaves, placed on thick short footstalks, six or seven only forming a tuft, surrounding the extremity of the branch in form of a rose: they are large, stiff, and have underneath a thick prominent nerve; they are cut on each side into four or five deep segments resembling the leaves of an oak, but each division ends in a point: they are about two spans long, and little less in width: a glutinous milky juice flows from any part of the tree when wounded. The ament shoots up among the upper leaves: it is about the length of one's hand, and as thick as the thumb; pliant, soft and woolly; the fruit likewise grows up among the leaves: it is shaped like a heart, and increases to the size of a child's head: the rind is thick, green, and covered every where with warts of a quadrangular or hexagonal figure, like cut diamonds, but without points. The more flat and smooth these warts are, the fewer seeds are contained in the fruit, and the greater is the quantity of pith, and that of a more glutinous nature.

The internal part of the rind consists of a fleshy substance, full of twisted fibres, which have the appearance of fine wool; these adhere to and in some measure form it. The fleshy part becomes softer towards the middle, where there is a small cavity formed without any nuts or seeds, except in one variety which has but a small number; and this sort is not good, unless it be baked, or prepared some other way; but if the outward rind be taken off, and the fibrous flesh dried, and afterwards boiled with meat as we do cabbage, it has then the taste of artichoke bottoms. The inhabitants of Amboina dress it in the liquor of coco-nuts; but they prefer it roasted on coals, till the outward part or peel is burnt: they afterwards cut it into pieces, and eat it with the milk of the coco-nut. Some people make fritters of it, or fry it in oil: and others, as the Sumatrans, dry the internal soft part, and keep it to use instead of bread with other food.

It affords a great deal of nourishment, and is very satisfying: and being of a gently astringent quality, is good for persons of a lax habit. It is more nourishing boiled with fat meat, than roasted on coals.

The milky juice, which distils from the trunk, boiled with coco-nut oil, makes a very strong bird-lime.

In Captain Cook's voyage it is observed, that the Bread-fruit tree is about the size of a middling oak; its leaves are frequently a foot and half long, oblong, deeply sinuated like those of the fig-tree, which they resemble in consistence and colour, and in exuding a milky juice when broken. The fruit is the size and shape of a child's head, and the surface is reticulated not much unlike a truffle: it is covered with a thin skin, and has a core about as big as the handle of a small knife; the eatable part lies between the skin and the core; it is as white as snow, and somewhat of the consistence of new bread. It must be roasted before it is eaten, being first divided

* This is called the corolla in the generic character.

† Plant, escul, insul, oceani australis. Philof. trans.

vided into three or four parts: its taste is insipid, with a slight sweetness somewhat resembling that of the crum of wheaten bread mixed with Jerusalem Artichoke. This fruit not being in season at all times of the year, there is a method of supplying this defect, by reducing it to a sour paste, called *Mabie*: and besides this Coco-nuts, Bananas, Plantains, and a great variety of other fruits come in aid to it.

This tree is useful not only for food, but also for clothing; for the bark is stripped off the suckers, and formed into a kind of cloth.

To procure the fruit for food, costs the inhabitants no trouble or labour but climbing a tree, which though it should not indeed shoot up spontaneously; yet, as Captain Cook observes^f, if a man plants ten trees in his life-time, he will as completely fulfill his duty to his own and future generations as the native of our less temperate climate can do by ploughing in the cold winter, and reaping in the summer's heat, as often as these seasons return; even if, after he has procured bread for his present household, he should convert a surplus into money, and lay it up for his children. But where the trees are once introduced in a favourable soil and climate, so far from being obliged to renew them by planting, it seems probable that the inhabitants will rather be under the necessity of preventing their progress; for young trees spring abundantly from the roots of the old ones, which run along near the surface. Accordingly they never plant the Bread-fruit tree at Otaheite^g.

The principal varieties of this tree are that in which the fruit is destitute of seeds, and that in which they are found. The latter may be considered as the tree in a wild state; and the want of seeds is probably owing to cultivation; as in the Barberry, and the little Grape of Zant, which we commonly call Currants. The natives of Otaheite reckon at least eight varieties of that without stones, differing in the form of the leaf and fruit. One of these they name *Uru* or *Eoroo*; this has a globular, smooth, even fruit, and is the most common. A second named *Maira*, has an oval, smooth fruit, with the leaves more deeply cut. A third, called *Patea*, has the fruit oblong and rugged, as it were scaly. A fourth, *Tatarra*, has an oval fruit, with mammillary germs muricated by the permanent style^h. Probably by extending the culture to distant countries we shall hereafter find the varieties much increased.

The parts of fructification in those trees which bear fruit without stones are said to be defective. The ament never expands; the styles are likewise deficientⁱ.

β. In the other variety, the fruit contains a considerable quantity of seeds, almost as large as Chestnuts, oblong, somewhat angular, produced into a point at each end, separated by several little membranes or coats, formed by the abortion of some of the germs: they are attached to a fleshy and very considerable placenta, which occupies the centre. They are farinaceous, like the Chestnut, and are eaten in some places by the savage inhabitants, either boiled or roasted in embers^k. It will easily be supposed that this fruit, abounding less in pulp, and being both more fibrous and less juicy than that which has no seeds, must be much inferior, as an article of food: and accordingly before the discovery of the South Sea islands the Bread-fruit had not acquired that degree of reputation which it is now found to deserve. It has been long known in many parts of the East-Indies; but not being wanted there for food, and consequently not having received any degree of cultivation, it has continued nearly in its natural state, without receiving that improvement from the care of men, which probably necessity at first urged them to exercise. Accordingly Captain Cook remarked the great inferiority of the

Socum which he found at Batavia to the *Eoroo* of the South Sea islands.

This most useful tree is distributed very extensively over the East Indian continent and islands, as well as the innumerable islands of the South Seas. It was found by Dampier, as already mentioned, in the Ladrone islands; it is native of Amboina, Banda, and others of the Molucca islands: of Java and others of the Maldivy islands; of Timor, Ballega, and Madura, of Prince's island, &c. Monf. Sonnerat conveyed some of the trees from the island of Luçon to the isle of France. Monf. Poivre naturalized them both there and in the isle of Bourbon. And they are cultivated both in Malabar and Coromandel.—In the South Seas both varieties are still found in the Marian islands, in the New Hebrides and Friendly islands; but most abundantly in the Society, Marqueza, and Sandwich islands. In Otaheite however and some others, the evident superiority of the seedless variety for food has caused the other to be neglected, and accordingly there it is almost or altogether worn out. Captain King informs us, that in the Sandwich islands these trees are planted, and flourish with great luxuriance on rising grounds; that they are not indeed in such abundance, but that they produce double the quantity of fruit which they do on the rich plains of Otaheite; that the trees are nearly of the same height, but that the branches begin to strike out from the trunk much lower, and with greater luxuriance; and that the climate of these islands differs very little from that of the West-Indian islands, which lie in the same latitude; or on the whole perhaps may be rather more temperate^l.

It was this reflection probably which first suggested the idea of conveying this most useful tree to our islands in the West-Indies. However that may be, on the 23d of december 1787, his Majesty's ship the *Bounty* sailed for the South Seas, under the command of Lieutenant William Bligh for this purpose: the preparations for executing the object of the voyage being completed according to a plan given by Sir Joseph Banks. The fatal mutiny which prevented the accomplishment of this benevolent purpose, and subjected the commander and his friends to the most unheard of hardships is well known.

His Majesty however, not discouraged by the unfortunate event of this voyage, and fully impressed with the importance of securing so valuable an article of food as the Bread Fruit to our West-Indian islands, determined in the year 1791 to employ another ship on this business; and in order to secure the success of the voyage as much as possible, it was thought proper that two vessels should proceed together on this service. Accordingly a ship of four hundred tons, named the *Providence*, was engaged for the purpose, manned with one hundred officers, seamen and marines, and the command of her given to Mr. Bligh, who on his return had been made a Post Captain; and a small tender called the *Assistant*, commanded by Lieutenant Nath. Portlock, with twenty-seven officers, seamen and marines was engaged to accompany her: Sir Joseph Banks, as in the former voyage, directed the equipment of the ship for this particular purpose; and Captain Bligh, piqued by his former ill success, exerted all his skill and zeal in the service. Two skilful gardeners were appointed to superintend the trees and plants from their transplantation at Otaheite to their delivery at Jamaica, and Captain Bligh set sail on the second of august 1791. He arrived at Teneriffe on the 28th, at St. Jago on the 13th of september, and at the Cape of Good Hope on the 6th of november. He sailed from thence on the 19th of december; arrived at Adventure's bay, on the 9th of february 1792, and at Otaheite on the 8th or 9th of april.

The business of procuring and embarking the Bread-fruit trees, &c. took up three months and nine days; though the natives of Otaheite gave all

^f Vol. 2. 197.

^g Cook's last voyage, vol. 2. p. 145.

^h Forster escul. 26.

ⁱ Ellis.

^k Forster escul. 26.

^l King's narrative 3. 105, 114, 116, 120.

possible assistance to Captain Bligh and the gardeners: They sailed on the 18th or 19th of July; arrived at Coupang in Timor on the 2d of October; at St. Helena the 17th of December, and at St. Vincent's on the 22d of January 1793. Here they staid seven days to leave a part of their cargo, according to the instructions; and on the 5th of February they arrived at Jamaica, and delivered the remainder.

The number of plants taken on board at Otaheite was 2634, in 1281 pots, tubs, and cases; and of these 1151 were Bread-fruit trees. When they arrived at Coupang 200 plants were dead, but the rest were in good order. Here they procured 92 pots of the fruits of that country. They arrived at St. Helena with 830 fine Bread-fruit trees, besides other plants. Here they left some of them, with different fruits of Otaheite and Timor; besides mountain Rice and other seeds; and from hence the East-Indies may be supplied with them.

On their arrival at St. Vincent's they had 551 cases, containing 678 Bread-fruit trees, besides a great number of other fruits and plants to the number of 1245. Near half this cargo was deposited here, under the care of Mr. Alexander Anderson, the superintendant of his Majesty's botanic garden, for the use of the Windward Islands; and the remainder, intended for the benefit of the Leeward Islands was conveyed to Jamaica, and distributed as the governor and council of Jamaica pleased to direct. The exact number of Bread-fruit trees brought in health to Jamaica was 352, out of which five only were reserved for his Majesty's botanic garden at Kew.

Though the principal object of this voyage was to procure the Bread-fruit tree, yet it was not confined to this only; for the design was to furnish the West-Indian isles with the most valuable productions of the South Seas and the East-Indies.

Accordingly the gardeners were instructed to procure plants of the Sweet Plantain called *Meia*, the Otaheitean Apple or *Avee*, the root called *Peab* of which the islanders make a kind of pudding, and the very large *Yam*, which is of a better sort than any in the West-Indies. They were also to obtain at Timor or other places in the East-Indies such plants and fruits as are used for food or otherwise by the natives, such as the *Lansa*, *Mangostan*, *Durion*, *Jamboo*, *Nanca*, *Tchampadba*, *Blimbing*, *Jambolan*, *Boabidarra*, *Salac*, *Bleck*, *Long Pepper*, &c. together with some bushels of dry or mountain Rice, which is cultivated without being overflowed with water; and they were to make themselves acquainted with the mode of managing it, in order to communicate the same to the inhabitants of the West-Indies.

They were also, as a secondary object, and as they had opportunity, to take on board, at the several places where they touched, curious plants for his Majesty's botanic garden at Kew, provided they did not diminish the stock of Bread-fruit trees, and that they were planted only in such pots or cases, in which these or other useful plants had died. And the object of their voyage being completed, they were directed to take in, both at St. Vincent's and Jamaica, such plants as had been prepared for the royal botanic garden at Kew.

Captain Bligh had the satisfaction, before he quitted Jamaica, of seeing the trees which he had brought with so much success, in a most flourishing state; inasmuch that no doubt remained of their growing well, and speedily producing fruit.

It is difficult perhaps to point out a more benevolent undertaking than this of transporting useful and salutary vegetables from one part of the earth to another where they do not exist. And every good man will certainly rejoice, that a humane and well-concerted plan has thus at length happily succeeded; and that the Bread-fruit tree, with many other useful fruits and plants, has been established in the West-Indies, by the kind attention of the British government; the exemplary and disinterested exer-

tions of Sir Joseph Banks; and the zealous care of Captain Bligh.

The Bread Fruit, when perfectly ripe, is pulpy, sweetish, putrescent, and in this state is supposed to be too laxative; but when green it is farinaceous, and esteemed a very wholesome food, either baked under the coals, or roasted over them; the taste is not very unlike that of wheaten bread, but with some resemblance to Jerusalem Artichokes or Potatoes. It was mentioned before that a sort of cloth is made of the inner bark. But besides this, the wood of the tree is of use in building boats and houses; the male catkins serve for tinder; the leaves for wrapping their food in and for wiping their hands instead of towels; and the juice for making bird-lime, and a cement for filling up the cracks of their vessels for holding water. Three trees are supposed to yield sufficient nourishment for one person^m.

Thunberg sent seeds of the East-Indian Bread fruit from Batavia, to the botanic garden at Amsterdam, in 1775. In 1777, he sent some small living plants. And the year following he brought with him to Europe a great number of plants both of this and the following species. But the true seedless sort, from the South Seas, was first introduced into the islands of St. Vincent and Jamaica, and into the botanic garden at Kew, by Captain Bligh, in 1793.

The Bread Fruit is called in the Malay language *Soccun*, in Java *Souku*, in Amboina *Soun* or *Sune*, in Makassar *Bakar*, in Ternate *Gomo*, in Tinian *Rima*. The Dutch call it *Sockusboom*, the Germans *Brod-baum*, the French *Rima* or *fruit à pain*.

2. The East-Indian Jacca or Jack Tree is about the same size with the foregoing, or larger. Branches alternate, spreading; the twigs hirsute with long stiff hairs. Leaves alternate, petioled, ovate-oblong, blunt with a blunt point, obscurely serrate, undivided, nerved; bright green and very smooth on the upper surface, paler beneath and hirsute with stiff hairs, spreading, a span in length: the younger leaves are evidently toothed, but the teeth disappear afterwards: sometimes a leaf or two may be gashed. The petiole is somewhat triangular, smooth, an inch in length. Stipules as in the foregoing. Flowers male and female distinct on the same stem or branch. Peduncle either simple or branched, pendulous, an inch thick, and a foot long. Pedicels three, five or more, the length and thickness of a finger. The fruit weighs thirty pounds and upwards; it has within it frequently from two to three hundred seeds, three or four times as big as almonds; they are ovate-oblong, blunt at one end, sharp at the other, and a little flattened on the sidesⁿ.

These two species of *Artocarpus* cannot be distinguished with certainty, either by the form of the leaves or the situation of the fruit: for the leaves in this are sometimes lobed, as in that; and the situation of the fruit varies with the age of the tree, being first borne on the branches, then on the trunk, and finally on the roots^o. The Jacca tree is a native of Malabar and other parts of the East-Indies. The fruit is ripe in December, and is then eaten, but is esteemed difficult of digestion; the unripe fruit is also used pickled, or cut in slices and boiled, or fried in Palm oil. The nuts are eaten roasted; and the skin next them is used instead of the Areca nut in chewing Betel. The wood of the tree serves for building. No less than thirty varieties of the fruit are enumerated in Malabar^p. It was introduced into the royal botanic garden at Kew in 1778, by Sir Edward Hughes, knight of the bath^q.

PROPAGATION AND CULTURE.

Those varieties which bear seeds may be propagated by them, sown in a pot of rich earth, and plunged in the bark-bed. Those which have no seed in the fruit may be increased from suckers, in which they abound very much, or by layers. In hot climates they succeed best in a rich soil; for though they will grow in an indifferent one, yet they

^m Forster escul. p. 27. ⁿ Thunberg in philos. trans. ^o Gærtner.
^p Hort. Malab. & Raii hist. ^q Hort. kew.

by no means arrive at that magnitude, nor is their fruit so well flavoured, as when they are planted in a good one.

In the East-Indies, they thrust a fruit of the Jacca tree into the ground whole, and when the numerous seeds germinate and grow up, they tie the stems all together with withes, and by degrees they form one stem, which will bear fruit in six or seven years, except it be in too watery a situation.

ARUM. (From *Ἀρῶν*, noxa, injury.)

Lin. gen. n. 1028. Reich. 1119. Schreb. 1387. Tournef. t. 69. Juss. 24. Gært. t. 84. Arifarium. Tournef. t. 70. Colocasia. Boerb. 2. 73. Dracunculus. Tournef.

Class. 20. 9. Gynandria Polyandria.—21. 1. Monocia Monandria. Schreb.

Nat. order of Piperitæ. Aroideæ. Juss.

GENERIC CHARACTER.

* Male flowers on the same spadix with the females, closely heaped between a double row of threads.

CAL. Spathe one-leaved, very large, oblong, convolute at the base, converging at the top; the belly compressed, coloured within.

Spadix club-shaped, quite simple, a little shorter than the spathe, coloured, fenced at bottom with germs, and shrivelling above them.

Perianth proper none.

COR. none.

Nectaries? thick at the base, ending in threads or tendrils, in two rows, issuing from the middle of the spadix.

STAM. Filament none. Each anther sessile, four-cornered.

* Female flowers on the lower part of the spadix, close to each other.

CAL. Spathe and spadix common to them with the males.

Perianth proper none.

COR. none.

PIST. Germ each obovate. Style none. Stigma bearded with villose hairs.

PER. Berry globular, one-celled.

SEEDS several, roundish.

OBS. Arum Tournef. was separated from Dracunculus on account of its sagittate entire leaves.

Dracunculus T. was distinguished from Arum by its multifid leaves.

Arifarium T. slightly recedes from Arum in having a spathe bent in at the tip, a spadix also bent in, and the anthers placed on filaments; yet it does not constitute a distinct genus.

ESSENTIAL CHARACTER.

Spathe one-leaved, cowled. Spadix naked above, female below, staminate in the middle.

SPECIES.

* Without stems: leaves compound.

[1. Arum crinitum. Hairy-sheathed Arum.

Ait. hort. kew. 3. 314.

A. muscivorum. Lin. syst. 828. suppl. 410.

A. Dracunculus. Buchoz.

Leaves pedate, with the lateral segments involute; spathe hairy within: spadix ramentaceous above.]

2. Arum Dracunculus. Long-sheathed Arum, or Common Dragon.

Lin. spec. 1367. Reich. 4. 68. hort. cliff. 344.

Gært. fruct. 2. 19. Scop. carn. n. 1139.

Allion. pedem. n. 2125. Thunb. jap. 233. Sabb. hort. 2. t. 76, 77.

A. palustre polyphyllum. Rivin. mon. t. 125.

Dracunculus polyphyllus. Bauh. pin. 195. Mor. hist. 3. 548. f. 13. t. 5. f. 46.—major vulgaris.

Park. theat. 859. f. 2. parad. 531. f. 2.

Dracontium. Dod. pempt. 329. Blackw. herb. t. 269.—majus. Besl. eyf. æst. 4. t. 1. f. 1.

Ger. 682. 1. emac. 831. 1. Raii hist. 1211.

Leaves pedate, leaflets lanceolate quite entire; lamina ovate longer than the spadix.

3. Arum Dracontium. Short-sheathed Arum, or Green Dragon.

Lin. spec. 1368. Reich. 4. 68. Thunb. jap. 233.

Lour. cochinch. 533. Herm. lugdb. 60.

β. A virginianum, &c. Pluk. phyt. t. 271. f. 2.

Leaves pedate, leaflets lanceolate; quite entire, longer than the spathe which is shorter than the spadix.

[4. Arum venosum. Purple-flowered Arum.

Ait. hort. kew. 3. 315.

Leaves pedate, leaflets suboval quite entire, lamina lanceolate longer than the spadix.

5. Arum pentaphyllum. Five-leaved Arum.

Lin. spec. 1368. Reich. 4. 69. Mor. hist. f. 27.

(bad) Lour. cochinch. 533.

Rhomphal. Zanon. hist. 205. (bad)

Leaves quinate.]

6. Arum triphyllum. Three-leaved green-stalked Arum.

Lin. spec. 1368. Reich. 4. 69. Thunb. jap. 233.

Gron. virg. 142.

Dracunculus f. Serpentaria triphylla brasiliensis.

Bauh. pin. 195. prodr. 101. Dodart mem. 81.

f. 273. Raii hist. 1212.

β. A minus triphyllum, &c. Mor. hist. 547. t. 43.

Leaves ternate, lamina lanceolate acuminate the length of the spadix.

[7. Arum atropurpureum. Three-leaved purple-stalked Arum.

Ait. hort. kew. 3. 315. Pluk. alm. t. 77. f. 5.

A triphyllum γ. Lin. spec. 1368.

Leaves ternate, lamina ovate shorter by half than the spadix.

8. Arum ternatum.

Lin. syst. 827. Thunb. jap. 233. Lour. cochinch.

533. 2. Pluk. amalt. t. 376. f. 3.

Leaves ternate, receptacle longer than the spathe.]

** Without stems: leaves simple.

9. Arum Colocasia. Egyptian Arum.

Lin. spec. 1368. Reich. 4. 69. hort. cliff. 434. 4.

upf. 280. Hasselqn. itin. 485. Catesb. car. 2.

t. 45. Lour. cochinch. 534.

A. maximum ægyptiacum, quod vulgo Colocasia.

Bauh. pin. 195. Raii hist. 1209.

A. ægypticum. Col. ecphr. 2. t. 1. Rumph. amb. 5. t. 109.

Colocasia. Clus. hist. 2. 75.

Leaves peltate ovate repand, semibifid at the base.

[10. Arum bicolorum. Two-coloured Arum.

Ait. hort. kew. 3. 316.

Leaves peltate sagittate coloured on the disk, spathe contracted in the middle, subglobular at the base, lamina roundish acuminate upright somewhat convolute.]

11. Arum esculentum. Esculent Arum, or Indian Kale.

Lin. spec. 1369. Reich. 4. 69. hort. cliff. 435.

upf. 280. Forst. escul. 26. Thunb. jap. 234.

Lour. cochinch. 535. Sloan. jam. 1. 167. t. 106.

f. 1. Raii hist. 3. 577. n. 25.

Caladium aquatile. Rumph. amb. 5. t. 110. f. 1.

Leaves peltate ovate quite entire, emarginate (or semibifid) at the base.

[12. Arum macrorhizon. Long-rooted Arum.

Lin. spec. 1369. Reich. 4. 70. fl. zeyl. n. 327.

Forst. escul. 27. fl. anstr. n. 329. Lour. cochinch.

535. Herm. par. t. 73. Raii hist. 3. 574.

Burm. zeyl. 34.

A. fativum. Rumph. amb. 5. t. 106. Forster, v. n. 30.

Leaves peltate cordate repand, two-parted at the base.]

13. Arum peregrinum.

Lin. spec. 1369. Reich. 4. 70. hort. cliff. 435.

Leaves cordate obtuse mucronate, angles rounded.

14. Arum divaricatum.

Lin. spec. 1369. syst. 828. Reich. 4. 70. fl. zeyl.

n. 325. Rheed mal. 11. 39. t. 20.

Leaves cordate-bastate divaricate.

15. Arum trilobatum. Three-lobed Arum.

Lin. spec. 1369. Reich. 4. 70. fl. zeyl. n. 326.

Thunb. jap. 234. Lour. cochinch. 534. Herm.

par. t. 78. Raii hist. 3. 575. n. 17. Comm.

hort. 1. 97. t. 51. Mill. fig. t. 52. f. 2.

Arifarium amboinicum. Rumph. amb. 5. t. 110. f. 2.

Leaves sagittate-trilobate, flower sessile.

16. Arum sagittæfolium. Arrow-leaved Arum.

Lin. spec. 1369. Reich. 4. 70. hort. cliff. 345. 3.

Jacqu. hort. 2. t. 157. Brown. jam. 332. n. 8.

3 O

Sloan.

- Sloan. jam. 1. 167. t. 106. f. 2. Lour. cochinch. 534. Plum. spec. 4. ic. 35. Pluk. phyt. t. 149. f. 2.
Leaves sagittate triangular, the angles divaricate acute.
17. *Arum maculatum*. Common *Arum*.
 Lin. spec. 1370. Reich. 4. 71. mat. med. 198. Woodv. med. bot. 74. t. 25. Hudf. angl. 395. Wither. arr. 1012. Lightf. scot. 528. Curtis lond. 2. 63. (spotted.) Hall. belv. n. 1302. Scop. carn. n. 1138. Pollich pal. n. 864. Allion. pedem. n. 2126. D'Affo aragon. n. 904. Fl. dan. t. 505. Mill. fig. t. 52. 1. (unspotted.) Mill. illustr. Blackw. t. 228. Sabb. hort. 2. t. 74, 75. Rivin. mon. t. 124. f. 1. Baub. hist. 2. 784. Raii hist. 1208. Fuchf. hist. 69. Dod. pempt. 329. 2. Lob. obs. 325. 2. ic. 1. 597. 2. Lonic. 1. 200. 1. Trag. 774. Matth. 596. Ger. 682. 685. 1, 2. emac. 834. 1. Park. theat. 373. 1, 2. Mor. hist. f. 13. t. 5. f. 1.
 α. *A. vulgare non maculatum*. Common *Arum* without spots.
 Baub. pin. 195.
 β. *A. maculatum, maculis candidis, vel nigris*. Common spotted *Arum*.
 Baub. pin. 195.
 γ. *A. italicum*. Italian *Arum*.
 Mill. dict. n. 2.
Leaves hastate quite entire, spadix club-shaped.
18. *Arum virginicum*. Virginian *Arum*.
 Lin. spec. 1370. Reich. 4. 71. hort. cliff. 434. Gron. virg. 142. Kalm. itin. 2. 253. & 1. 125. engl. edit.
Leaves hastate-cordate acute, angles obtuse.
19. *Arum proboscideum*. Apennine *Arum*.
 Lin. spec. 1370. Reich. 4. 71. Sabb. hort. 2. t. 78.
Arisarum. Tournef. inst. 161. n. 3. Bocc. mus. 2. 61. t. 50. Barrel. ic. t. 1150.
 β. *Arisarum rotundifolium, &c.* Bocc. sic. Mor. hist. t. 6. f. 19.
Leaves hastate, spathe declinate filiform-subulate.
20. *Arum Arisarum*. Broad-leaved hooded *Arum* or Friar's-cowl.
 Lin. spec. 1370. syst. 828. Reich. 4. 72. hort. cliff. 435. Lour. cochinch. 535. Sabb. hort. 2. t. 79.
Arisarum latifolium. Clus. hist. 2. 73. Lob. ic. 598. Ger. 686. 1. emac. 835. 1. Park. theat. 374. 5. Raii hist. 1211. Barrel. ic. t. 573.—majus & alterum. Baub. pin. 196. 1, 2.
Leaves cordate-oblong, aperture of the spathe ovate.
- [21. *Arum pictum*. Painted *Arum*.
 Lin. syst. 828. suppl. 410.
Leaves cordate painted with coloured veins.
22. *Arum ovatum*.
 Lin. spec. 1371. Reich. 4. 72. Rheed. mal. 11. 45. t. 23. Rumph. amb. 5. 312. t. 108.
Leaves ovate-oblong, spathe scabrous.]
23. *Arum tenuifolium*. Grass-leaved *Arum*, or narrow-leaved Friar's-cowl.
 Lin. spec. 1370. Reich. 4. 72. hort. cliff. 345. Sauv. monsp. 16. Gron. orient. 286.
Arisarum angustifolium. Baub. pin. 196. Clus. hist. 2. 74. Ger. 686. emac. 835. 2. Raii hist. 1211. Mor. hist. 545. t. 6. f. 21.—longifolium. Park. theat. 374. 6.
Leaves lanceolate, spadix bristle-shaped declinate.
- [24. *Arum cannaefolium*.
 Lin. syst. 828. suppl. 410.
Leaves lanceolate veinless.]
- *** *Caulescent.*
25. *Arum arborescens*. Tree *Arum*.
 Lin. spec. 1371. Reich. 4. 72. Plum. amer. 44. t. 51. g. and 60.
Straight; leaves sagittate.
26. *Arum seguinum*. Dumb Cane *Arum*.
 Lin. spec. 1371. Reich. 4. 73. Jacq. amer. 239. t. 151. pict. 117. t. 229. Mill. fig. 197. t. 295. Plum. amer. 44. t. 60, 51. b. fil. 195. b. Brown. jam. 331. n. 1. Sloan. jam. 1. 168.
Nearly upright, leaves lanceolate ovate.
- [27. *Arum hederaceum*. Ivy-leaved *Arum*.
 Lin. spec. 1371. Reich. 4. 73. Jacq. amer. 240. t. 152. pict. 117. t. 230. Plum. amer. 39. t. 55. fil. t. 195.
Radicant; leaves cordate oblong acuminate, petioles round.
28. *Arum lingulatum*. Tongue-leaved *Arum*.
 Lin. spec. 1371. Reich. 4. 73. Brown. jam. 333. n. 12. Sloan. jam. 1. 75. t. 27. f. 2, 3. Plum. spec. 4. ic. 37.
Creeper; leaves cordate-lanceolate, petioles edged with membranes.]
29. *Arum auritum*. Ear-leaved *Arum*.
 Lin. spec. 1371. Reich. 4. 73. Brown. jam. 331. n. 2. Sloan. jam. 1. 169. Plum. amer. 41. t. 58, 51.
Radicant; leaves ternate, those on the side, one-lobed.
- [30. *Arum indicum*. Indian *Arum*.
 Loureiro cochinch. 536. Rumph. amb. 5. t. 106.
Nearly upright; leaves ovate, bifid at the base, rounded, spadix axillary.
31. *Arum cucullatum*. Cowled *Arum*.
 Lour. cochinch. 536.
Upright; leaves peltate, cordate, with the ears cowled.
32. *Arum spirale*. Spiral *Arum*.
 Retz. obs. 1. 30. n. 104.
Stemless; leaves lanceolate, spathe spiral sessile.
- It was observed by the elder Linneus, that the structure of the flower, in this genus is strange, and without a parallel; on this account it has been a dispute among the most eminent botanists, in what class it ought to be placed. The great author of the sexual system left it in the class *Gynandria*, because, although the stamens are not placed on the style, yet the receptacle is produced or elongated into the form of a style, and bears both pistil and stamens. He observes at the same time, that this genus, together with some others nearly allied to it, might have been placed in other classes; but that he thought it better to insert them in the class *Gynandria*, on account of the extreme difficulty, if not impossibility, of assigning a certain number of stamens to each pistil^a. With respect to *Calla* Linneus remarks, that as in each berry there are several seeds, it follows that each pistil belongs to as many distinct florets, and that they are not all merely parts of one flower. This holds equally good with respect to *Arum*, which has frequently more than one seed in a berry. The younger Linneus remarks farther, that not only every floret in the compound flowers is a separate flower, but that every floret in the catkins of *Saururus*, *Piper* and *Pothos*, and every anther in the scales of the catkins of *Zamia* is a distinct floret; and that when he attends to these facts, to the nature of female catkins, and to the singular fructification of *Pandanus*, he understands the structure of *Arum*: in which every pistil and every anther is to be considered as a distinct floret, and consequently that it ought to be removed to the order *Monandria* of the class *Monocelia*^b. This idea is adopted by Schreber and in Dr. Withering's arrangement. Thunberg and Swartz place this genus in the last order of the class *Polyandria*.
- The *Arums* are readily distinguished at first view, by the large wide spathe, and the long club-shaped spadix within it. This is the receptacle lengthened out. At the base are the germs surrounding it in a ring; the stamens are fixed to the receptacle more within than the germs, and consequently, according to Linneus, stand less in need of filaments to elevate them. Hence, he says, it may be looked upon as an inverted flower^c. The filiform tendrils, as Linneus calls them, having the appearance of filaments, are commonly looked upon as appendages to the nectaries. In *Arisarum* the spathe is small and converging. The *Arums* are all perennial, herbaceous plants, mostly natives of hot climates. The roots are fleshy, hot, and acrid, but in many species eatable. They have no proper stem, except a few in the last division. The leaves, in the *Arums* pro-

^a Linn. gen. edit. 6. ^b Stokes in Withering. ^c Linn. gen. ed. 6.

perly so called, are entire and sagittate, or shaped like the head of an arrow; but in the *Dracunculi* or Dragons *multifid* or cloven into several parts.

1. The root-leaves of this are cloven into seven parts, which are lanceolate and nerved, the middle one largest, the others gradually less. The first leaves are sagittate or five-cleft, various. Petioles round; sheathing at bottom. Scape very short, round. Spathe as in common Arum, nearly the length of the leaves, dark-green spotted, convolute at the base, the upper part bending outwards almost horizontally, pale within, red towards the base, with red reversed hairs, more crowded towards the base, closing up the throat. Spadix subcylindrical, a little shorter than the spathe. Germs sessile round the base, pale. Stigma very blunt, retuse; gray. Threads above the germs awl-shaped, eight, in a whorl, the length of the ring of anthers, ascending, violet-coloured. Threads below of the same shape, colour, length and structure, only five in number. Club many times longer than the other parts, having remote, violet-coloured bristles scattered over it. The flower smells strong of carrion, by which flies are enticed to enter, but when they would retreat, the reversed hairs prevent them, and they are starved there to death^a.

It is a native of Minorca; was introduced in 1777, by Mr. William Malcolm, and flowers here in march^c.]

2. *Common Dragon* has a large, tuberous, fleshy root, which in the spring puts up a straight stalk about three feet high, spotted like the belly of a snake; at the top it spreads out into leaves, which are cut into several narrow segments almost to the bottom; at the top of the stalk the flower is produced, which is in shape like the common Arum, having a very long spathe of a dark purple colour, standing erect, with a large spadix of the same colour, so that when it is in flower, it makes no unpleasing appearance; but the flower has so strong a scent of carrion, that few persons can endure it; for which reason it has been banished most gardens; but were it not for this, a few of the plants might merit a place for the oddness of the flower.

[Stem smooth and compressed. The middle lobe of the pedate leaf ovate-lanceolate, side lobes five or seven, variegated with oblong, white spots. Spathe cowed, ovate, and convolute at the base, ear-shaped above, green on the outside, dark purple within. Spadix long and sharp, the club of a very dark red colour^f. Berry obovate, somewhat angular from the pressure of the adjoining ones, divided at top into four or five swellings, very smooth, shining, scarlet, fleshy; receptacle filiform-compressed, parietal or pressed to the upper side of the cell and glued to it, accompanied with about four umbilical chords. Seeds two (the rest being abortive), horizontal, ovate-globose, somewhat angular by their mutual contact, produced both ways to a point, somewhat fleshy, whitish or rufous, a little wrinkled: outer coat spongy, fleshy, very thick near the navel; inner membranaceous, very thin, fastened to the albumen; which is obovate, with a funnel-shaped pit near the navel, so that a longitudinal section is heart-shaped, it is farinaceous, friable, and very white: embryo one-lobed, roundish or somewhat club-shaped, straight, yellowish, placed opposite to the navel of the albumen; radicle rather thicker than the rest, placed against the top of the seed and the side opposite to the receptacle of the berry^g.]

It grows naturally in most of the southern parts of Europe, and is preserved in gardens to supply the markets. [Gerard cultivated it in 1596. It flowers in june and july^h.

It appears to be similar in medicinal virtues, as in botanical characters, to common Arum; it might be used therefore in the same cases, but general practice employs only the latter. So far as can be judged between substances of such vehement pungency, this is rather the strongestⁱ.

Common Dragon is named in French *le Gohet Serpenteire, la grande Serpenteire*; in Italian *Dracunculo, Serpentaria*; in Spanish, *Dragoncillo, Serpentina*; in German, *Drachenzurz*.

3. *Green Dragon* grows about eight or nine inches high. Root roundish, solid, white within and without, smooth. Leaves petioled, upright, smaller than those of the foregoing: leaflets broad-lanceolate, commonly in threes. Spadix awl-shaped, slender, longer than both spathe and leaves^k.] It flowers with us in june; and grows in moist places in Virginia and New England: [also in Japan, flowering in april^l; in China and Cochinchina^m.

The root of this, as well as the former, is acrimonious and purgative; it is prescribed as a very strong emmenagogueⁿ. It was cultivated in 1759; by Mr. Miller^o.

4. The native country of this species is not known. It flowers in march; and was introduced in 1774, by Mr. William Malcolm^p.

5. *Five-leaved Arum* grows to the height of one foot, is subcaulescent and upright. Root round, flattened and white. Leaflets lanceolate, entire, smooth. Native of the East-Indies, and China. The root is accounted warm, attenuant, and deobstruent; and is given in the epilepsy, convulsions, obstructions of the uterus, bites of venomous animals, &c. in the east^q.

6. This is subcaulescent, with the scape arising from the petiole. Some scapes are male, others female from the same root: the male spathe is erect, the female has the lip inflected.—The Brazilian plant has the side leaflets lobed outwards. The Virginian plant has them only gibbous; but the structure of the flower is the same in both^r.

Loureiro says, that the plant of China and Cochinchina grows ten inches high. The root is round and white. The leaflets lanceolate. Spike single, with the lower stamens female, and the upper male. It differs from the foregoing in having the leaflets distinct, not pedate; the bulb of the root smaller and more globular; and the medicinal qualities stronger. It was cultivated here in 1664, as appears by Mr. Evelyn's calendar^s.

7. Native of Virginia, and cultivated here by Mr. Miller in 1758. It flowers in june and july^t.

8. Found in Japan, by Thunberg, flowering in may and june. Loureiro's plant, described above, under n. 6. is probably the same with this.

9. *Egyptian Arum* or *Colocasia* has a tuberous, thick, large, oblong root, rounded at the base. Leaves thick, smooth, ash-coloured, in form and size resembling those of the Water-Lily, having thick ribs running obliquely to the edge. Petioles thick, upright, roundish, whitish, spreading out at bottom. Scape short, with a subulate, reflex, flat spathe. Spadix subulate, shorter than the spathe^u.

Native of the Levant, Egypt, Sicily; Italy near Salerno, &c.

It is esteemed a wholesome food, and is frequently eaten in the east, though not very delicate. The roots and petioles are boiled, and the leaves, when young, are sometimes eaten raw^x.

It was cultivated in 1690, in the royal garden at Hampton-court^y.

10. This is cultivated in Madeira; and was introduced in 1773, by Messrs. Kennedy and Lee. It flowers in june and july^z.

11. *Esulent Arum* has a large, tuberous, subovate, brown root, with smaller tubers growing by the side of it. Sir Hans Sloane says that it is small, only bigger than a walnut. Plant three feet in height. Leaves smooth, bright green, semibifid at the base, and roundish; petioles round, dilated at the base, embracing the inner ones. Spathe spreading, straight, not cowed. Spadix shorter^a. The Jamaica plant seems to be smaller than that of the east; for Sloane says, that it only rises a foot from

^k Loureiro.

^l Thunberg.

^m Loureiro.

ⁿ Thunberg.

^o Hort. kew.

^p Ibid.

^q Loureiro.

^r Linn.

^s Hort. kew.

^t Ibid.

^u Loureiro.

^x Ibid.

^y Hort. kew.

^z Ibid.

^a Loureiro.

^a Linn. suppl.

^c Hort. kew.

^f Scopoli.

^g Gærtner.

^h Hoff. kew.

ⁱ Lewis, art. Dracontium.

the ground. He compares the leaves to those of *Colocasia*, only they are smaller, being of a yellowish green colour, and very like in figure, colour, ribs, &c. to the leaves of the white water Lily. He adds that they are planted there very carefully in most plantations; that the roots are eaten, but that their chief use is for the leaves, which are boiled and eaten as Coleworts, being extremely pleasing to the taste.

Unless different species are confounded under the same name, this must be very extensive, being found both in the East and West Indies, on the continents, and in the islands. It is very frequent in China and Cochinchina, by the sides of rivers and marshes, where the water is not very deep; in both those kingdoms it is a very common food; the root and tender petioles being eaten boiled. The bruised leaves are applied to tumours, and are supposed to be of service against poisonous bites^b. It is a native also of Japan, is frequently cultivated there, and both roots and stalks are sliced and put into their soups and broths^c. It is found in all the islands of the southern ocean, except those which are drowned or desert; and is cultivated every where within the tropics, and even in the northern extremity of New Zealand. The natives of the South Sea Islands bestow great pains on the culture of this root: for in the first months of its growth it succeeds best when the ground is inundated; but afterwards it should be laid dry, which they do by means of ditches dug round the fields. The root, which is the common food in many of the islands, is extremely acrid, and when eaten raw, will excoriate the mouth; but baked in hot ashes, loses its acrimonious quality, and becomes mild and well tasted; it is however heavy on a weak stomach, and is apt to occasion costiveness. The leaves, which are very soft, glaucous, and covered with a very fine silky nap, are used by the inhabitants instead of plates and dishes^d.

Forster is of opinion that the *Caladium sativum* of Rumphius, t. 109. belongs rather to this species than the ninth.

It was cultivated in 1739, by Mr. Miller^e.

In German this Arum is named *Efsbare Arum*, *Indianische Kohl*, and *Wasserbrodwurzel*; in Dutch, *Eetbaar Kalfsvet*, *Karaibische Kool*, and *Water-Kelady*; in French, *Choux du Bresil*, *Choux Caraibes*, and *Chou pivoire*; in Japan, *Imo*, or *Satorino*; in China, *Hai Yu*; in Cochinchina, *Cay Mon*.—It is observable that the Java name *Tallas* varies little from those of Otaheite and New Zealand, *Tallo* and *Tarro*.

12. This has a very large root, or rather subterraneous trunk, the thickness and length of the human arm. The leaves are very large and wide, shining on both sides, smooth, and of a pleasant fine green^f; they have very strong prominent nerves, and come out many together: their very long hollowed petioles form at bottom, where they embrace each other very closely, a stem three feet long, and as thick as one's arm. The flower is white, and very sweet^g. This recedes in some measure from the generic character in the fructification, all the florets being hermaphrodite: there are six sessile twin anthers, surrounding each of the styles; the germ is roundish, style solitary, short, thickish, flattened at the tip, stigma an orbiculate spot at the end of the style^h. The spathe is cowled and short; the berries roundish and redⁱ.

This species is distinguished by its great size. It is a native of China and Cochinchina, the East-Indies, Ceylon, and the islands of the southern ocean; and is eaten by the natives as well as the foregoing, when the roots are deprived of their acrimony by dressing. In Ceylon this is called *Habara*^j; in Chinese *Dea ven*; in Cochinchina *Ray tlang*; in Otaheite *Apè*; in the Friendly and Sandwich islands *Kappe*.

13. This is a native of America.] Mr. Miller says, that he has received three sorts of *Arum* from the West-Indies, by the title of *Edder*; but he supposes this to be most commonly cultivated there for its roots.

14. [Spathe revolute. Spadix subulate, longer than the spathe. Native of Malabar and Ceylon^k.

15. Root roundish, compressed, smooth, half an inch in diameter. Plant a foot high, upright. Leaves cordate at the base, three-lobed, large, few; lobes ovate, sharpest: petioles long, angular, striated, widening at the base, concave. Scape shorter than the leaves. Spathe very wide, flat, acuminate, dusky red. Spadix subsessile, subulate, shorter than the spathe; with male flowers at the tip, female at the base, and very many long flexuose red hairs in the middle^l.

Mr. Miller thus describes it. Root tuberous. Leaves remaining most part of the year. Spathe six inches long, inclining toward the ground, the long point being always twisted like a screw; the inside deep purple, the outside green. Spadix long, slender, fine purple, standing out of the spathe, turning upwards. The flower is very fetid, like carrion, or common Dragon. This sort was brought from Ceylon in 1752, and flowered in the Chelsea garden. Commelin's plant has the leaves not so much pointed, on much longer petioles, and growing more erect: the spathe is also erect, and not pointed and spread open, as this is: the colour of the spadix in his plant is scarlet, in this deep purple^m.

According to Linneus, this is so nearly allied to the foregoing, that it may be doubted whether it is a distinct species.

Native of Ceylon, Amboina, Japan and Cochinchina. It flowers here in May and June. The qualities of this are reputed to be the same with those of the fifth.

16. This grows four feet high, and is upright. Leaves large, dusky green, bifid at the base, divaricate, all the angles acute: petioles round, spotted with red and black. Spathe long, cowled. Spadix club-shaped, shorter. Scape long, but shorter than the petiolesⁿ.

Native of the Spanish West-Indies, China and Cochinchina. It was cultivated here in 1731, by Mr. Miller^o. In Jamaica it is called *Smaller Indian Kale*, and is cultivated there by many persons for the same purposes with the eleventh sort^p.]

This, and several of the foregoing sorts, says Mr. Miller, are eaten by the inhabitants of the hot countries, where they grow naturally, and some of them are cultivated in the sugar colonies, as esculent plants; their roots being constantly eaten, as also the leaves of some, particularly the eleventh. It is esteemed a wholesome green when boiled, and where the common European vegetables are with difficulty procured, this proves a good succedaneum. The sixteenth sort has not been many years introduced into the sugar islands; for it came originally from the Spanish West-Indies, where it grows in great plenty. Both this and the fourteenth have larger roots than the eleventh, for which reason they are preferred to it.

These sorts are preserved by persons curious in exotic plants, for the variety of their leaves; their flowers having very little beauty, nor do they often appear in this country.

17. [Common *Arum* has a tuberous whitish root, about the size of a large nutmeg, growing transversely, sending forth on every side a great number of single fibres, propagating itself by lateral tubercles. The leaves are radical, from two to four in number, petioled, shining, veiny, the veins not reaching the edge; they are frequently marked with dark purple or black spots, and sometimes are streaked with white. Petioles sheathing, three-cornered, outwardly convex, inwardly channelled. The leaves vary much in their shape. Spathe usu-

^b Loureiro. ^c Thunberg. ^d Forster escul. ^e Hort. kew. ^f Forster escul. ^g Ray. ^h Forster. ⁱ Loureiro.

^k Linn. spec. & zeyl.

^l Loureiro.

^m Miller's figures, p. 85.

ⁿ Loureiro. ^o Hort. kew.

^p Browne.

ally pale green, but varying in colour, and sometimes spotted like the leaves. The spadix also varies from yellowish green to a fine purple. Berries scarlet^a, in a naked cluster, the spathe having withered away. Each contains one or two seeds, which are round and hard with a reticulate surface^c.

Native of most parts of Europe, except the most northern ones; in shady places, and on the banks of ditches: flowering in may. The berries ripen at the close of summer.

The root and leaves of Arum when recent are extremely acrid; on first tasting them they seem to be merely mucilaginous and insipid, but they soon affect the tongue with a pungency as if it were pricked with needles. This uneasy sensation may be alleviated by milk, butter, or oil. They lose this acrimony in drying, and the roots become farinaceous and insipid. In this state they might be used for food in case of necessity; and by boiling or baking would probably afford a mild and wholesome nourishment^d, as well as those sorts which are natives of hot climates. Wedelius is of opinion, that the *Chara* which Cæsar's soldiers found abundantly about Dyrrachium, was this plant; being reduced to great straits for want of provisions, they mixed the roots with milk, and made them into a sort of bread. Probably this may be the third variety, which is larger than ours, and is made a distinct species by Mr. Miller, under the name of *Arum italicum*. The berries are devoured by birds; and Mr. Curtis thinks that even the roots are eaten by them, particularly by pheasants.

The root dried and powdered is used by the French as a wash for the skin, and is sold at a high price under the name of Cypress powder. It is a good and innocent cosmetic. Starch also may be made from the roots^e; but Parkinson observes, that the hands are apt to be blistered in using it. Occasionally they have been substituted for soap, and Mr. Ray mentions their being used about Maidstone for that purpose.

The root newly dried and powdered has been given as a stimulant, in doses of a scruple and upwards; but in being reduced to powder it loses much of its acrimony; and there is reason to suppose that the compound powder which takes its name from this plant, owes its virtues chiefly to the other ingredients^f. The *Pulvis Ari compositus* is therefore discarded from the London Dispensatory, and instead of it a Conserve is inserted, made by beating half a pound of the fresh root, with a pound and half of fine sugar. In the medicine recommended by Sydenham against rheumatisms the acrid antiscorbutic herbs are largely joined with it. Dr. Lewis orders the fresh root to be beaten with a little testaceous powder, and mixed with an equal quantity of gum arabic, and three or four times as much conserve, and thus to be made up into an electary; or else to be rubbed with a thick mucilage of gum arabic and spermaceti, adding any watery liquor and a little syrup, to form an emulsion; two parts of the root, two of gum, and one of spermaceti. In these forms he has given the fresh root, from ten grains to upwards of a scruple, three or four times a day: it generally occasioned a sensation of slight warmth, first about the stomach, and afterwards in the remoter parts; manifestly promoted perspiration, and frequently produced a plentiful sweat. Several obstinate rheumatic pains were removed by this medicine, which he therefore recommends to farther trial.

The roots should be taken up for use in autumn, and may be preserved tolerably fresh in sand for several months.] Mr. Miller says, they are generally gathered in the spring, when they shrink; and soon lose their pungent quality; but that those which are taken up in august, when the leaves decay, will continue good a whole year; and that the not observing this rule, has brought them into disrepute.

[This singular plant, having attracted much notice from the vulgar, has a variety of English names. Gerard gives us *Wake-robin*, *Cuckoo-pint* or *pinle*, *Priest's-pinle*, *Aron*, *Calf's-foot*, *Rampe*, and *Starchwort*. *Lords and Ladies* is also a common appellation; and in Worcestershire it is called *Bloody men's fingers*^g. It has the first of these names from its acrimony; the second and third from the form of the spadix; *Aron* is from the German; *Calf's-foot* from the Dutch *Kalfsvoet*; the meaning of the others is evident, except *Rampe*, which I do not understand. The French have more names than we have, as *Gouet commun*, *Pied-de-veau*, &c. &c.]

γ. *Italian Arum* grows naturally not only in Italy, but in Spain and Portugal; from all which countries Mr. Miller says that he received the seeds. The leaves rise a foot and half high, are very large, running out to a point, are of a fine shining green, beautifully veined with white, interspersed with black spots. The flowers grow near a foot high, and have very long upright spathes, of a pale green, appearing at the end of april or the beginning of may, and ripening the seeds in august.

18. [This grows wild in wet places in Virginia, Carolina, Pennsylvania, &c. The savages boil the spadix with the berries, and devour it as a great dainty. The berries, when raw, have a harsh pungent taste, which they lose, in great measure, by boiling^h.

19. Native of the Apennines.] This and the following sort have the spathe shaped like a monk's cowl. The leaves are on very short petioles.

20. [*Arisarum* has the spathe entire above, and bent in a little; below also it is entire, and not convoluteⁱ. The root is oblong and thick; the height about a foot and half; leaves sharpish; spathe shorter than the leaves; spadix curved; berries red, with one seed in each^j.

Native of the south of France, Italy, Spain, Portugal, Barbary, and Cochinchina; in woods. Ray observed it between Massa and Lucca, flowering the beginning of april; also near Toulon. It was cultivated in 1596, by Gerard^k.

21. Root-leaves three or four, petioled, painted on their upper surface with white veins. Spathe sessile, radical, inflated at the base, green except at the top, where it is purplish. Spadix with an ovate-oblong, dark-purple club. Germs at the base many, subglobose, green. Anthers immediately above them. The upper filaments remote^l.

22. Native of the East Indies.

23. Leaves five or six, shining, resembling those of narrow-leaved Plantain. Spathe long and pointed, turning back, white. Spadix seven inches long, purple or greenish, pointed at the end^m. It was cultivated, as we learn from Lobel, in 1570ⁿ; and flowered in Mr. Ray's garden at Cambridge. It grows naturally about Rome, also about Montpellier, in Dalmatia, and the Levant.

24. Root-leaves few, petioled, two feet long, resembling very much those of Canna. Scape very short. Spathe rather obtuse, red without, white within, with the edge also white. In the spadix there is no space between the stamens and pistils^o.

Native of Surinam, on trees, parasitical.

25. Native of South America^p.

26. The leaves of this species are sometimes punched with holes, as in *Dracontium pertusum*^q.] It rises to the height of six or seven feet with a green jointed stalk as large as a walking cane: the leaves are placed irregularly at the top of the stalks, growing in a cluster; they are oblong, and of a light green colour: from between the leaves the flowers come out on the side of the stalk, having a long spathe of a pale green colour, marked with white spots, sitting close to the stem of the plant; at the first appearance it stands erect, soon after it becomes horizontal, and in a little time declines downward; the lower part is swelling so far as the flowers are

^a Stokes in With.

^γ Kalm.

^z Linn.

^g Loureiro.

^b Hort. kew.

^c Linn. suppl.

^d Clusius.

^e Adv. 261. Hort. kew.

^f Linn. suppl.

^h Linn. spec.

ⁱ Ibid.

^j Curtis from Ray, corrected and enlarged.

^k Haller.

^l Withering.

^m Ibid.

ⁿ Ibid.

ranged on the spadix, above which it is greatly contracted, and toward the top enlarges again, where it is a little open, so as to show the naked part of the spadix, but is twisted again at the top: all the lower part folds closely over the spadix, so that it is scarcely discernible, unless the spathe be opened, which can only be done on one side, the other adhering closely to the spadix, so far upward as the flowers extend the naked part of the spadix only being separated from the spathe; so that the female flowers and stamens are ranged only on one side of the spadix; in which it differs from all the other species which I have seen.

It grows naturally in the sugar islands, and other warm parts of America, chiefly in the low grounds; the whole plants abound in an acrid juice, so that if a leaf or a part of the stalk be broken, and applied to the tip of the tongue, it causes a very painful sensation, and such an irritation on the salivary ducts, that they presently swell, so that the person cannot speak: from this quality, and its being jointed, they call it *Dumb-cane* in Jamaica, where it is said they sometimes rub the mouths of their negroes with it, by way of punishment. [The stalk is used for a better purpose, to bring sugar to a good grain, when the juice is too viscid, and cannot be brought to granulate rightly with lime alone. A decoction of the plant is recommended by way of fomentation in dropsies; it certainly must be a strong resolutive, which cannot fail to strengthen and stimulate the relaxed fibres, in such cases¹.

Cultivated in 1759, by Mr. Miller^k: who has it under the name of *A. arborescens* in the last folio edition of the dictionary. Whether the *A. arborescens* of Linneus be different from this, I am not able to say.

27. Native of the West-Indies.

28. This climbs trees with great ease, and grows more succulent and luxuriant towards the top^l. Native of the West-Indies.]

29. This is also a climbing plant, sending out roots from the stem and branches. The leaves are large, heart-shaped, having three lobes or ears. The flowers are inclosed in a large spathe, but these are not fruitful in England.

[It is a native of the West-Indies; is pretty frequent in all the hills of Jamaica, and generally found climbing among the trees. It is the only species that is observed to be furnished with compound leaves in that island^m. It was cultivated in 1748, by Mr. Millerⁿ.

30. Stem five feet high, as thick as the human arm, usually upright. Leaves very large, slightly acuminate, with many transverse, parallel ribs; on long, awl-shaped, erect, stem-clasping petioles. Spathes axillary, small, acute, straight, convolute. Spadix awl-shaped, erect; with the female florets inserted at the base. Berries roundish, pale, small. Native of the East-Indies. Cultivated in Cochinchina, where the stalk is boiled and eaten^o.

31. Root fleshy, large, round; quite simple. Stem upright, two feet high. Leaves acuminate, on long, round petioles. Spadix short, almost wholly covered with florets, the females at the base. The berries have four seeds in them. Native of the suburbs of Canton^p.

32. Root jointed, creeping. Leaves acute, naked, with the petioles dilated at the base, membranaceous, veined. Spathe abiding. Spadix short. Native of Tranquebar in the East-Indies; where it was found by Koenig^q.

This species belongs to the second division.]

PROPAGATION AND CULTURE.

2. *Common Dragon* is very hardy, and will grow in any soil or situation. It propagates very fast by offsets from the root. The time to transplant it is in autumn, when the leaves decay.

3. Is very difficult to preserve in gardens. I received some roots of this from New England a few

years ago, which continued two years; but the soil being dry, they decayed in summer: these should have a moist shady situation, otherwise they will not thrive.

6, 7, 8. I have received their roots from Virginia and Carolina. The flowers appear in may, but having little beauty, the plants are kept only in Botanic Gardens. They will live in the open air, if they are planted in a sheltered situation, or if the surface of the ground be covered with tan, to keep out the frost in winter; and they will thrive better in the full ground than in pots. They are propagated by offsets.

9—14, 16. Are also propagated easily by offsets from their roots, which they put out plentifully: these must be planted in pots filled with light earth, and plunged into a hot-bed, to promote their taking root, and if they be afterward continued in the bark stove, they will make great progress, and their leaves will be larger. They may be kept in a dry stove upon shelves, after they are well established in the pots, but they will not be so strong as the others.

15. Is very impatient of cold, and must be placed in the tan-bed of the bark stove. It is propagated by offsets, which come out in plenty, when the plants are in health.

17. Our common *Arum* growing naturally in woods &c. is seldom admitted into gardens. The large Italian sort propagates very fast, as well as this, by offsets from the root, and will thrive in any soil or situation. The best time to transplant these is soon after the seeds are ripe, for by the end of october they will be putting out new fibres.

19, 20, 21. The *Arisarum* flower in april, but seldom produce seeds in England; they multiply however fast by offsets, and should have a shady situation. They have little beauty to recommend them.

25—29. Are propagated by cutting off the stalks into lengths of three or four joints, which must be laid to dry six weeks or two months; for if the wounded part be not perfectly healed over before the cuttings are planted, they will rot and decay: they should be put in small pots filled with light sandy earth, and plunged into a moderate hot-bed of tan, being careful that they have little wet, till they have made good roots; when they are well established at bottom, some of them may be placed in a dry stove, and others plunged into the tan-bed in the bark-stove, where they will make the greatest progress, and produce more flowers than the others. These are tender plants, must be kept therefore constantly in the stove, and should have very little wet in winter.

ARUM ÆTHIOPICUM. See *Calla*.

ARUM SCANDENS, &c. See *Dracontium*.

ARUNCEUS. See *Spiræa*.

ARUNDO. (The grammarians derive it from *Areo*, because it soon becomes dry: in Greek *Καλαμος*.)

Eng. Reed. Fr. Roseau.

Lin. gen. n. 93. Reich. 99. Schreb. 124. Juss. 32. Scheuch. t. 3. f. 14.

Class. 3. 2. Triandria Digynia.

Nat. order of Gramina, Gramineæ or Grasses.

GENERIC CHARACTER.

CAL. Glume one or many-flowered, two-valved, erect: valves oblong, acuminate, awnless; one shorter.

COR. two-valved: valves the length of the calyx, oblong, acuminate; from their base arises a lanugo almost the length of the flower.

Nectary two-leaved, very small.

STAM. Filaments three, capillary. Anthers forked at both ends.

PIST. Germ oblong. Styles two, capillary, reflex, villose. Stigmas simple.

PER. none. Corolla adheres to the seed without gaping.

SEED single, oblong, acuminate at both ends, furnished with a long down (pappus) at the base.

ESSENTIAL CHARACTER.

Cal. two-valved. Florets heaped, surrounded with wool.

¹ Browne.

^k Hort. kew.

^l Browne.

^m Ibid.

ⁿ Hort. kew.

^o Loureiro.

^p Ibid.

^q Retz.

SPECIES.

1. *Arundo Bambos*. *Bambu* or *Bamboo-Cane*.
Lin. spec. 120. *Reich.* 1. 227. *hort. cliff.* 25.
fl. zeyl. n. 47. *Thunb. jap.* 54.
A. Bambu. *Lour. cochinch.* 56.
A. arbor. *Baub. pin.* 18.—*vasaria*, Bulu Java.
Rumph. amb. l. 6. c. 4.
A. indica arborea maxima, cortice spinoso, Tabaxir
fundens. *Burm. zeyl.* 35.
A. Mambu. *Pis. mant. arom. c. 10. p. 186.* *Raii*
hist. 1315.
A. tabaxifera. *Dale pharm. suppl.* 251.
Bambos arundinacea. *Retz. obs.* 5. 24. n. 58.
Canna ingens Mambu vel Bambu. *Park. theat.*
1630.
Ily. Rheed. mal. 1. 25. t. 16.
Tabaxir f. Mambu arbor. *Baub. hist.* 1. 222.
β. A. arborea. *Mill. dict.* n. 5.
γ. A. orientalis. *Mill. dict.* n. 6. *Tournef. cor.* 39.
Calyxes many-flowered (one-flowered. L.), spikes in
threes (unequal in number. R.) sessile.
2. *Arundo Donax.* *Cultivated Reed.*
Lin. spec. 120. *synt.* 123. *Reich.* 1. 227. *vir.*
cliff. 7. *hort. cliff.* 26. *Hall. helv. n.* 1516.
Scop. carn. n. 127. *Allion. pedem. n.* 2262.
Lour. cochinch. 55. *Park. theat.* 1209. f. 3.
A. fativa. *Baub. pin.* 17. *theatr.* 27. *Schench.*
agr. 159. *Monti 31. tab. ic. A.* *Raii hist.* 1275.
Mor. hist. f. 8. t. 8. f. 5.
A. maxima & hortensis. *Baub. hist.* 2. 486.
A. cypria. *Ger.* 32. f. 2. *emac.* 36. f. 2.
β. A. vericolor. *Striped Reed-grafs.*
Mill. dict. n. 3.
A. indica laconica vericolor. *Lin. hort. cliff.* 26.
Park. theat. 1209. n. 4. *Mor. hist. f. 9. Cornut.*
canad. 55.
Calyxes five-flowered, panicle diffused, culm shrubby.
3. *Arundo phragmites.* *Common Reed.*
Lin. spec. 120. *Reich.* 1. 227. *suec. n.* 105.
Huds. angl. 53. *Wither. arr.* 116. *Relb. cantab.*
n. 98. Hall. helv. n. 1515. *Scop. carn. n.* 128.
Pollich pal. n. 127. *Neck. gallob.* 69. *Leers*
herborn. n. 94. t. 7. f. 1. *Krock. files. n.* 185.
Villars dauph. 2. 152. Gron. virg. 137. *Gmel.*
fib. 1. 125.
A. vulgaris. *Baub. pin.* 17. *theatr.* 269. *Schench.*
agr. 161. t. 3. f. 14. *D. Monti 32. tab. ic. B.*
Dod. pempt. 602. Lob. obs. 28. 1. *Camer. epit.*
73.—*palustris.* *Baub. hist.* 2. 485. 1. *Mor. t. 8.*
f. 1.—f. vallatoria. *Park. theat.* 1209. f. 1.
A. vallatoria. *Ger.* 32. 1. *emac.* 36. f. 1. *Raii*
hist. 1275. *syn.* 401.
Calyxes five-flowered, panicle loose.
4. *Arundo epigejos.* *Small Reed-grafs.*
Lin. spec. 120. *Reich.* 1. 228. *suec. n.* 106.
Huds. angl. 54. *Wither. arr.* 117. *Relb.*
cantab. n. 99. *Hall. helv. n.* 1520. *Scop. carn.*
n. 125. *Krock. files. n.* 186. *Villars dauph. 2.*
152. 4. *Willd. berol. n.* 184. *Fl. dan. t.* 280.
Schench. agr. 124. n. 3.
Calamagrostis minor glumis ruffis & viridibus.
Petro. conc. gr. n. 69. *Raii syn.* 401.
Calyxes one-flowered, panicle erect, leaves smooth un-
derneath.
5. *Arundo Calamagrostis.* *Wood Reed-grafs.*
Lin. spec. 121. *Reich.* 1. 228. *fl. lapp. n.* 42.
suec. n. 107. *Huds. angl.* 54. *Wither. arr.* 117.
Relb. cantab. n. 100. *Hall. helv. n.* 1519.
Pollich pal. n. 128. *Krock. files. n.* 187. *Villars*
dauph. 2. 152. 3. Willd. berol. n. 185. *Mor.*
t. 8. f. 2.
Gramen arundinaceum, panicula molli spadicea,
majus. *Baub. pin.* 7. *Schench. agr. prodr.* 21.
t. 5. Raii syn. 401. *Reliqu. rudb.* 3. f. 3.
Gr. plumosum Lobelii, spica candida & serici modo
lucens. *Baub. hist.* 2. 476. 1.
Gr. tomentosum arundinaceum. *Ger. emac.* 9. f. 1.
Calamagrostis, f. Gr. tomentosum. *Park. theat.*
1182. 4.
Calyxes one-flowered, smooth, corollas woolly, culm
branched.

6. *Arundo arenaria.* *Sea Reed-grafs.*
Lin. spec. 121. *Reich.* 1. 228. *fl. lapp. n.* 43.
suec. n. 108. *Huds. angl.* 54. *Wither. arr.* 118.
Fl. rust. t. 32. *Krock. files. n.* 188. *Villars*
dauph. 2. 152. 5.
Gramen sparteum spicatum, fol. mucronatis longi-
oribus. *Baub. pin.* 5. *theatr.* 67. *Raii hist.* 1259. 3.
syn. 393.—*juncifolium non aristatum, spica seca-*
lina. *Mor. hist. t. 4. f. 16. row.* 3.
Spartum spicatum pungens oceanicum. *Baub. hist.*
2. 512. 1.—*anglicanum.* *Ger.* 38. f. 3. *emac.* 42. 3.
—*marinum.* *Park. theat.* 1198. 3.
Gr. spic. fecalinum maritimum maximum, spica
longiore. *Schench. agr. t. 3. f. 8. A, B, C.*
Calyxes one-flowered, leaves rolled inwards dagger-
pointed and pungent.
* *New Species.*
7. *Arundo conspicua.*
Forst. fl. austral. n. 48.
Calyxes one-flowered, panicle loose from erect spread-
ing, awn of the outer petal reflex and very long.
8. *Arundo agrestis.*
Lour. cochinch. 57.
Arundarbor spinosa. *Rumph. amb. l. 6. c. 6. t. 3.*
Flowers six-stamened; panicle spiked, spikelets beaped;
lower branches of the culm very spiny, calyxes one-
flowered.
9. *Arundo mitis.*
Lour. cochinch. 57.
Arundarbor fera, Bulu swangi. *Rumph. amb. l. 6.*
c. 7. t. 4.
Flowers six-stamened; panicle erect contracted, spikes
long imbricate; culm very even unarmed; calyxes
one-flowered.
10. *Arundo multiplex.*
Lour. cochinch. 58.
Arundarbor tenuis, Leleba dicta. *Rumph. amb. l. 6.*
c. 1. t. 1.
Flowers six-stamened; spikes interrupted, spikelets in
whorls; culm divided; calyxes one-flowered.
11. *Arundo bengalensis.*
Retz. obs. 5. 20. n. 45.
Calyxes two-flowered; panicle erect with three-flow-
ered pedicels.
12. *Arundo piscatoria.*
Lour. cochinch. 55.
Calyxes one-flowered, spike terminating, culm branched,
leaves minute.
13. *Arundo dioica.*
Lour. cochinch. 55.
Calyxes one-flowered; spikes in bundles, compound,
spikelets linear.
14. *Arundo colorata.* *Reed Canary-grafs.*
Ait. hort. kew. 1. 116.]
Phalaris arundinacea. *Lin. spec.* 80. [*Reich.* 1. 150.
fl. suec. n. 53. *Huds. angl.* 23. *Wither. arr.* 67.
Relb. cantab. n. 41. *Hall. helv. n.* 1524. (*Arundo*)
Pollich pal. n. 55. *Leers herborn. n.* 49. t. 7. f. 3.
Neck. gallob. 30. *Krock. files. n.* 86. *Villars*
dauph. 2. 59. Fl. dan. t. 259.
Gramen aquaticum paniculatum latifolium. *Baub.*
pin. 3.—*phalaridis femine.* *Schench. agr.* 126.
t. 3. f. 4. A, B, C.
Gr. arundinaceum acerosa gluma. *Park. theat.*
1273. f. 2. *Mor. hist.* 203. t. 6. f. 41. *Raii*
hist. 1280. *syn.* 400.—& *Jerseianum, Raii*
syn. 400.
β. Arundo picta. *Painted or striped Reed-grafs.*
Gr. panic. fol. variegato. *Baub. pin.* 3. *theatr.* 37.
Baub. hist. 2. 476. 2.
Gr. striatum. *Ger.* 24. f. 2. *emac.* 26. f. 2. *Mor.*
f. 43.
Calyxes one-flowered keeled, corollas smooth with two
lanuginose pencils at the base, leaves flat.
DESCRIPTIONS, &c.
1. The *Bamboo* has a woody, hollow, round,
straight culm, forty feet high and upwards, simple
and shining; the internodes a foot in length and
circumference: sheaths thick, hairy, rough, convo-
lute, deciduous: branches alternate, slender, solid,
spiny, reclining, springing out from the base to the
very top; the lower ones being usually cut off.
Rumphius

Rumphius was deceived in asserting that its branches only towards the top. Leaves small, quite entire, lanceolate, roundish at the base, striated, rough, on alternate round petioles. The hollow internodes of the culm are frequently found filled with a limpid liquor, which in India beyond the Ganges is not condensed into the substance called *Tabaxir* or *Tabasbeer*, as it is, though rarely, in Malabar. Panicle of flowers diffused, in spikes; spikelets oblong, imbricate. Calyx two-valved, one-flowered; valves acute, convolute. Corolla two-valved, membranaceous, very small, surrounded with hairs. Stamens six, filaments very short, anthers oblong. Stigmas three, subsessile, long, villose. Seed one, oblong. Although the Bamboo be very common in Japan, Thunberg never saw it in flower; and there being no accurate description in any author, it is observed by Loureiro that Linneus's specific character is very erroneous. He therefore, having had the opportunity of seeing living plants flowering in their native soil, has substituted the following:—*Flowers six-stamened; panicle diffused, with imbricate spikelets; branches of the culm spiny; calyxes one-flowered.*

Retzius, seeing that the Bamboo has nothing in common with the Reeds, would make a distinct genus of it. He thus describes the character of the fructification, from a specimen which was sent to him by Koenig.

Inflorescence in a distich many-flowered spike.

Calyx several short unequal concave scales.

Flowers usually by fours, but from three to eight in a spike.

Corolla, outer valve oblong, mucronate, convex, the edges at the base a little bent in, nerveless: inner flattish, lanceolate, edges bent in at an acute angle; these angles are hairy.

Stamina six, with very short filaments, and linear anthers. It frequently happens that one filament bears a single anther; another two, and a third three anthers.

Pistil. Germ very small. Styles two, short; sometimes only one. Stigmas long, longitudinally plumose.

His character of the species is this—*Panicle branched, divaricate, hard; spikes beaped alternately, unequal in number, sessile.*

The Bamboo-Cane grows naturally almost every where within the tropical regions. Over a great part of Asia it is very common. In China, Cochinchina, Tunquin, Cambodia, Japan, Ceylon, the peninsula of India, and the islands.

This useful plant has been long since introduced into the West-Indies; and is said to flourish likewise in South Carolina. Mr. Miller cultivated it in 1730^b. He says we have plants more than twenty feet high; and if our stoves were high enough, they would probably rise to twice that height. A strong shoot from the root will grow twenty feet in five or six weeks. Some of the stems are as large as a man's wrist, but in general they are as big as common walking-sticks, and when dried are as fit for that purpose as those which are imported.

[There is perhaps scarcely any plant that serves for such a variety of domestic purposes as the Bamboo. In the East-Indies great use is made of it in building, and the houses of the meaner people are almost entirely composed of it. Dr. Patrick Browne mentions, that it was yet strong and perfect in some of the houses which had been built by the Spaniards in Jamaica, above a hundred years before^c. Bridges also are made of it, masts for their boats, boxes, cups, baskets, mats, and a great variety of other utensils and furniture, both domestic and rural. Paper also is made from it, by bruising, and steeping it in water, and thus forming it into a paste. It is the common fence for gardens and fields; and is frequently used as pipes for conveying water.] The leaves are generally put round the chests of tea which are sent to Europe from China,

as package, fastened together so as to form a kind of mat. [The tops of the tender shoots are frequently pickled in the West-Indies.

In the cavities, or tubular parts of the Bamboo is found at certain seasons a concrete white substance called *Tabasheer* or *Tabachir*, an article which the Arabian physicians hold in high estimation. It is commonly found in what are called the female or large Bamboos. The Bamboos which contain this concrete are found on shaking to contain a fluid, which, after some time gradually lessens, and then they are opened in order to extract the *Tabasheer*. The nature of this substance is very different from what might have been expected in the product of a vegetable: Its indestructibility by fire, its total resistance to acids; its uniting by fusion with alkalies in certain proportions into a white opaque mass, into a transparent permanent glass; and its being again separable from these compounds entirely unchanged by acids &c. seem to afford the strongest reasons for considering it as very nearly identical with common siliceous earth. As to its medical virtues, though the drug be, as before observed, in much esteem with the orientalists, yet they are not such as to cause it to have any regard paid it in the modern practice of physic in Europe.

Yet the virtues of the several parts of the Bamboo are very considerable according to Loureiro, who in his *Flora Cochinchinensis* tells us that the leaves, bark, buds, and root are used. The leaves, he says, are cooling, emollient, and resolvent: their decoction is good in fevers, cough, pains of the throat &c. the thin bark is cooling and agglutinant and a gentle astringent: it is good in feverish heats, hæmorrhages, nausea, and vomitings: the roots and buds are attenuating, and promote urine, and purify the blood; are good in difficulties of urine, wandering pains, obstructions, and in venereal cases: from the fresh roots mixed with tobacco-leaves and betel in equal portion, and infused and macerated for some days in oil, is prepared an ointment of great efficacy in discharging hard and schirrous swellings.

β. The leaves of this variety are much narrower, particularly at their base. It is more rare in Europe, though the most common on the coast of Malabar.

γ. The Turks make their writing pens with this variety. It was observed by Tournefort in a valley near mount Athos, and on the banks of the river Jordan.

I notice these, because Mr. Miller makes them distinct species. There are doubtless many varieties of the Bamboo in the East-Indies; and some, which we look upon as such, may possibly prove, on more accurate examination, to be really distinct. Loureiro, besides three species, mentions three principal varieties which he had observed.

1. *Arundo maxima*. *Tle lang nga*. *Arundarbor maxima*. *Rumph. amb. l. 6. p. 12*. The highest and thickest of all the Bamboos, covered very thick with spines.

2. *Arundo Fax*. *Tle nua*. *Arundarbor cratium*. *Rumph. amb. l. 6. c. 2*. The culm about eighteen feet high, and an inch and half in thickness, very straight, the most hollow of any of the Bamboos, and the internodes remarkably long. They fill them with oil and tow, and thus use them as torches in travelling.

3. *Arundo tabacaria*. *Oung thaong*. *Arundarbor spiculorum*. *Rumph. amb. l. 6. c. 3*. Culm slender, very straight and regular, somewhat solid, rough, branched; the internodes very long, hard, tough and scabrous. These are polished, and much used for tobacco-pipes by the natives^d.

Many other varieties may be seen in Rumphius. Sloane and Browne describe the Bamboo of Jamaica to be only from twelve to fifteen feet in height, and about an inch and half in diameter at the bottom.

2. The *Donax* or cultivated Reed, or Evergreen Reed, as the gardeners sometimes call it, the great

^a Loureiro.

^b Hort. kew.

^c Jamaica. 138.

^d Loureiro, 58.

Spanish or *Cyprus Reed* or *Cane*, as it is named by Ray, the *Spanish Reed* of Parkinson, and the *Cypress Cane* or *Pole Reed* of Gerard has the culm six feet high or more, (to ten, fifteen, and according to some authors twenty or thirty feet) hard, almost woody, with knots or joints and diaphragms. Above each joint a leaf, embracing the culm with a yellow, hollow sheath, two feet long, and three inches broad. The top of the culm ends in a point, the leaves rolling up in form of a cone. The panicle is a foot and half long, erect, and many-flowered. There are two flowers, and sometimes three in one calyx, but two only ripen^c. Most authors set down the calyxes as three-flowered, but in the late editions of the *systema vegetabilium* they are given as five-flowered, on the authority of Turra.

It is a Native of the south of Europe, Siberia, Egypt, Cochinchina, &c. It flowers with us in July and August; and was cultivated in the Oxford Botanic garden in 1648^f.

The canes are brought to us from Spain and Portugal, for the use of our weavers, for fishing rods, &c. In Italy they are frequently used for the support of their vines. They are called there *Canna de giardini*; in Spain *Cana lenosa*, or simply *Cana*; in Portugal *Caneira*, or *Cana ordinaria*; in France *Roseau cultivé*, *canne des jardins*, or simply *Canne*; in Germany *Zahme Rohr*, *Gartenrohr*, *Spanische Rohr*, &c.; in Holland *Hengelriet*, *Zaay-Riet*, *Tam-Riet*, *Cyperscb Riet*, *Spaansch Riet*; in Sweden *Tragardf-ror*, or *Spanfkror*; in Denmark *Dyrkede Ror*, *Haugernes Ror*, or *Spanfkror*.]

β. The variety with variegated leaves, called *striped* or *party-coloured Reed*, never grows to a third part of the height of the other, and the leaves are narrower and much shorter.

3. *Common Reed* has the root perennial, creeping. Culms erect, round, hollow, jointed, quite simple, smooth, finely striated, four or five lines in diameter at bottom, commonly the height of a man, but varying from three to twelve feet, and having frequently twenty, twenty-five or twenty-six joints. Leaves lanceolate, flat, mucronate, from five or six inches to a foot or a foot and half in length, and an inch, or from ten to fifteen lines in breadth, glaucous green, smooth, ferrulate, with a whitish nerve at the back: sheaths smooth, striated, crowned with a dense, short, hairy ligule. Panicle very close, above a foot long, at first erect and contracted, but afterwards spreading, and when old nodding. Pedicels from the internodes nine or ten coming out together, bearded with white hairs, very much branched, nodding forwards. Spikelets lanceolate, pointed, five to seven lines long, narrow, dark purple, three, four or five-flowered^g, smooth but surrounded at the base with down about the length of the florets, and which rises from the spike-stalk, and not from the florets themselves^h. Larger glume of the calyx lanceolate, pointed, three lines long; the other less by one half. The outer valve of the corolla five lines long, the inner only one third of that lengthⁱ. The seeds are inclosed by the corolla, as Linnaeus says, and are not surrounded by long hairs, as Leers has represented them^k. The calyx sometimes contains only one floret, and sometimes it has six; the number of florets indeed seems too inconstant in this genus to form a specific character. Scopoli affirms that one valve of the corolla is sometimes awned.

The Reed flowers from July to September, and ripens its seeds in October and November. It is very common by the sides of rivers, in ditches and large standing waters, [throughout Europe, in Siberia, North America, &c. Thunberg observed it in Japan, with a wider panicle than ours, loose but not diffused, and an herbaceous culm.] In autumn, when the leaves begin to fall, and the stems are changed brown, it is cut for making screens in kitchen gardens, and for many other uses: [as thatching, for which it is much more durable

than straw, for cielings, and to lay across the frame of wood-work as the foundation for plaister floors^l. The panicles are used by the country people in Sweden, to dye wool green^m. The root has been recommended as a substitute for *Radix Chinæ*, and as answering the same purposes with Dog's-grass, *Triticum caninum*.

Common Reed is called in German *Gemeine Rohr*, *Rohrschilf*, *Buschelrohr*, *Pfeifenrohr*, *Deckrohr*, *Teichrohr*, *Wasserrohr*, *Weiberrohr*, *Zaunrieth*, and *Wasserfedergras*; in Dutch *Gemeene Riet*, *Waterriet*, and *Dekriet*; in Danish *Gemeen Ror*; in Swedish *Strandror*, *Takvass*, *Takror*; in French *Roseau de marais*, *Roseau commun*, and *Roseau de balai*; in Italian *Canna palustre*; in Spanish *Cana palustre*, *Cana de cercas*; in Portuguese *Carrico bastardo*; in Russian *Kamysch*.

4. Root perennial, creeping far and wide. Culms two feet high or more, thicker than those of wheat. Leaves a span long, and two or three lines broad, smooth underneath, beset above with very short scattered hairs. Sheaths striated, smooth, ending in a blunt ligule. Panicle very close and narrow, almost spiked, from two to four and six inches in length. Pedicels an inch or an inch and half in length, coming out singly and alternately at unequal intervals, loaded with many flowers. Spikelets one-flowered, very slender, from bay inclining to blueish. Flowers one and a half or nearly two lines long. Calyx flexible, nearly membranaceous, rough when viewed with a microscope: valves awl-spear-shaped, nearly equal, or the outer a quarter of a line longer than the other, the points so sharp as to be almost an awn. Corolla one line in length, membranaceous, tapering to a point which is cloven; there is an exceedingly minute awn rising from the bottom of the cleft, often but just taller than the end of the valve. There is a down from the base of the corolla rising nearly even with the calyxⁿ.

The leaves are much narrower than those of *A. Calamagrostis*^o: there are fewer flowers in the panicle, and it is not alternately contracted as that is: the corolla is very little less than the calyx, whereas in that there is a great difference^p. It differs from the Common Reed in its contracted panicle, equal on all sides, not pointing one way: from *A. arenaria* in having the panicle somewhat branched, not spiked, longer than the leaves^q. Native of many parts of Europe: flowering in July.

5. Root perennial, creeping. Culms from three to five feet high; sometimes it is the height of a man, and what is very uncommon in a grass, throws out undivided branches from the bosom of the leaves. Leaves without hairs, upper surface smooth, but the under, as also the edges and nerves, rough to the hand drawn downwards, inclined to a glaucous hue, stiff and arid; some flat, others with their edges rolled in, and sharp-pointed. Sheaths long, clothing the culm, ending in a membranaceous, laciniate ligule, shorter and blunter on the lower leaves, much longer and more acuminate on the upper ones. Panicle dense, long, contracted, before it comes into flower upright, afterwards somewhat nodding, the branches and their subdivisions rather pointing one way, sometimes partly chestnut and partly green, on the opening of the flowers a mixture of green, chestnut and silky white, and when out of flower of a yellowish brown. Calyx stiff, green, with a rough keel, slightly curved sideways; valves narrowing to a point, almost equal, about two lines long. Corolla one line in length, awned, tapering to a point, which is cloven; it is membranaceous, glossy, white, giving the whole panicle a silky shine: awn hair-like, straightish, inserted above the middle of the back, extending half a line beyond the end of the valve: there is a wooliness at the base about the length of the calyx. In external appearance this grass very much resembles *Dactylis glomerata*^r. It differs from the foregoing

^l Withering. ^m Lin. succ. ⁿ Krock, Haller, Stokes in With.

^o Woodw.

^p Haller.

^q Willdenow.

^r Stokes in With. Linn. Relh. Krock.

^c Haller.

^f Hort. kew.

^g Pollich and Krock.

^h Scheuch. and Stokes in With.

ⁱ Pollich.

^k Stokes in With.

species in having a more slender panicle, and the calyxes straw-coloured, not drawn out into a very long point, nor blue at the edge^a. Scopoli removes this species to the genus *Avena*, in which he is singular.

Native of most parts of Europe, in moist woods and hedges; flowering in June and July.

6. *Sea Reed-grass* has a strong, creeping perennial root, with many tubers at the joints the size of a pea. Culms a foot and half high or more, hollow, hard and shining, with two, three or four joints. Leaves at the base of the culm crowded, on the culm one at each joint, glaucous, equalling or exceeding the culm in length, two lines in breadth, at first flat, but afterwards by their own dryness, or that of the soil on which they grow, contracted on the sides and rolled up, so as to appear like rush leaves; they are smooth and glossy without, and deeply scored within. Sheaths livid-brown, broad, six inches or a span long, ending in an almost transparent ligule, acuminate and bifid or trifid at the end. Panicle in form of a roundish spike, narrow, close, from four to six inches long, as thick as the little finger in the middle, but narrowing to each end, rough and villose: pedicels short, branched, stiffish: spicules slender, five or six lines long, sharp, valves of the calyx nearly equal, lanceolate, compressed, keeled; the outer broadest, marked with one rib, the inner with three: corolla compressed, roughish, dull, of the same texture as the calyx; outer valve marked with five ribs, the middlemost ending in a short dagger-point, the base fringed all round with white, straight, stiff hairs, only one fourth of the length of the corolla. Scale at the base of the inner valve, awl-shaped, fringed with the same hairs, analagous to the outer corolla of the *Phalaris*, or possibly the rudiment of a second peduncle. Seed not larger than Canary seed, but round, and rather sharp at the upper end.

Linneus thinks it probable that this grass might originate from *Arundo epigeios* impregnated by the pollen of *Elymus arenarius*. Dr. Stokes is of opinion that it has a much nearer affinity in habit, as well as structure to *Phalaris* than to *Arundo*.

Native of sandy coasts in Europe and America; flowering in June and July. By means of its creeping roots it helps very much to consolidate driving sands, which gather about it in hills or banks, and are thus prevented from dispersing over and impoverishing the adjoining fields. The Dutch have profited by their knowledge of this fact; and Mr. Woodward informs us, that it is planted about Wells in Norfolk, to aid in repelling the sea. The country people know it by the names of *Sea Matweed*, *Marram* and *Helme*. They cut and bleach it for making mats; and where it is plentiful, houses are thatched with it^b.

7. Native of New Zealand.

8. Culms woody, very hard, roundish, twisted, thirty feet high, as thick as the human arm, with prominent knots and short internodes; they have very little void space within, and are often quite solid: branches alternate, many, the lower ones denser, bowed, subdivided, interwoven, with many thick scattered crooked spines. Leaves linear-lanceolate, small, smooth, striated, scattered, on longish slender petioles. Flowers in an erect terminating panicle, which ends in heaped short spikelets. Corolla very small woolly. Anthers six, very long, subsessile. Stigmas two on a single style. Seed oblong. This species being very hard, is extremely durable. On account of this quality, and the closeness of its spines, it is peculiarly proper to be employed in the circumvallation of fortified places. Native of Cochinchina, in mountains, and dry desert places^c.

9. Culm woody, round, very regular, about forty feet in height, the thickness of the human leg, simple, hollow; the knots more distant and scarcely prominent; branches unarmed. Leaves largish, lanceolate, striated, stem-clasping. Panicle con-

tracted, erect, simple; with long imbricate spikelets. Corolla very short, woolly. Stamens six. Style one, with three long villose stigmas.

This is cultivated in Cochinchina, in the fields and hedges, and being divided into long thin pieces is used for weaving into hats, coffers, baskets and a variety of utensils, which are very elegant^d.

10. Culm perennial, twelve feet high, an inch thick, round, divided, unarmed, hollow, with very long internodes. Leaves linear-lanceolate, six inches long, flat, smooth, stem-clasping, of a brownish green colour. Spikes of flowers terminating, few, pedicelled, erect, long, interrupted, compound; spikelets subulate, sessile, imbricate, in whorls about a common pedicel. Filaments six, capillary, long; with oblong anthers. Stigmas three, sessile, long, plumose, reflex. Seed oblong. In the northern provinces of Cochinchina, in cultivated places; where it is used as hedges for the separation of gardens^e.

11. Culms lofty, hollow, thick, leafy. Leaves smooth, two feet and upwards in length, and two inches wide at the base. Panicle two feet long, very much branched, upright. Peduncles in half whorls, unequal; branched. Flowers on the lower part of the panicle in threes, one sessile and two pedicelled; next in pairs, one sessile; the upper ones solitary. Calyx subulate, naked, two-flowered, one valve a little longer than the other. Corollas two, surrounded with wool the length of the calyx, one pedicelled a little longer than the calyx, the petals narrow, linear, three-nerved, hyaline. Native of Bengal; found there by Koenig^f.

12. Culm perennial, eight feet high, unarmed, branched, subulate, almost solid, the knots approximating. Leaves lanceolate-linear, dusky green, smooth, petioled, smaller than in any other of the Indian Reeds, alternate. Flowers in spikes, terminating. Native of Cochinchina.

Being tough, and tapering towards the end, this cane is very fit for fishing-rods^g.

13. Culm perennial, eight feet high, unarmed, simple; the knots distant. Leaves lanceolate-linear. Spikes terminating; spikelets linear, long. Flowers dioecous; the females with two stamens. Native of Cochinchina, in woods^h.

14. Root perennial, long, thick, jointed, creeping, covered with whitish or brownish scales. Culms from two or three to five or six feet in height, upright, strong, round, smooth, with six or seven purplish or brownish knots; at each of which is a leaf from a hand to a span and a foot in length, and from five to eight lines in breadth, smooth except towards the end and on the sides, where they are somewhat scabrous, bright green, white about the edge, and with a white nerve. Sheaths striated, smooth, ending in a whitish, cloven ligule. Panicle from six inches to a foot in length, much contracted at first so as to resemble a spike, but spreading out in flowering time, branched, the branches crowded, closely imbricate, and unequal; it varies in colour, being commonly purplish, but sometimes whitish: peduncles in pairs or three together, the lower ones connected at the base, having a sharp little scale for a bracte: florets imbricate, pointing one way, when flowering diverging on very short pedicels. Valves of the calyx with two ribs on each side, not much longer than the corolla, the outer valve a little less than the other. Valves of the corolla hairy at the edges, and furnished with a small, slender, hairy appendage on each side, the outer valve not rolled in. Nectaries two, lanceolate-acuminate, with one tooth on the outer edgeⁱ. Seed oval, flattened, brown and shining^j.

Haller placed this species among the reeds, but Pollich and others refuse to admit it into that genus, because the true down or wool is wanting at the base of the florets, and there is only a short hairiness at the base of the calyx not appearing above

^a Willdenow.

^b Linn. lapp. Krock. Ray, Withering.

^c Loureiro.

^d Loureiro.

^e Ibid.

^f Retz.

^g Loureiro.

^h Ibid.

ⁱ Leers, Pollich, Krock. Haller, With.

^j Villars.

the spikelet: analogy however seems sufficiently to justify the situation in which we find it in Haller and the catalogue of the royal garden at Kew.

It is a native of Europe, on the banks of rivers and ditches; flowering in July and August.

It is used to thatch ricks and cottages, for which purpose it is more durable than straw. In the province of Scania they mow it twice a year, and their cattle eat it. The texture is so hard, that it ought to be cut very young, if we expect cattle to touch it.

β. There is a cultivated variety of this grass in our gardens with beautifully striped leaves. The stripes are generally green and white; but sometimes they have a purplish cast. This is called *Ladies laces*, *Painted Grass*, or *Riband Grass*.

Willdenow has followed Haller in placing *Agrostis arundinacea* and *Calamagrostis* in this genus.]

PROPAGATION AND CULTURE.

1. The Bamboo must be preserved in a warm stove, and as the roots spread very wide, it should be planted in a large tub, filled with rich earth: this must be plunged into the hot-bed in the bark-stove, and must have plenty of water. When the tub decays, if the plant be permitted to root in the tan, it will grow to a larger size; but then care must be taken, when the bed is refreshed with new tan, to leave a sufficient quantity of the old tan about the roots. It may be propagated by slips from the roots, which should be taken off in the spring, that they may be well established before winter.

2. The cultivated Reed, although native of warm countries, yet will bear the cold of our winters in the open ground, provided it be planted in a soil not too wet; and, if the winter should prove very severe, a little mulch be laid over the roots. It dies to the surface in autumn, and rises again the succeeding spring: if it be kept supplied with water in dry weather, it will grow ten or twelve feet high the same summer. It is very proper to intermix with trees and shrubs, or with tall plants and flowers, where it will have a good effect, in adding to the variety. This is propagated by parting the roots early in the spring, before they begin to shoot, and will, in a year or two, if the ground be good, make very large stools, from each of which eight or ten canes are produced. It never flowers in England.

The sort with variegated leaves is much more tender than the other, and must be sheltered from frost, in order to be preserved through the winter in England.

[ARUNDO. See *Agrostis*, *Andropogon*, *Cenchrus*, *Melica*, *Spinifex* & *Zizania*.

ARUNDO florida & indica. See *Canna*.

Rotang. See *Calamus*.]

Saccharifera. See *Saccharum*.

[ASARABACCA. See *Asarum*.

ASARINA. See *Antirrhinum* & *Chelone*.]

ASARUM. (Ἀσάρον, Diosc. From α and σαρω, orno: because it is unfit for ornament, or was not used for crowns, according to Pliny. From α and σαρω, vincum, Linneus.)

Eng. *Asarabacca*. Fr. *Asaret*, *Cabaret*, *Oreille d'homme*.

Lin. gen. n. 589. Reich. 642. Schreb. 801. Tournef. 286. Juss. 73. Gertn. t. 14.

Class. II. I. Dodecandria Monogynia.

Nat. order of *Sarmentaceæ*. *Aristolochiæ* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, bell-shaped, three or four-cleft, coriaceous, coloured, permanent: clefts erect, bent in at the top.

COR. none.

STAM. Filaments twelve, subulate, half the length of the calyx. Anthers oblong, fastened to the middle partition of the filaments.

PIST. Germ inferior or concealed within the substance of the calyx. Style cylindric, the length of the stamens. Stigma stellate, six-parted; parts reflex.

PER. Capsule coriaceous, within the substance of the calyx, mostly six-celled.

SEEDS several, ovate.

ESSENTIAL CHARACTER.

Cal. three or four-cleft, placed on the germ. Cor. none, Caps. coriaceous, crowned.

SPECIES.

1. *Asarum europæum*. Common *Asarabacca*.

Lin. spec. 633. Reich. 2. 411. hort. cliff. 178. fl. suec. n. 421. mat. med. 119. Woodv. med. bot. 237. t. 86. Gertn. fruct. 1. 48. Hudf. angl. 205. Wither. arr. 488. Hall. herb. n. 1547. Scop. carn. n. 563. Pollich pal. n. 448. Allion. pedem. n. 2069. Krock. filif. n. 712. Villars dauph. 3. 817. Fl. dan. t. 633. Mill. fig. t. 53. f. 1. a. Plenck. ic. t. 358. Blackw. t. 383. Mor. hist. f. 13. t. 7. f. 1. Ger. herb. 688. f. 1. emac. 836. 1. Park. theat. 266. 1. Trag. 64. Dod. pempt. 358. Lob. obs. 328. 2. Matth. 36. Fuchs. hist. 10. Bauh. hist. 3. 548. Camer. epit. 19. (good.) Best. cyst. vern. 6. t. 9. f. 2. Bauh. pin. 197. 1. Raii hist. 207. syn. 158.

Leaves kidney-shaped, blunt, in pairs.

2. *Asarum canadense*. Canadian *Asarabacca*.

Lin. spec. 633. Reich. 2. 411. Gron. virg. 52. Mill. fig. 53. 1. b. Jo. Mill. illustr. Corn. canad. t. 25. Raii hist. 208. 2.

Leaves kidney-shaped, mucronate.

3. *Asarum virginicum*. Sweet-scented *Asarabacca*.

Lin. spec. 633. Reich. 2. 411. Gron. virg. 162. Lour. cochinch. 292. Pluk. alm. t. 78. f. 2. Mor. t. 7. f. 3. Raii hist. 1857. & 3. 129.

Leaves heart-shaped, blunt, smooth, petioled.

DESCRIPTIONS, &c.

1. Roots perennial, thick, fleshy, jointed, sending out fibres from every part. The leaves grow singly on short petioles, arising immediately from the root: they are kidney-shaped, eared at the petiole, and rounded at the top, where they are indented; they are smooth, and of a shining green colour. The flowers growing upon very short peduncles close to the ground, are hid under the leaves; they are of an herbaceous colour on the outside, and dusky purple within. [A radical stem supports two petioles, between which is a one-flowered scape; the former about three inches, the latter only half an inch in length. The filaments are produced beyond the anthers into a hook or little horn. The anthers are twin, or else single and two-lobed. Capsule ovate-globose, crowned with the permanent calyx, hirsute, very obscurely hexagonal, not opening by valves; partitions fastened to the angles of the capsule, but loose and separate next the axis, which is singular; receptacle none, except the central margin of the partitions, to which the seeds are fastened. Seeds few, about four in each cell, ovate, narrowing downwards, convex on one side and smooth, concave on the other, with a glandular epiphysis, a little longer than the seed, and thicker at top, yellowish, and at length drying away into a spongy ridge; brown on the back, paler on the belly.

Authors assign a single style to the flower, with a stigma of six rays; Scopoli however insists that the flower has six styles, for though the styles are connate at first, yet they are then free and separate at top, and when the capsule becomes divided into its six cells, the styles separate, and each terminates its respective cell, to the base of which four wedge-shaped seeds are fixed: each cell is divided into two by a longitudinal partition, two seeds adhering to it on each side. The number of segments in the calyx is one-fourth of the number of stamens, and one-half the number of the cells.

Asarabacca is a native of many parts of Europe, in woods and shady places; flowering in April and May. With us it has been observed only in Lancashire.

The root powdered, and taken to the amount of thirty or forty grains, excites vomiting: if it be

coarsely powdered, it generally purges. The powder of the leaves is the basis of most cephalic snuffs, which occasion a considerable discharge of mucus from the nostrils without much sneezing. An infusion of one or two drams of the leaves in wine vomits^b. Allioni gives a particular account of the qualities of Asarabacca, and seems to have a high opinion of it, especially in obstinate intermittents, and above all in the quartan ague. Others reject it entirely, holding it to be too acrid when fresh, and totally insipid when dry. The *pulvis Asari compositus* of the London Dispensatory has equal quantities of the dried leaves of Asarum, Marjoram and Marum, and of the dried flowers of Lavendar.]

2. The leaves of this are much larger than those of the first sort, and stand on longer footstalks; they are pointed and hairy. The flowers are like those of the other sort, growing close to the root, but are more inclining to green on the outside.

[Linneus doubts whether it may not be a mere variety of the first, on account of the leaves growing in pairs, though other circumstances indicate the contrary.

Native of Canada. Cultivated in 1731, by Mr. Miller. It flowers from april to july^c.]

3. The leaves of this are veined and spotted on their upper surface, like those of the autumnal Cyclamen. The flowers are shaped like the others, but stand on longer peduncles, and are of a darker purple colour. They come out in april and may, and their seeds ripen in july and august.

[Native of Virginia and Carolina; also of several provinces in China. Both this and the second sort were found by Thunberg in Japan. Cultivated in 1759, by Mr. Miller.]

PROPAGATION AND CULTURE.

These plants delight in a moist shady situation, and may be increased by parting the roots in autumn. Too much wet will rot the Canadian sort in the winter. If the third species be too much exposed to the sun in summer, it seldom thrives well; it should therefore be planted in a border where it may have only the morning sun.

[ASARUM Hypocistis. See *Cytinus*.

ASCARINA. (From *ascaris*, a little worm; the anther having that shape.)

Lin. gen. Schreb. n. 1487. Forst. gen. 59. Juss. 442.

Class. 22. 1. Dioecia Monandria.

GENERIC CHARACTER.

* Male flowers.

CAL. Ament filiform. Floscules scattered, sessile. Perianth a very short scale.

COR. none.

STAM. Filaments single, very short. Anther oblong, from spreading recurve, four-furrowed, large.

* Female flowers in a different plant.

CAL. as in the male.

COR. none.

PIST. Germ globose. Style none. Stigma flat, three-lobed, growing to the germ.

PER. Drupe?

SEED single.

ESSENTIAL CHARACTER.

Cal. Ament filiform. Cor. none.

MALE. Anther worm-shaped.

FEM. Style none. Stigma three-lobed. Drupe?

SPECIES.

1. Ascarina polytachya.

Forst. fl. austral. n. 364.

Native of the Society Isles, in the South Seas.

ASCIUM.

Lin. gen. Schreb. n. 903. Norantea Aubl. 220. Juss. 245.

Class. 13. 1. Polyandria Monogynia.

Nat. order of Putamineæ? Capparides Juss.

GENERIC CHARACTER.

CAL. Perianth five-leaved: leaflets roundish, concave, coriaceous, coloured on the margin.

^b Withering.

^c Hort. kew.

COR. Petals five, ovate, acute, larger than the calyx, inserted into the receptacle.

STAM. Filaments very many, (forty to fifty) short, three-sided, inserted into the receptacle. Anthers oblong.

PIST. Germ ovate. Style very short. Stigma headed.

PER. Berry? one-celled.

SEEDS very many.

ESSENTIAL CHARACTER.

Cal. five-leaved, coriaceous. Cor. five-petalled. Berry? one-celled, with very many seeds.

SPECIES.

1. Ascium Norantea.

Aublet. guian. t. 220.

DESCRIPTION, &c.

This is a tree, with alternate, entire, thick leaves. The flowers grow in loose spikes from the ends of the branches; they are alternate, subsessile, and have to each a long bracte, with a claw to it, resembling the cowled bag of *Marcgravia*; to which genus this seems nearly allied. It is a native of Guiana.]

ASCLEPIAS. (From *Æsculapius*, the god of Medicine.)

Lin. gen. n. 306. Reich. 333. Schreb. 429.

Tournef. 22. Juss. 147. Gertn. t. 117.

Apocynum. Tournef. 21.

Class. 5. 2. Pentandria Digynia.

Nat. order of Contortæ. Apocineæ Juss.

GENERIC CHARACTER.

CAL. Perianth five-cleft, sharp, very small, permanent.

COR. monopetalous, flat or reflex, five-parted: divisions ovate-acuminate, slightly bending with the sun. Nectaries five, growing to the tube of the filaments below the anthers, fleshy, or cowled; protruding from the bottom a sharp horn, bending inwards.

STAM. Filaments five, collected into a tube, swelling at the base: anthers oblong, upright, two-celled, terminated by an inflex membrane lying on the stigma, having a reversed wing on each side, growing broader downwards with its edge contiguous to the next. The pollen is collected into ten corpuscles, inversely lanceolate, flat, hanging down into the cells of the anther by short threads, frequently flexuose; which are annexed by pairs to five, cartilaginous, twin tubercles, each placed on the tip of the wings of the anthers, adhering to the angles of the stigma, between the anthers.

PIST. Germs two, oblong, acuminate; styles two, subulate: stigma common to both, large, thick, five-cornered, covered at top by the apexes of the anthers, umbilicate in the middle.

PER. Follicles two, large, oblong, acuminate, swelling, one-celled, one-valved.

SEEDS numerous, imbricate, crowned with down. Receptacle membranaceous, free.

OBS. Asclepias. Tournef. has solid nectaries, without horns.—Apocynum. Tournef. has cowled nectaries, with horns.

ESSENTIAL CHARACTER.

Contorted: Nectaries five, ovate, concave, putting out a little horn.

SPECIES.

* Leaves opposite, flat. Swallow-wort.

1. Asclepias undulata. Waved-leaved Swallow-wort. Lin. spec. 312. Reich. 608.

Apocynum africanum, lapathi folio. Comm. rar. t. 16.

Leaves sessile, oblong, lanceolate, waved, smooth; petals ciliate.

2. Asclepias crispa. Curled-leaved Swallow-wort, Lin. syst. 258. edit. 13. 213. Reich. 608. mant. 215. suppl. 170. Berg. cap. 75.

Apoc. erectum afric. &c. Herm. par. 25. Comm. rar. t. 17.

Leaves cordate-lanceolate, waved, scabrous, opposite; umbel terminal.

3. Asclepias pubescens. Pubescent Swallow-wort. Lin. syst. 258. Reich. 608. mant. 215.

Apoc.

- Apoc. afr. tuberosum, &c. *Mor. hist.* 3. 610. f. 15.
t. 3. f. 35. *Pluk. phyt.* 139. f. 1.
Leaves ovate, veined, naked; stem shrubby, peduncles villose.
4. *Asclepias volubilis*. Twining Swallow-wort.
Lin. syst. 259. suppl. 170. *Forst. florul.* n. 128?
Rheed. mal. 9. 21. t. 13? *Rumph. amb.* 5.
t. 175. f. 1?
Leaves ovate, quite entire, acuminate; stem arborescent, twining, umbels erect.
5. *Asclepias asthmatica*. Asthmatic Swallow-wort.
Lin. syst. 259. suppl. 171.
Leaves petiolate, cordate-ovate, above smooth, quite entire, stem shrubby, twining, hirsute; umbels few-flowered.]
6. *Asclepias gigantea*. Curled-flowered gigantic Swallow-wort.
Lin. spec. 312. *syst.* 259. *Reich.* 608. fl. zeyl. 112.
Brown. jam. 182. 1.
Ericu. Rheed. mal. 2. 53. t. 31. *Seb. thes.* 1. 41.
t. 26. f. 1.
Leaves obovate-oblong, petioles very short, segments of the corolla reflex, involute.
7. *Asclepias fyriaca*. Syrian Swallow-wort.
Lin. spec. 313. *Reich.* 609. vir. cliff. 20. hort. cliff. 78. upf. 53. *Gron. virg.* 27. *Plenck. ic.* t. 155. *Blackw. t.* 521. *Park. par.* 444. t. 443. f. 2. (Periploca.)
Apocynum fyriacum. *Corn. canad.* 90. *Clus. hist.* 2. 87.
Beidelsar. Vest. aegypt. 28.
β. *A. exaltata*.
Lin. spec. 313. *amæn. acad.* 3. 404. *Kalm. itin.* 3. 259.
Leaves oval tomentose underneath, stem quite simple, umbels nodding.
8. *Asclepias amoena*. Oval-leaved Swallow-wort.
Lin. spec. 313. *Reich.* 609.
Apocynum. *Dill. elth.* 31. t. 27. f. 30.
Leaves ovate rather hairy underneath, stem simple, umbels and nectaries erect.
9. *Asclepias purpurascens*. Purple Virginian Swallow-wort.
Lin. spec. 313. *Reich.* 609. *Dill. elth.* 32. t. 28. f. 31.
Apoc. erectum noveboracense, &c. *Herm. par.* 33.
Leaves ovate villose underneath, stem simple, umbels erect, nectaries resupinate.
10. *Asclepias variegata*. Variegated Swallow-wort or Wisank.
Lin. spec. 312. *Reich.* 610. *Baub. pin.* 215.
Apoc. americanum, &c. *Dill. elth.* 32. *Pluk. alm.* 34. t. 77. f. 1.
Leaves ovate wrinkled naked: stem simple; umbels subsessile; pedicels tomentose.
11. *Asclepias curassavica*. Curassoa Swallow-wort. Bastard Ipecacuanha.
Lin. spec. 314. *Reich.* 610. hort. cliff. 78. *Lour. cochinch.* 170. *Swartz. obs.* 106. *Brown. jam.* 183. 2.
Apocynum. *Dill. elth.* 34. t. 30. f. 33. *Herm. par.* t. 36. *Sloan. jam.* 1. 206. t. 129. f. 4, 5.
Leaves lanceolate smooth shining; stem simple; umbels erect solitary lateral.
12. *Asclepias nivea*. White or Almond-leaved Swallow-wort.
Lin. spec. 313. *syst.* 259. *Reich.* 610. *Gron. virg.* 27.
Apocynum. *Dill. elth.* 33. t. 29. f. 32. *Plum. spec.* 2. ic. 30.
Leaves ovate-lanceolate smoothish; stem simple; umbels erect lateral solitary.
13. *Asclepias incarnata*. Flesh-coloured Swallow-wort.
Lin. spec. 314. *Reich.* 611. vir. cliff. 20. hort. cliff. 78. *Gron. virg.* 27. *Jacq. hort.* 2. t. 107.
Apocynum, &c. canadense. *Corn. canad.* 9. t. 93. *Barr. rar.* 8. t. 72. *Raii hist.* 1089.
Leaves lanceolate, stem divided at top, umbels erect twin.
14. *Asclepias decumbens*. Decumbent Swallow-wort.
Lin. spec. 314. *Reich.* 611. *Gron. virg.* 27.
- Apoc. carolinianum aurantiacum pilosum. *Pet. sic.* 90.
Leaves villose, stem decumbent.
15. *Asclepias lactifera*. Milky Swallow-wort.
Lin. spec. 314. *Reich.* 611. fl. zeyl. 111.
Leaves ovate, stem erect, umbels proliforous very short.]
16. *Asclepias Vincetoxicum*. Official Swallow-wort, or Tame-poison.
Lin. spec. 314. *Reich.* 611. mat. med. 72. *succ.* 212. hort. cliff. 78. *Allion. pedem.* n. 371. *Scop. carn.* n. 275. *Pollich pal.* n. 242. *Hall. belv.* n. 571. *Krock. fles.* n. 366. *Villars dauph.* 487. *Dill. giff.* 65. *Plenck. ic.* t. 154. *Blackw. t.* 96. *Fl. dan.* 849.
α. *A. albo flore.* *Baub. pin.* 303. *Gcr.* 751. f. 1. *emac.* 898. 1. *Park. theat.* 388. f. 1. *Raii hist.* 1090. *A. alba.* *Mill. dict.* n. 1. fig. t. 53. f. 2.
β. *A. lutea.* *Mill. dict.* n. 3.
Leaves ovate bearded at the base, stem erect, umbels proliforous.
17. *Asclepias nigra*. Black Swallow-wort.
Lin. spec. 315. *Reich.* 612. hort. upf. 53. *Villars dauph.* 487. *Sauv. monsp.* 133. *Gärtn. fruct.* 2. 170. *Camer. epit.* 560.
Leaves ovate bearded at the base, stem twining a little at top.
** Leaves revolute at the sides.
18. *Asclepias arborecens*. Arborecent Swallow-wort.
Lin. syst. 259. *Reich.* 612. mant. 216.
Apoc. frutescens, &c. *Burm. afr.* 31. t. 13.
Leaves ovate, stem shrubby, subvillose.]
19. *Asclepias fruticosa*. Shrubby or Willow-leaved Swallow-wort.
Lin. spec. 315. *syst.* 260. *Reich.* 612. hort. cliff. 78. upf. 54. vir. cliff. 20.
A. glabra. *Mill. dict.* n. 12.
Apoc. erectum africanum, &c. *Herm. par.* t. 24. *Mill. fig. t.* 45. *Pluk. alm.* 36. t. 138. f. 2.
β. *A. crassifolia.* *Lin. syst. edit.* 13. p. 214.
Leaves linear-lanceolate, stem shrubby.
20. *Asclepias repanda*. Repand Swallow-wort.
Lin. syst. *Reich.* 613.
A. undulata. *Lin. syst.* 260. 20.
Apoc. erectum afric. subhirsutum, &c. *Herm. par.* 45. *Comm. rar.* t. 17.
Leaves revolute-repand hairy.
21. *Asclepias fibrica*. Siberian Swallow-wort.
Lin. spec. 315. *Reich.* 613. *Murr. comm. gott.* 1779. p. 23. t. 7. *Gmel. fib.* 4. 77. n. 21. *Amm. ruth.* 10.
Leaves linear-lanceolate opposite or in threes, stem decumbent.]
22. *Asclepias verticillata*. Verticillate Swallow-wort.
Lin. spec. 315. *Reich.* 613. *Gron. virg.* 26.
Apoc. marianum, &c. *Pluk. mant.* 17. t. 336. f. 4. *Pet. mus.* 609.
Leaves linear verticillate, stem erect,
*** Leaves alternate.
23. *Asclepias rubra*. Red Swallow-wort.
Lin. spec. 316. *Reich.* 613.
Apocynum. *Gron. virg.* 27.
Leaves ovate, umbels many from the same common peduncle.]
24. *Asclepias tuberosa*. Tuberous Swallow-wort.
Lin. spec. 316. *Reich.* 613. hort. cliff. 78.
Apoc. novæ angliae, &c. *Herm. lugdb.* t. 647. *Dill. elth.* 35. t. 50. f. 34.
Leaves lanceolate, stem divaricate hairy.

25. *Asclepias filiformis*. Narrow-leaved Swallow-wort.
Lin. syst. 260. suppl. 169.
Leaves filiform, stem erect, umbels lateral elongate-peduncled.
26. *Asclepias grandiflora*. Great-flowering Swallow-wort.
Lin. syst. 260. suppl. 170.
Leaves petiolate oblong hairy, stem simple hirt erect, flowers axillary peduncled.
27. *Asclepias carnosa*. Flethy-leaved Swallow-wort.
Lin. syst. 260. suppl. 170.
Leaves ovate fleshy very smooth.]
28. *Asclepias*

28. *Asclepias scandens*. Climbing Swallow-wort.
Mill. dict. n. 19.
Leaves oblong-lanceolate subhirsute, stem shrubby climbing, umbels lateral compact.
- [29. *Asclepias procera*. Bell-flowered gigantic Swallow-wort.
Ait. hort. kew. 305.
A. gigantea. Jacq. obs. 3. 17. t. 69. Houtt. nat. hist. 7. 749. t. 44.
Zja-rack. Le Brun. it. pers. 315. t. 184.
Leaves obovate-oblong, petioles very short, corollas subcampanulate.
30. *Asclepias parviflora*. Small-flowered Swallow-wort
Ait. hort. kew. 1. 307.
Leaves lanceolate acuminate smooth opposite drawn to a point at the base, stem suffruticose upright, umbels lateral solitary.
31. *Asclepias Linaria*. Toadflax-leaved Swallow-wort.
Cavan. hisp. 42. t. 57.
Leaves scattered, subulate-channelled, umbels lateral many-flowered.
32. *Asclepias mexicana*. Mexican Swallow-wort.
Cavan. hisp. 42. t. 58.
Leaves six together in whorls, lanceolate, flowers umbelled.
33. *Asclepias fusca*.
Lour. cochinch. 170.
Stem creeping, leaves cordate-lanceolate, umbels axillary in pairs.
34. *Asclepias viminalis*.
Swartz. prodr. 53. Brown. jam. 183. 3. Sloan. jam. 1. 207. t. 131. (Apocynum.) Plum. ic. 27. f. 2? (Cynanchum.)
Stem suffruticose twining filiform, leaves opposite lanceolate smooth, umbels lateral many-flowered.

DESCRIPTIONS, &c.

The *Asclepiades* or Swallow-worts are either shrubs or tall upright perennial herbaceous plants, milky and poisonous, or at least acrid. Leaves in some species alternate, in others opposite, in some flat, in others revolute or rolled back before they unfold: hence Linneus has divided them into separate phalanxes. The flowers are borne on solitary peduncles from the axils, many together in umbels, surrounded with a many-leaved involucre. They are very singular in their structure, and have been variously described by different authors. Flies, in searching for the honey in the nectary, are frequently caught by the legs, and are not able to extricate themselves. The anthers lie hid within scales under a cover, and are considered by some authors as double or twin, by others as separate in pairs; the latter would refer them to the class *Decandria*.

1. Native of the Cape of Good Hope. Introduced in 1783, by Mr. John Græfer. It flowers here in July^a.

2. Stem pubescent, branching at bottom. Leaves subsessile, repand. One umbel of yellow flowers terminates the stem. Found at the Cape of Good Hope by Sparrman^b. Introduced into the Kew garden in 1774, by Mr. Francis Masson^c.

3. Stem shrubby, simple or little branched, very shortly villose. Leaves on very short petioles, villose, pointed, very much veined, rather crowded. Peduncles and umbels villose. Flowers purple. Native of the Cape of Good Hope^d.

4. Quite smooth with shining branches. Leaves petioled, ovate-subcordate, veined. Umbels quite simple, on peduncles the length of the petiole. Flowers greenish^e. Native of Malabar, Ceylon, and perhaps of the isle of Tanna in the South Seas.

5. The whole herb is villose, except the upper surface of the leaves; these are approximating, the size and shape of laurel leaves, heart-shaped at the base, sharp at the end. Umbels shorter than the leaves, often proliferous. Flowers small. Found in the woods of Ceylon by Koenig. The root is esteemed in asthmatic cases^f.]

6. This rises to six or seven feet in height. The leaves are thick. The flowers are white. The pods very large. [The base of the petiole is bearded above. The nectaries do not put forth awl-shaped horns, but solid converging plates. It is destructive to sheep unaccustomed to it, as the *Anemone nemorosa* is^g.]

Mr. Miller says, that he received the seeds from Hugh duke of Northumberland, who procured them from the East Indies. [It was cultivated however before in the royal garden at Hampton Court, in 1690. The flowering time is from July to September^h. Dr. Patrick Browne says, that it is now common in all the Savannas about Kingston and Old-harbour in Jamaica; and that it is known by the name of *Auricula* or *French Jasmin*.]

7. This creeps greatly at the root, and sends up strong stems upwards of four feet high; towards the top of them the flowers come out on the side; these are of a worn-out purple colour, smelling sweet; and sometimes they are succeeded here by large oval pods. It flowers in July.

[Native of North America. Parkinson who has described it very particularly, says that it came to him from Virginia, where it groweth abundantly, being raised up from the seed he received: he must have cultivated it therefore before 1629.

The French in Canada eat the tender shoots in spring, as we do Asparagus. The flowers are so odoriferous as to make it very agreeable to travel in the woods, especially in the evening. They make a sugar of them in Canada, gathering them in the morning, when they are covered with dew. Poor people collect the cotton from the pods, and fill their beds with it; especially for their Childrenⁱ.

On account of the silkynefs of this cotton, Parkinson calls the plant *Virginian silk*.

Kalm says that horses never eat it. The stems dye a good olive colour.

8. Height from a foot and half to three feet and even more. Stems round, smooth, the size of a swan's quill. At each joint are two leaves, two or three inches wide, and three or four inches long, ending in a bluntish point, thickish and stiff, smooth and shining above, whitish beneath, with the midrib and some of the other nerves purple; the lower leaves are smaller and rounder. The umbels of flowers come out from the top of the stalks and some of the upper axils. They are without smell. The nectaries approximate more, are straighter, longer, stiffer, more acute and less excavated than in the other species^k.] The flowers are of a bright purple colour, and make a pretty appearance in July, but are not succeeded by pods in England. Mr. Miller was favoured with this sort by Mr. Peter Collinson. [It was also cultivated in 1732, by James Sherard, M. D. at Eltham^l. It is a native of North America.

9. Stems many, as thick as the little finger, at bottom quadrangular with blunted angles, and of a brownish green colour; above round and green, a little hairy. Leaves on short petioles, from four to six inches long, and two or three broad; the midrib purple. The flowers differ from those of the foregoing sort, in having the petals of a dusky herbaceous colour, the horns of the nectaries paler, more gaping, not erect but horizontal^m. It is native of North America; was cultivated in 1732, by Dr. Sherard and flowers from July to Septemberⁿ.

Linneus observes, that this species is very nearly related to *A. syriaca*.

10. This also, according to Linneus, is allied to *A. syriaca*. Dillenius says, that it approaches very near to the *amoena*, but that the stems are shorter and commonly variegated with dusky purple spots; the leaves broader and rounder, more excavated, less rigid, not shining, not hoary underneath, with the oblique veins deeper, so as to be even grooved; the flowers larger, pale, dusky flesh-coloured, sweet

^a Hort. kew.^b Linn. suppl.^c Hort. kew.^d Linn. mant.^e Linn. suppl.^f Ibid.^g Linn. from Rumph. amb. 7. p. 25.^h Kalm's travels, 3. 28. engl. edit.ⁱ Dillenius.^j Hort. kew.^k Hort. kew.

finelling, the horns of the nectaries standing out and gaping more.]

According to Mr. Miller, this resembles the foregoing sort, but the leaves are rough, and the umbels of flowers more compact; they come out on the side of the stalk, are of an herbaceous colour, and are not succeeded by pods in this country.

[Native of North America. It appears from Plukenet to have been cultivated in 1696, and flowers in July^o.

11. *Stem* from a foot to two or three feet in height, upright, simple or generally so, round, pubescent, milky. Leaves opposite and decussated, petioled, acute, entire, smooth on both sides. *Flowers* in umbels: umbellules terminating, or opposite to the terminating leaflet in pairs, peduncled. Involucre none, but only a few subulate leaflets. Peduncle the length of the leaves: pedicels shorter, one-flowered. Calyx of five, lanceolate, reflex leaflets, Corolla reflex. Nectaries five, round the middle corpuscle, ovate, ear-cowled obliquely inwards, with a little horn from the nectareous base sabre-shaped bent in towards the genitals. In the middle is a truncate corpuscle, hollowed at the tip, bluntly five-cornered, covered with five scales at the sides, and gaping with as many chinks. Scales hollowed within. Glands five, roundish, black, to which are fixed above, within the scales, pairs of glanduliferous pedicels, in place of anthers; these glands are oblong, pellucid, panduriform, and filled with prolific moisture. Germs two, ovate, acuminate; styles two, subulate, hid within the column; stigmas simple, obtuse. Follicles oblong, acuminate, toothless, ventricose smooth^o. Linneus says, that the follicles are finely toothed on the sides: and Dillenius, that they are fusiform, with here and there a prominent spiny tooth. Browne observes, that the flowers are of a fine saffron colour in the low lands, but that in the cooler inland pastures they change to a white. It resembles the *nivea* very much, and Swartz doubts whether this be really distinct from it. Dillenius remarks, that the leaves are paler underneath, shorter and blunter than in the *nivea*. The stems have a scarcely perceptible pile on them: and the root is composed of equal fibres, whitish, and hardly so big as oat straws.]

Mr. Miller affirms, that these roots have been sent to England for Ipecacuanha, from which however they may be easily distinguished, the true Ipecacuanha having jointed, fleshy roots, which run deep into the ground. [The juice of the plant, made into a syrup with sugar, has been observed to kill and bring away worms wonderfully, even when most other vermifuges have failed; it is given to children in the west-Indies from a tea spoonful to a table spoonful. The juice, and pounded plant is applied to stop the blood in fresh wounds, and is said to be a powerful astringent in such cases. The root dried and reduced to powder, is frequently used by the negroes as a vomit; and hence its name of *Wild or Bastard Ipecacuanha*^o.

Native of South America, the West-Indian islands, and China near Canton.

It was cultivated in 1692, in the royal garden at Hampton Court; and flowers from June to September^o.

12. Stems a foot and half or two feet high, straight, round, the size of a swan's quill, dark green. Leaves like those of common *Perficaria*, deep green above, pale beneath, smooth, rather stiff. The flowers have no smell. It is so like the foregoing, that before they flower it is difficult to distinguish them; but their flowers are very different, and their follicles are not alike^o.

The corollas are green with white nectaries. It differs from the last in having leaves by no means shining, but a little rough, and more rounded at the base, not perfectly lanceolate. The follicles also are not toothed^o.

Native of North America. Mr. Miller says that the seeds were sent him from La Vera Cruz: and Dillenius, that it is wild in the West-Indian islands.

Cultivated in 1732, by James Sherard, M. D. It flowers from July to September^o.]

13. This puts out several upright stalks about two feet high; at the top are produced close umbels of purple flowers; these appear in August, but are not succeeded by seeds here. It first came from Canada, but has since been found growing naturally in several other parts of America.

[It was cultivated by Mr. Miller, in 1731^o.]

14. This has declining stalks, which are hairy, and eighteen inches in length. The leaves are narrow. The umbels grow at the extremity of the branches, are compact, and the flowers are of a bright orange colour. It is a native of North America.

[15. This is so like the *Vincetoxicum* or common Swallow-wort, as scarcely to be distinguished from it; the leaves however are less cordate, the corymbs compound and scarcely longer than the petiole, whereas in that they are as long as the leaves. Native of Ceylon^o.

16. Root very large and much branched:] it is composed of many strong fibres which are connected at the top, like those of *Asparagus*. From this arise many stems, in number proportioned to the size of the root, near two feet high, very slender at the top, [woody, round, hairy, not branched. Leaves cordate-ovate, acuminate, smooth, hardish, quite entire, glaucous-green, the midrib and sometimes the edge of the leaves a little hairy: petioles short. Peduncles axillary, many-flowered, resembling prolific umbels. Calyx small, green, divided at the end into five bristles. Corolla commonly white. Follicles ovate-acuminate. Seeds small, brown, wrapped in white cotton^o. It flowers in June, sometimes in May, and continues flowering to August. It is a native of most parts of the continent of Europe, and it is singular, according to the remark of Linneus, that it should not be found wild in Great Britain.

It was formerly esteemed to be an alexipharmic and hence its name of *Vincetoxicum* (Tame-poison), absurdly composed of a Latin and a Greek word. It has been also recommended in dropical cases, and disorders peculiar to women, but is disused in the present practice. Certainly it is too suspicious a plant to be taken internally without great caution. The external application for foul ulcers, abscesses of the breast, and scrophulous tumours, is more plausible. No animal, except the goat, is said to eat it. Linneus however affirms, that the horse will crop it, after it is frost-bitten. The down or cotton may be used for stuffing cushions, pillows, &c.

Our common English name *Swallow-wort*, is from the Dutch *Swaluw-wortel*; and that is a translation of the old appellation *Hirundinaria*, under which it is found in Brunfelsius and some other ancient botanists, from a fancied resemblance of the follicles or seeds to a swallow flying. Gerard says, it is called of our gentlewomen *Silken Cistle*. In German it is *Schwalbenkraut* or *Schwalbenwurz*, *Giftwende*, *Giftwurz*, *St. Lorenzkraut*. In Danish, *Svalerod*. In Swedish, *Tulkört*, or *Rylört*. In French, *Dompte-venin* or *Herbe St. Laurent*. In Italian, *Vintossico*. In Spanish, *Vencetofico*. In Portuguese, *Vincetoxico*. In Russian, *Tschortowa boroda*. or *Listawitschei koren*.

It was cultivated by Gerard in 1597.

β. Haller mentions, that this species varies with yellow flowers. This is the third sort in Miller; and he says it differs from the other not only in the colour of the corolla, but in having narrower leaves, weaker stalks, and single umbels. There is a variety of this with broader leaves.

Though the leaves commonly grow in pairs, yet Pontedera observes, that there are sometimes three together.]

^o Hort. kew. ^p Swartz, ^q Browne. ^r Hort. kew.
^a Dillenius. ^z Linneus.

^u Hort. kew. ^x Ibid. ^y Linneus.
^z Haller & Krockner.

17. *Black Swallow-wort* agrees with the common or officinal sort in the shape of its roots, leaves, and flowers, but the stalks extend to a greater length, and toward their upper part twist round any sticks, or other plants near them; and the flowers are black.

[Linneus observes, that the nectaries in this and the foregoing species are five truncated calluses, without any horn or process.

The two follicles are oblong, from a swelling base narrowing upwards, convex on one side, flattish on the other, somewhat compressed on the sides. Receptacle linear-oblong, fungose, compressed, free. Seeds eight or ten, ovate, leafy-compressed, concavo-convex, rufous, cinnamon coloured, crowned with a bundle of long, simple, silky, white hairs: integument single, membranaceous, slender: embryo inverted, yellow; seed-leaves ovate; radicle compressed, short, superior^a.

Monf. Villars mentions his having observed a variety of the common Swallow-wort near the Grande Chartreuse, with stems twisting at top, and smaller flowers of a dusky green as well as the leaves. He conjectures that this may connect these two species, which to him never seemed to be really distinct.

This sort is by no means so common as the foregoing, having been found only in the south of France, the mountains about Nice, and in Spain. It flowers at the same time with the other: and was cultivated in 1596, by Gerard^b.

18. Stem shrubby, rough with hairs, upright, as thick as the finger. Leaves opposite, on very short petioles, ending rather obtusely but with a minute point, and smooth. Peduncles from the summit of the stem, umbelled, villose. Corollas white. This has the flower and fruit of the next species^c.

Native of the Cape of Good Hope. Cultivated in 1714, by the Dutchess of Beaufort. It flowers in december^d.

19. The nectaries are compressed without a claw, instead of which are two long, reflex ears. Follicles inflated, set with soft prickles^e.

This also is a native of the Cape, and was cultivated by the Dutchess of Beaufort, in 1714. It flowers from june to september^f.

β. Is a relation of the other, either the sister or the daughter. It agrees with that in having a shrubby stem, revolute leaves, and toothed follicles; but differs in the breadth and hairiness of the leaves: the structure shows that it is derived from the other^g.

The thirteenth and fourteenth species of Miller are varieties of this.] They are all natives of the Cape of Good Hope, and rise with upright shrubby stems to the height of seven or eight feet, dividing into many branches. The leaves are long, narrow and smooth, ending in a point; the flowers are white, and grow loosely in the umbel on long peduncles; they are frequently succeeded by short, thick, swelling pods, ending in a point and thick set with hairs. They flower from june to october.

[20. The native country of this species is unknown. I have adopted the trivial name from Reichard; that of *undulata* having been before appropriated to the first species.

21. This varies with alternate leaves, and sometimes there are three together^h. It is a native of Siberia, was cultivated in 1775 by Mr. James Gordon, and flowers in july and augustⁱ.]

22. This rises with slender upright stalks, at the top of which grow umbels of small white flowers, appearing in july, but never succeeded by pods in England. [The leaves are frequently four together. The peduncles forming an umbel are opposite to the leaves^k. It is a native of North America, and was cultivated in 1759, by Mr. Miller^l.

23. Stem upright, simple, annual. Leaves acu-

minate. Several umbels on a peduncle. Native of Virginia^m.

24. Stems a foot high, hairy, round, dusky red. Leaves alternate, except on the upper part of the stem. Below where it branches are generally two leaves, and at the place of branching four: on the branches themselves the leaves are again alternateⁿ. The flowers are bright orange colour. The tuberous roots are very large. It is a native of North America; and was cultivated in 1690, in the royal garden at Hampton Court. It flowers from the end of july to september^o, and sometimes ripens seeds in England.

25. This species, *Apocynum filiforme*, and *Cynanchum filiforme*, are at first sight extremely alike, and the herb is the same, at least as to the form of the leaves, with different flowers. It was found at the Cape of Good Hope by Thunberg.

26. The flower of this is very large, coloured and tessellated like the Fritillary. It was found also at the Cape by Thunberg.

27. Leaves scarcely four inches long, without veins. Petioles fleshy, half the length of the leaves. Umbel simple, axillary, solitary. Calyx minute. Corolla little divided, scarcely half five-cleft, flat. This species is very different from the rest. It is a native of China^p.]

28. Stems climbing, fastening themselves to the neighbouring plants, and rising to the height of ten or twelve feet: the joints are distant; at each joint are two opposite leaves on short footstalks. The umbels are axillary, and the flowers are of a sulphur colour. These appear in august, but have not been succeeded by seeds in England. It is a native of Carthagenia in South America. [Cultivated by Mr. Miller, in 1759.

29. This is a native of Persia, it was cultivated in 1714, by the Dutchess of Beaufort; and flowers from july to september^q.

It should be placed immediately before *A. gigantea*, n. 6.

30. This is a native of Carolina and East Florida. It was introduced in 1774, by John Fothergill, M.D., and flowers from july to october^r.

31. Stems a foot high, round, somewhat rugged, little branched. Leaves very numerous, narrower at the base, sessile at a tubercle. Involucre many-leaved, with sharp leaflets. Pedicels or rays twenty to thirty, short, one-flowered. Calyx small, deeply five-parted, with sharp segments. Corolla white, segments ovate-acute, reflex: horns white, upright, surrounding the genitals; an upright club-shaped corpuscle occupies the centre of each. In the centre of these horns is lodged a case or sheath, one-leaved at the base, but divided into ten segments, alternately longer and flat, and shorter with a little membrane on the outside: at the summits of the shorter segments are five roots of anthers, brown, ovate, sharp at the base, whence hang two bowed filaments, thickening into a club. Germs two, close together at the bottom of the case, ending in subulate styles: stigma simple, five-cornered, whitish, crowning the case in which the roots of the stamens are planted.

The native country is unknown. It has been cultivated in the royal garden at Madrid since 1788, and flowers there from august to october, but has not perfected its fruit^s.

32. Stems upright, round, very smooth, a foot and a half high. Leaves quite entire, ending in a short petiole. There are commonly three umbels in the upper whorls, alternate between each pair of leaves: the common peduncle is shorter than the leaf: involucre many-leaved; leaflets short, lanceolate, curved back: rays or pedicels numerous, half an inch long. Calyx short, half five-cleft, with sharp segments. Corolla white, deeply five-parted; segments ovate-acuminate, reflex: in the centre of these is a very short pedicel supporting the genitals,

^a Gærtner. ^b Hort. kew. ^c Linneus. ^d Hort. kew.
^e Linneus. ^f Hort. kew. ^g Linneus. ^h Gmelin.
ⁱ Hort. kew. ^k Linneus. ^l Hort. kew.

^m Gronovius. ⁿ Dillenius. ^o Hort. kew. ^p Linn. suppl.
^q Hort. kew. ^r Ibid. ^s Cavanilles.

which are surrounded first by five horns, from which proceed as many horn-shaped converging corpuscles; secondly, by five prismatic pellicles, the acute angles of which project, and with which are placed alternately five little bags, scaly at the tip, and two-celled at the base. Roots of the stamens five, ovate, fixed to the angles of the stigma, from the base of which proceed threads, at first bowed, but afterwards pendulous; these gradually grow into a club, and at length are concealed in the cells of the little bags. Germs two, obovate, surmounted by conical styles, which end in a common, five-cornered, fungous stigma, at the sides of which are the five scales before mentioned. Follicles oblong, acuminate, ventricose, striated, two inches long; one of them usually abortive. Seeds numerous, ovate-compressed, reddish, crowned with a white down an inch in length. Native of Mexico. Cultivated in the royal garden at Madrid. It flowers at the same time with the foregoing, and ripens its fruit at the end of december and in january.

It seems to be different from *A. verticillata*, the leaves being near three inches long, and three lines broad, six together in a whorl; whereas in that they are setaceous, and only four together¹.

33. Stem herbaceous, twining, slender, rooting at bottom, very much branched at top. Leaves bearded at the base, opposite, petioled, small. Flowers dusky purple, very small, with five, ear-shaped nectaries, without horns. Follicles small, subulate, swelling on the outside, and flat on the inside. Seeds ovate, curved, downy.

Native of Cochinchina, in waste places, and on old walls².

34. This plant rises by very slender weakly stalks, and frequently spreads itself to the distance of some yards from the main root. It has very few leaves, but many flowers disposed in large umbellate groups. The whole plant is of a dark green colour, is very full of milk, and common in the larger inland woods of Jamaica³.

The proper place of this is between the fourth and fifth species.

PROPAGATION AND CULTURE.

In this numerous genus, only two species (16, 17.) are European; two or three are from South America; the rest are natives of North America, the East and West-Indies, or Africa. Such as are inhabitants of North America (7—10, 12, 13, 14, 22—24.) are, as well as the Europeans, hardy enough to bear the open air; and therefore are proper for large borders in pleasure grounds, and to mix with shrubs. The other species require the protection of the greenhouse or stove; and all of them are tall perennials, flowering from june to august or september, mostly dying down to the root in autumn. They should have little water, especially in winter; for as they abound with a milky juice, much wet will rot them. They may be propagated by seeds, where these can be obtained; or by cuttings; the hardy sorts may be increased by parting the roots.

1, 2, 3, 18—20, 25—27, 30, must have the shelter of a greenhouse in winter.

4, 5, 6, 11, 15, 28, 29, 31—34, will not live but in a stove.]

These must be raised from seeds sown in the spring on a hotbed: and being transplanted into pots filled with rich earth, must be plunged into the tan-bed in the stove.

After the second year, the plants of the eleventh sort grow naked, and do not produce so many flowers as before; so that it is much better to raise young plants to succeed the old ones, especially as they produce plenty of seeds in England.

All the Cape sorts (n. 1, 2, 3, &c.) may be propagated by seeds, sown in april, on a bed of light earth, in the open air; and when the plants are three or four inches high, they should be each planted in a small pot filled with light earth, and shaded until they have taken new root; then they may be

¹ Cavanilles,

² Loureiro,

³ Browne.

placed with other exotic plants in a sheltered situation until october, when they must be removed into the greenhouse, or dry stove. The chief care these will require is to shift them into larger pots as they advance in their growth; but the pots should not be too large, and in summer they may be placed abroad with other plants from the same country.

They may also be increased by cuttings, which, if planted in july or august in a shady border, will soon take root, and may then be taken up and planted in pots, and managed as the seedling plants.

The European and North American species, are generally propagated by parting the roots in autumn, when their stalks begin to decay. The 7th, 9th, 10th, 13th, 16th, and 17th, are hardy plants, and will thrive in any situation; but they love a dry soil. They may be transplanted any time before the roots shoot in the spring.

The roots of the 8th and 22d should be planted in a warm border, and in winter covered with old tan, to prevent the frost from penetrating the ground. When they are to be increased, it is better to part the roots in spring.

The 14th and 24th sorts are propagated by seeds.

They should be sown in pots, and plunged into a moderate hot-bed to bring up the plants, which should be inured to the open air so soon as the weather will permit; for if they are drawn up weak, they seldom recover it. When they are of a proper strength to remove, they should be shaken out of the pots, and planted in a warm border six inches asunder, being careful to shade them from the sun until they have taken fresh root. During the summer they must be kept clean from weeds, and when their stalks decay in autumn, some rotten tan should be laid over the ground to keep out the frost, but it should be removed in the spring before the plants put out new shoots; the following summer they will require no other care than before, and also the next winter they must be covered as in the former. The second spring the roots may be transplanted where they are to remain; the roots will then be strong enough to flower in summer, and will last several years, especially if they are covered with tan to keep out the frost, but they should not be afterward removed; for when the roots are large, they will not bear transplanting.

ASCYRUM, (α and $\sigma\kappa\iota\pi\omicron\varsigma$ or $\sigma\kappa\upsilon\pi\omicron\varsigma$, *asperatus*, not rough, a soft plant. *Ascyron* Diosc.)

Lin. gen. n. 903. Reich. 982. Schreb. 1225.

Gertn. 62. Juss. 254.

Hypericoides. Plum. 7.

Class. 18. 4. Polyadelphia Polyandria.

Nat. order of *Rotaceæ*. *Hyperica* Juss.

GENERIC CHARACTER.

CAL. Perianth four-leaved: the outer leaflets opposite, very minute, linear: the inner heart-shaped, large, flat, erect: all permanent.

COR. Petals four ovate: the outer opposite, very large; the inner less.

STAM. Filaments numerous, bristle-shaped, slightly united at the base in four parts. Anthers roundish.

PIST. Germ oblong. Style scarcely any. Stigma simple.

PER. Capsule oblong, acuminate, one-celled, two-valved, inclosed by the larger leaves of the calyx.

SEEDS numerous, small, roundish, fixed to the edge of the valves.

OBS. So many marks, differing from *Hypericum*, forbid their union, though their appearance be alike, and their affinity great.

ESSENTIAL CHARACTER.

Cal. four-leaved. Petals four. Filaments many, in four divisions.

SPECIES.

1. *Ascyrum Crux Andreæ*. Common *Ascyrum*, or *St. Andrew's Cross*.

Lin. spec. 1107. Reich. 3. 601. hort. cliff. 494.

Gron. virg. 113. Gertn. fruct. 1. 298.

Hypericoides ex terra mariana, floribus exiguis luteis. Pluk. mant. 104. Raii suppl. 496.

Leaves ovate, stem round, panicle dichotomous.

2. *Ascyrum Hypericoides*.
Lin. spec. 1108. *Reich.* 3. 601. *Brown. jam.* 309.
Swartz. obs. 294.
Hypericoides frutescens erecta, flore luteo. *Plum.*
gen. 51. *t.* 152. *f.* 1.
Hypericum pumilum sempervirens, &c. *Pluk.*
mant. 104. *Raii suppl.* 495.
Leaves oblong, branches ancipital.
3. *Ascyrum villosum*.
Lin. spec. 1108. *Reich.* 3. 601.
Hypericum virg. frutescens pilosissimum. *Pluk.*
alm. 189. *t.* 245. *f.* 6.
Leaves hirsute, stem stiff and straight.

DESCRIPTIONS, &c.

1. This is a low plant, the stalks seldom rising more than six inches high; they are slender, and divide into two towards the top. From between the divisions of the branches, loose panicles of yellow flowers are produced; being very small, they make little appearance. [The capsule is small, pointed to both ends, compressed like a lens, obscurely two-furrowed. Seeds about twenty, ovate-cylindric, marked with rows of hollow dots, blackish-brown*.

It is a native of North America. Mr. Miller cultivated it in 1759, having received it from Hugh Duke of Northumberland, who procured it from America. It flowers in July and August.

2. This is an elegant little shrub, seldom rising above three feet in height. It is very full of leaves and branches^b. The branches are dichotomous; the twigs compressed and ancipital. Leaves opposite, subsessile, lanceolate, obtuse, entire, very finely perforated, smooth; at their base are very small glands. Flowers terminating, peduncled, solitary, yellow. Two leaflets of the calyx are four times as big as the two others, and inclose them; they are heart-shaped, blunt and smooth. Corolla cruciform; petals the size of the larger leaves of the calyx, spreading. Filaments distinct, upright, surrounding the germ, the length of the petals. Germ oblong, sharp, compressed: styles two, very short: stigmas blunt. Capsule compressed, covered with the shrivelled calyx^c. Browne also observes, that the filaments do not seem to be joined at the bottom.

It is a native of South Carolina, Virginia, Maryland, and the cooler mountains of Jamaica. Mr. Miller cultivated it in 1579, and received the seeds from Carolina.]

3. This grows about three feet high. The flowers are produced at the ends of the stalks, and are of the same shape and colour with common St. John's-wort. It grows naturally in Virginia; and was cultivated also by Mr. Miller in 1759.

PROPAGATION AND CULTURE.

These are perennial plants; the stems decaying in the autumn. Having little beauty, they are seldom cultivated but in botanic gardens.

1. The first may be increased by laying down its branches; it loves a moist soil and shady situation.

2. The second sort rarely produces seeds in England, but it may be propagated by cuttings made of the young shoots in May, which, if planted in pots, and plunged into a very moderate hot-bed, will take root in five or six weeks, when they may be transplanted into a warm border, where they will endure the cold of our ordinary winters; but in severe frosts they are frequently destroyed, unless the roots are covered with tan to keep out the frost.

3. The third may be increased by parting the roots in autumn, when the stalks decay; planting them in a loamy soil: in some years this will produce seeds in England.

ASCYRUM. See *Hypericum*.

ASH, Common, Flowering, and Manna. See *Fraxinus*.

[— Mountain. See *Sorbus*.

— Poison. See *Rhus*.

ASH-WEED. See *Ægopodium*.

ASIGRUM. See *Hypericum*.

ASP, or Aspen-tree. See *Populus*.]

* Gartner.

b Browne.

c Swartz.

ASPALATHUS. [The name of a thorny shrub in Dioscorides, from α and $\sigma\pi\alpha\omega$, because the thorns were not easily drawn out of the wounds they made. Plato (in rep.) feigns tyrants to be tormented with thorns of Aspalathus in the infernal regions.]

Lin. gen. n. 860. *Reich.* 931. *Schreb.* 1168.

Gertn. t. 144. *Juss.* 353.

Achyronia. *Royen.*

Class. 17. 4. *Diadelphia Decandria.*

Nat. order of Papilionaceæ or Leguminosæ.

GENERIC CHARACTER.

CAL. Perianth one-leafed, five-cleft: divisions acuminate, equal, except that the upper is larger.

COR. papilionaceous: banner compressed, ascending, obovate, generally hirsute on the outside, obtuse with a point: wings lunulate, obtuse, spreading, shorter than the banner: keel bifid, conformable with the wings.

STAM. Filaments ten, united into a sheath gaping longitudinally at top, ascending. Anthers oblong.

PIST. Germ ovate. Style simple, ascending. Stigma sharp.

PER. Legume ovate, awnless.

SEEDS generally two, kidney-shaped.

Obs. This genus is singular in having several leaves from the same bud, in a shrubby plant.

ESSENTIAL CHARACTER.

Cal. five-cleft: the upper division largest. Legume ovate, awnless, with about two seeds.

SPECIES.

- [1. *Aspalathus spinosa.* Thorny *Aspalathus*.
Lin. spec. 1000. *Reich.* 3. 409. *Gertn. fruct.* 2. 304.
Genistella spinosa africana, laricis folio. *Breyn. cent. t.* 26. *Pluk. phyt. t.* 297. *f.* 6.
Leaves fascicled linear naked surrounding a gemmaceous spine.
2. *Aspalathus verrucosa.* Warted *Aspalathus*.
Lin. spec. 1001. *yst.* 646. *Reich.* 3. 409.
Leaves fascicled filiform, buds warted tomentose naked.
3. *Aspalathus capitata.* Headed *Aspalathus*.
Lin. spec. 1000. *yst.* 646. *Reich.* 3. 410. *amæn.* 6. *af.* 30. *Berg. cap.* 202. *Pluk. phyt.* 307. *f.* 6.
Seba mus. 1. t. 23. *f.* 6.
Leaves fascicled linear sharp, flowers beaded, bractes naked.
4. *Aspalathus glomerata.* Glomerate *Aspalathus*.
Lin. yst. 646. *suppl.* 321.
Leaves fascicled linear sharp villose bent inward, flowers beaded, divisions of the calyx ovate, corollas smooth.
5. *Aspalathus astroites.* Starry *Aspalathus*.
Lin. spec. 1000. *Reich.* 3. 410.
Genista astroites, &c. *Pluk. mant.* 88. *t.* 413. *f.* 3.
Raii dendr. 104. *Seba mus. 1. t.* 24. *f.* 6.
Leaves fascicled subulate mucronate smooth, stem villose, flowers scattered.]
6. *Aspalathus chenopoda.*
Lin. spec. 1000. *yst.* 646. *Reich.* 3. 410. *Berg. cap.* 200.
Genista africana lutea, &c. *Herm. afr.* 11.
Chamælarix. *Breyn. cent.* 23. *t.* 11. *Seba mus. 1. t.* 23. *f.* 4.
Leaves fascicled subulate mucronate rough with hairs, flowers beaded very hirsute.
- [7. *Aspalathus albens.* White *Aspalathus*.
Lin. yst. 646. *Reich.* 410. *mant.* 261.
Leaves fascicled subulate silky spreading at top, bunches of flowers scattered.
8. *Aspalathus thymifolia.* Thyme-leaved *Aspalathus*.
Lin. spec. 1000. *Reich.* 411.
Gen. minima æthiopica, &c. *Pluk. mant.* 88. *t.* 413. *f.* 1.
Leaves fascicled subulate unarmed smooth very short, flowers alternate.
9. *Aspalathus ericifolia.* Heath-leaved *Aspalathus*.
Lin. spec. 1000. *yst.* 646. *Reich.* 411. *Berg. cap.* 205.
Gen. æth. non spinosa, &c. *Pluk. mant.* 88. *t.* 413. *f.* 6.
Leaves fascicled linear unarmed hirsute, flowers alternate, calyxes linear.
10. *Aspalathus*

10. *Aspalathus nigra*. Black *Aspalathus*.
Lin. syst. 646. *Reich.* 411. *mant.* 262.
 Leaves fascicled linear rather obtuse, flowers headed-spiked pubescent.
11. *Aspalathus carnosifolia*. Fleishy *Aspalathus*.
Lin. syst. 646. *Reich.* 411. *mant.* 261. *Berg.* cap. 206.
 Leaves fascicled almost columnar obtuse, calyxes subpubescent sharp, corollas smooth.
12. *Aspalathus ciliaris*. Ciliate-leaved *Aspalathus*.
Lin. syst. 647. *Reich.* 3. 412. *mant.* 262.
 Leaves fascicled filiform scabrous, flowers terminal sessile, banners pubescent.
13. *Aspalathus genistoides*. Broom-like *Aspalathus*.
Lin. syst. 647. *Reich.* 3. 412. *mant.* 261.
 Leaves fascicled filiform polished, calyxes subracemed pendulous, they and the corollas smooth.
14. *Aspalathus hystrix*. Porcupine *Aspalathus*.
Lin. syst. 647. *suppl.* 322.
 Leaves fascicled filiform rigid spiny silky, flowers lateral sessile solitary, corollas villose.
15. *Aspalathus galioides*.
Lin. syst. 647. *Reich.* 3. 412. *mant.* 260. *Berg.* cap. 210.
 Leaves fascicled linear polished, peduncles two-flowered elongate leafy at the end.
16. *Aspalathus retroflexa*.
Lin. spec. 1001. *Reich.* 3. 413.
 Leaves fascicled subulate smooth very small, branches filiform very spreading, flowers solitary, terminal.
17. *Aspalathus uniflora*. One-flowered *Aspalathus*.
Lin. spec. 1001. *syst.* 647. *Reich.* 413.
Gen. æthiop. glabra, &c. *Pluk. mant.* 88. t. 414. f. 7.
 Leaves fascicled linear unarmed smooth, stipules sharp permanent, flowers solitary, divisions of the calyxes boat-shaped.
18. *Aspalathus araneosifolia*.
Lin. spec. 1001. *syst.* 647. *Reich.* 413. *Berg.* cap. 203.
Gen. æth. flore flavo, &c. *Pluk. mant.* 88. t. 414. f. 4. *Seba thes.* 1. p. 38. t. 23. f. 6.
 Leaves fascicled bristle-shaped unarmed hispid, flowers headed.
19. *Aspalathus asparagoides*.
Lin. syst. 647. *suppl.* 321.
 Leaves fascicled setaceous rather hairy, calyxes leaf-shaped the length of the corolla solitary.
20. *Aspalathus sericea*. Silky *Aspalathus*.
Lin. syst. 647. *suppl.* 321.
 Leaves fascicled lanceolate silky, peduncles terminal two-flowered, banner almost naked.
21. *Aspalathus canescens*. Hoary *Aspalathus*.
Lin. syst. 647. *Reich.* 414. *mant.* 262.
 Leaves fascicled subulate tomentose-silky, flowers lateral, banners pubescent.
22. *Aspalathus heterophylla*. Various-leaved *Aspalathus*.
Lin. syst. 647. *suppl.* 321.
 Leaves of the branches fascicled, of the branchlets ternate linear rough with hairs; spikes terminal, calyx and corollas villose.
23. *Aspalathus indica*. Small-flowered *Aspalathus*.
Lin. spec. 1001. *Reich.* 414.
Genista. Lin. fl. zeyl. n. 271.
Lotus tenuifolius maderaspatanus, &c. *Pluk. alm.* 225. t. 201. f. 2. good.
Dorycnium indicum, &c. *Raii suppl.* 471. 39.
Manelli. Rheed mal. 9. 69. t. 37.
 Leaves quinate sessile, peduncles one-flowered.
24. *Aspalathus cretica*. Evergreen *Aspalathus*.
Lin. spec. 1002. *Reich.* 415.
Gen. arborea cretica, fol. sempervirentibus. Zan. *hist.* 99. t. 39. *Raii hist.* 1728.
 Leaves trine wedge-shaped smooth, the lateral ones shorter, stipules obsolete, flowers headed.
25. *Aspalathus quinquefolia*. Five-leaved *Aspalathus*.
Lin. spec. 1002. *Reich.* 415. *amæn.* 6. *afr.* 31.
Cytisus. Pluk. alm. 128. t. 273. f. 4.
 Leaves in fives sessile, peduncles spiked.
26. *Aspalathus tridentata*. Three-toothed *Aspalathus*.
Lin. spec. 1002. *Reich.* 3. 415.

- Leaves trine lanceolate smooth, stipules three-toothed mucronate, flowers headed.
27. *Aspalathus pilosa*. Hairy *Aspalathus*.
Lin. syst. 648. *Reich.* 3. 415. *mant.* 263.
 Leaves tern linear villose, heads terminal very hairy, corollas pubescent.
28. *Aspalathus anthylloides*.
Lin. spec. 1002. *Reich.* 3. 415. *Berg. cap.* 211.
Anthyllis asphaltoides, &c. Amæn. 4. 326.
 Leaves trine lanceolate equal subpubescent, stipules none, heads terminal.
29. *Aspalathus laxata*. Loose-leaved *Aspalathus*.
Lin. syst. 648. *Reich.* 3. 416. *mant.* 263.
 Leaves tern linear villose, flowers in bunches of five, calyxes woolly, stems prostrate round.
30. *Aspalathus argentea*. Silvery *Aspalathus*.
Lin. spec. 1002. *syst.* 648. *Reich.* 3. 416.
A. sericea. Berg. cap. 212.
Cytisus afric. angustifolius, &c. Pluk. mant. 63.
 Leaves trine linear silky, stipules simple mucronate, flowers scattered tomentose.
31. *Aspalathus callosa*. Callous *Aspalathus*.
Lin. spec. 1002. *syst.* 648. *Reich.* 3. 416. *Berg.* cap. 209.
Cytisus trifolius, &c. Pluk. mant. 63. t. 345. f. 4.
 Leaves trine subulate equal, stipules roundish callous, flowers spiked smooth.
32. *Aspalathus orientalis*. Levant *Aspalathus*.
Lin. syst. 648. *Reich.* 3. 417. *mant.* 263.
Cyt. orient. fl. amplis glomeratis. Tournes.
 Leaves ternate lanceolate pubescent, flowers in bunches of five, calyxes pubescent, stems erect angular.
33. *Aspalathus mucronata*.
Lin. syst. 648. *suppl.* 320.
 Leaves tern polished, branches acuminate, flowers in racemes.
34. *Aspalathus pinnata*. Pinnate-leaved *Aspalathus*.
Lin. spec. 1003. *Reich.* 3. 417. *amæn. acad.* 6. *afr.* 32.
 Leaves pinnate-quinque-obcordate, peduncles headed.
35. *Aspalathus pedunculata*. Small-leaved *Aspalathus*.
L'Herit. fert. angl. t. 26. *Ait. hort. kew.* 3. 16.
 Leaves fascicled subulate smooth, peduncles filiform twice the length of the leaf.
36. *Aspalathus candicans*. Fair *Aspalathus*.
Ait. hort. kew. 3. 17.
 Leaves trine and fascicled filiform silky, flowers sub-lateral, banners naked.
37. *Aspalathus arborea*. Tree *Aspalathus*.
Lour. cochinch. 431.
 Leaves pinnate-quinque, racemes terminating.

DESCRIPTIONS, &c.

The plants of this genus, with very few exceptions, are natives of the Cape of Good Hope. They are shrubby, or at least under-shrubs. The leaves are simple, fascicled or in bundles, commonly linear. The flowers are mostly yellow, sessile, lateral, or terminating, in round heads, or spikes. *A. Ebenus* does not belong to this genus; and it may be doubted whether the species with ternate and quinate leaves should be ranged under it^a.

1. Flowers lateral, scarcely longer than the leaves^b. Legume small, the base ovate, triangular upwards, drawn to a point, compressed like a lens; it contains one or two whitish seeds, one kidney-shaped, compressed a little, the other subglobular, flattish or angular on the side where they touch^c.

2. This is a woody shrub, two feet high, with large buds or warts. Leaves fleshy, smooth, sharpish, an inch long. Flowers lateral, shorter than the leaves, subsessile. Calyx pubescent. Banner villose^d.

3. Leaves pubescent. Flowers covered with a ferruginous down. The segments of the calyx awl-shaped^e. It differs from the sixth, in having the leaves more curved inwards, sharp but not prickly; the heads naked, not hirsute; the keel of the flower arched and the length of the banner^f.

4. This differs from the last, which it resembles very much, in having the leaves bent inwards, the calyxes ovate, the corollas smooth^g.

^a Jussieu. ^b Plukenet. ^c Gartner. ^d Linneus. ^e Ibid. ^f Linn. amæn. ^g Linneus.

5. This has the appearance of Juniper^b. It branches very much; and the twigs are covered with a hoary down, and are loaded with such an abundance of flowers, that the whole plant seems almost covered with them¹.]

6. This is a low shrub, growing about three feet high, with slender branches, at the ends of which the flowers come out; they are yellow, collected in woolly heads, and are rarely succeeded by pods in England. [The leaves are sharp and prickly at the end, resembling those of Juniper^k. Cultivated by Mr. Miller, in 1759.

7. Stem shrubby, upright, with a brown bark full of chinks; the extreme twigs somewhat tomentose. Leaves five together, sharp and spreading a little at the tip, of a silky whiteness. Bunches of flowers terminating, silky-white, small, several, glomerate, peduncled. Calyx pubescent. No bracte under the calyx, but one under the pedicel. Corolla tomentose, white¹. Introduced in 1774, by Mr. Fr. Masson. It flowers here in July^m.

8. This is a very small shrub. The leaves are crowded together and shining; they resemble those of thymeⁿ.

9. This is a small shrub pubescent or extremely hirsute, very much branched. Leaves minute. Flowers lateral, scarcely longer than the leaves; banner villose^o.

10. This is a very branching little shrub, three feet high; the twigs are sometimes pubescent; buds crowded, pubescent. Leaves minute, smooth or pubescent, becoming black in drying. Flowers terminating, at first in heads, then in spikes, sessile. Calyx pubescent. Bractes in pairs, narrow. Corolla wholly pubescent, yellow^p.

11. Stem shrubby, very branching, three feet high, naked, the branches determinate. Leaves from four to seven together, subcylindric, fleshy, bent in, smooth. Flowers terminating, umbelled, four or six: peduncles very short, pubescent. Calyx bell-shaped, scarce apparently pubescent, acute. Bractes three ovate-lanceolate. Corolla yellow^q.

12. Stem shrubby, two feet high, branching determinately, with naked warts, the branches somewhat hairy. Leaves roundish, sharpish, erect, above flat and smooth, beneath rough, when tender ciliate and having a few scattered hairs on the outside. Flowers three or five. Calyx hairy, with awl-shaped, spiny teeth, nearly the length of the corolla, which is yellow with an ash-coloured banner^r.

13. Stems shrubby, nine feet high, upright, simply branching, with a netted bark, and white-villose buds. Leaves roundish, half an inch long. Flowers terminating, three or four, pendulous. Calyx smooth, with short teeth. Bractes two, minute. Corollas yellow. Style protruded^s.

14. This is a shrub very distinct from the others, by its leaves resembling silky white spines^t.

15. Stem two feet high, decumbent, branching, smooth. Warts of the buds remote, small, tomentose. Leaves resembling those of Asparagus, acute. Peduncles much longer than the leaves, smooth, with a bunch of leaves at the top, among which are two sessile flowers. Calyx one-leaved, smooth, with teeth the length of the corolla, which is smooth and yellow. Legume ovate-lanceolate, smoothish^u.

17. This is a shrub with alternate branches, crowded and tomentose. Flowers terminating, one or two, pubescent: divisions of the calyx ovate, concave, the length of the calyx. Keel of the corolla tomentose^x.

18. The leaves, when the long reddish scattered hairs are taken off, are rough on all sides with tubercles. Banner hairy on the outside^y.

19. This is a very branching shrub, subpubescent, with small pubescent warts from the falling of the leaves. Leaves sharp but not stiff, having thinly scattered hairs on them. Flowers solitary, sessile;

teeth of the calyx almost the length of the corolla, and hairy as that is: banner scarcely pubescent^z.

20. This is very like the foregoing, but the leaves are flat, and none of them in heads. Flowers large, smooth; banner not villose except a little on the keel that runs along the back^a.

21. Stem shrubby, erect, stiff, a little hoary, with alternate branches. Leaves sharpish. Flowers sessile, from the sides of the branches towards the end. Calyx bell-shaped, pubescent, with teeth awl-shaped, remote, shorter than the body of it. Bractes two, setaceous, short. Corolla yellow, with a hoary, pubescent banner. This species is nearly allied to the eighteenth, in which the divisions of the calyx are four times the length of the body^b.

22. This is singular in having the lower leaves in bunches, the upper ternate. Spikes very long; flowers yellow. The rudiments of the twigs make bunches of leaves on the branches themselves^c.

This, and all the foregoing species, are natives of the Cape of Good Hope.

23. This is a shrub with slender hard round twigs; branches alternate short. Leaves alternate, leaflets oblong obtuse sessile broader towards the end, bluntish smooth, the side ones a little shorter. Peduncles from each of the axils, longer than the leaf. Legumes half as long again as the peduncles^d.] It grows about five feet high. The flowers are of a pale red colour; they appear in August, but are seldom succeeded by pods here. [It is a native of the East-Indies; and was cultivated by Mr. Miller, in 1759^e.

24. Height four feet and an half. Trunk three or four inches thick, branching from top to bottom: branches very flexible, divided and subdivided. Leaves very many, small, narrow, oblong, thick, fleshy, evergreen, they are reflex at the edge, and in a point which is hard but not prickly, and have sometimes two ears at the base. Peduncles axillary on the uppermost twigs, with flowers in two rows, two, three, or four together, yellow, very small, with a pleasant smell. Legume very small and short, rufous yellow, sharp at the end, containing a single, round, flat, shining seed^f.

25. Leaflets lanceolate, petioled, a little hairy, mucronate, the side ones a little shorter. Peduncles many times longer than the leaves, raceme-spiked; the corollas tomentose above^g.

26. This, the two species immediately foregoing, and those which follow, except the thirty-second, are natives of the Cape of Good Hope.

27. Stems suffruticose, simple and a little hairy. Leaves sessile acute spreading subpubescent. Head of flowers protected by bractes and calyxes with white hairs. Calyx five-parted, extremely hairy, with lanceolate-linear divisions. Bractes three linear hairy sharp. All the petals pubescent on the outside^h.

28. It is a shrub with a hirsute stem. Leaves sessile, rather fleshy, the lower ones smooth, those nearest the flowers somewhat hairy. Heads solitary sessile oblong. Three bractes under each calyx, linear, soft, hirsute. Calyxes hirsute. Legumes short, hirsute. It has the appearance of a Lotus, but the stamens are unitedⁱ.

29. Stem subherbaceous decumbent round flexile pubescent: branches alternate. Leaves loose, on very short petioles. Flowers terminating, sessile, five in a head. Calyx less by half than the corolla, with awl-shaped teeth. Corolla smooth, yellow. There is no proper bracte^k.]

30. This rises about four feet high, with a shrubby stalk dividing into slender branches. The flowers are purple, downy, and grow thinly on the branches; they come out late in the summer.

[The leaves are in threes or in bunches, lanceolate, silky, as is the whole plant. Flowers in spikes, or else scattered, lateral, villose. It has the figure of

^a Linn. ^b Ray. ^c Linn. ^d Linn. mant. ^e Hort. kew. ^f Plukenet. ^g Linn. ^h Linn. mant. ⁱ Ibid. ^j Ibid. ^k Ibid. ^l Linn. suppl. ^m Linn. mant. ⁿ Linn. mant. ^o Linn. mant. ^p Linn. spec. & syst. ^q Linn. syst.

^z Linn. suppl. ^a Ibid. ^b Linn. mant. ^c Linn. suppl. ^d Lin. zeyl. ^e Hort. kew. ^f Zanol. ^g Linn. amæn. ^h Linn. mant. ⁱ Linn. amæn. ^k Linn. mant.

Cytifus¹. Mr. Miller cultivated it in 1759. It flowers in July and August^m.

31. This is an undershrub, having the branches covered with round calluses occasioned by the falling of the leaves; which are sessile with a callous base, like those of Juniper, sharp smooth flat, but convex beneath. Spikes loose terminating. Bractes one-leaved, awl-shaped, the length of the calyx, one on each side the base of the calyx, which is smooth, with awl-shaped teeth. Corollas yellow, smoothⁿ.

32. Stem shrubby, erect; the small branches angular, pubescent, a foot long. Leaves sessile, resembling those of Flax, pointed, longer than the internodes. Flowers terminating, sessile, erect. Calyx with awl-shaped teeth. Corolla yellow, blunt, the size of Laburnum. Stamens connate. Found by Tournefort in the Levant^o.

33. Stem smooth, with remote branches not warted: they draw gradually to a point, and are, as it were, spiny. Leaves lanceolate, nearly equal, on very short petioles. Racemes terminating, erect, with very short pedicels. Teeth of the calyx minute. Corollas smooth^p.

34. This is allied to *A. quinquefolia* (n. 25.) Petioles very short; leaflets five, close, a little hairy, tomentose underneath. Peduncle longer than the leaves. Corollas rather tomentose on the outside¹.

35. This was found at the Cape by Masson, and was introduced into the royal garden at Kew in 1775. It flowers in August¹.

26. This also was found at the Cape by Masson, was introduced in 1774, and flowers in June and July¹.

37. This is a middle-sized tree, with a straight trunk, but weak reclining branches. Leaflets ovate, quite entire, smooth, sessile, the lower ones smaller. Flower white, small; calyx five-cleft, spreading, the upper segment largest: banner obcordate, broadish, ascending; wings oblong, equal to the banner; stamens all connate, shorter than the corolla; stigma blunt, sessile. Legume oblong-ovate, compressed, awnless, with one or two seeds. It differs from *A. indica*; for that has one-flowered axillary peduncles, and never rises to a tree¹.

PROPAGATION AND CULTURE.

Few of these shrubs have hitherto been cultivated in Europe.] They are to be propagated by seeds, which must be obtained from the country where they grow naturally, and should be sown in pots filled with light earth, as soon as they arrive: if this happens in the autumn, the pots should be plunged into an old tan-bed whose heat is spent, where they may remain till spring, when they should be removed into a moderate hot-bed, which will bring up the plants. But when the seeds arrive in the spring, the pots in which the seeds are sown should be then plunged into a moderate hot-bed; and in warm weather the glasses must be shaded in the middle of the day, and the pots frequently refreshed with water. Those seeds which are sown in the spring, seldom grow the same year, therefore in the autumn the pots should be put into an old tan-bed, as was directed for those sown in autumn, and afterward put in a hot-bed the following spring. When the plants come up, and are strong enough to remove, they should be each planted into a separate small pot filled with light earth, and plunged into a moderate hot-bed, to encourage their rooting again; and so soon as they are established in the pots, they should by degrees be inured to the open air, into which they should be removed in summer, placing them in a sheltered situation, where they may remain till autumn, when they must be carried into the green-house, and in winter should have but little water.

ASPALATHUS. See *Robinia* and *Spartium*.

Ebenus. See *Amerinum*.

¹ Linn. syst. ^m Hort. kew. ⁿ Linn. syst. ^o Linn. mant.
^p Linn. suppl. ^q Linn. amæn. ^r Hort. kew. ^s Ibid.
^t Loureiro.

ASPARAGUS (*Ἀσπάραγος*, a young shoot, before it unfolds into leaves.)

Lin. gen. n. 424. Reich. 457. Schreb. 573.

Tournef. 154. Gært. 16. Juss. 41.

Class. 6. 1. Hexandria Monogynia.

Nat. order of Sarmientaceæ. *Asparagi* Juss.

GENERIC CHARACTER.

CAL. none.

COR. Petals six, cohering by the claws, oblong, erected into a tube; three alternately interior, reflex at the end, permanent.

STAM. Filaments six filiform, inserted into the petals, erect, shorter than the corolla. Anthers roundish.

PIST. Germ turbinate, three-cornered. Style very short. Stigma a prominent point.

PER. Berry globular, umbilicated with a point, three-celled.

SEEDS two, round, angular on the inside, smooth.

OBS. The flower may be called monopetalous. The corolla is in some species erect, in others flat, in others revolute. The flower hangs down though the pistil be very short.

ESSENTIAL CHARACTER.

Cor. six-parted, erect; the three inner petals reflected at the end. Berry three-celled, two-seeded.

SPECIES:

1. *Asparagus officinalis*. Common *Asparagus* or *Sperage*.

Lin. spec. 448. Reich. 2. 68. Juss. 291. hort. cliff. 121. mat. med. 94. Gært. fruct. 1. 58. Hudf. angl. 145. With. 352. Hall. herb. n. 1239. Scop. carn. n. 416. Pollich pal. n. 336. Leers herb. n. 257. Oeder dan. t. 805. Plenck, ic. t. 272. Krock. silf. n. 531. Villars dauph. 2. 273.

α. *Asp. maritimus*, crassifolius. Baub. pin. 490. Gmel. sib. 1. 38. Mill. dict. n. 2.

β. *A. sylvestris*, tenuissimus folio. Baub. pin. 490.

γ. *A. altilis*. Lin. spec.—sativa. Baub. pin. 489. Mill. dict. n. 1. fig. t. 55. f. 1. Blackw. t. 332. Camer. epit. 259. Ger. 953. 1. emac. 1110. 1. Park. parad. 501. 6. theat. 454. 2, 3. Raii hist. 683.

Stem herbaceous round erect, leaves setaceous, stipules alike.

[2. *Asparagus declinatus*. Long-leaved *Asparagus*.

Lin. spec. 449. syst. 332. Reich. 2. 68.

Stem unarmed round, branches declined, leaves setaceous.

3. *Asparagus falcatus*. Sickle-leaved *Asparagus*.

Lin. spec. 449. Reich. 2. 69. fl. zeyl. 123. Burm. zeyl. 36. t. 13. f. 2. Raii suppl. 359. 6.

Prickles solitary reversed, branches round, leaves ensiform falcated.]

4. *Asparagus retrofractus*. Larch-leaved *Asparagus*.

Lin. spec. 449. syst. 332. Reich. 2. 69. hort. cliff. 121. Pluk. amalb. 40. t. 375. f. 3.

Prickles solitary, branches round reflected and retrofracted, leaves setaceous fascicled.

[5. *Asparagus æthiopicus*.

Lin. syst. 332. Reich. 2. 69. mant. 63. Raii suppl. 359. n. 5 & 2.

Prickles solitary reversed, branches angular, leaves lanceolate-linear.]

6. *Asparagus asiaticus*. Slender-stalked *Asparagus*.

Lin. spec. 449. Reich. 2. 69. hort. cliff. 122. Pluk. alm. 54. t. 14. f. 4.

Prickles solitary, stem erect, branches filiform, leaves fascicled setaceous.

7. *Asparagus albus*. White *Asparagus*.

Lin. spec. 449. syst. 333. Reich. 2. 70. Park. theat. 455. f. 5. Raii hist. 684. 5. Ger. 954. 5. emac. 1111. 5.

Corduba 3. Clus. hist. 2. 178.

Prickles solitary, branches angular, flexuose, leaves fascicled triquetrous awnless deciduous.

8. *Asparagus acutifolius*. Acute-leaved *Asparagus*.

Lin. spec. 449. syst. 333. Reich. 2. 70.

A. Corrua. Scop. carn. n. 417. Villars dauph. 2. 273.

A. fol. acutis. Baub. pin. 490.

- A. sylvestris.* Camer. epit. 260. Matth. 349.
A. petraeus. Ger. 953. 3. emac. 1110. 2. Raii hist. 683.
Corruda 1. Clus. hist. 2. 177. Baub. hist. 3. 726.
 Stem unarmed angular shrubby, leaves needle-shaped rather rigid perennial mucronate equal.
- [9. *Asparagus horridus.* Thorny *Asparagus.*
 Lin. syst. 333. Reich. 2. 70. suppl. 203.
A. hispanicus, &c. Tourn. inst. 300.
 Leaflets shrubby, five-cornered, prickles four-cornered compressed striated.]
10. *Asparagus aphyllus.* Prickly *Asparagus.*
 Lin. spec. 450. Reich. 2. 70. hort. cliff. 122.
 Park. theat. 454. f. 4. Ger. 953. 4. emac. 1111. 4. Raii hist. 684. 4.
Corruda 2. Clus. hist. 2. 178.
 β. *A. creticus fruticosus,* &c. Tourn. itin. 1. 273. fig.
 Stem unarmed angular shrubby, leaves subulate striated unequal diverging.
- [11. *Asparagus capensis.* Cape *Asparagus.*
 Lin. spec. 450. syst. 333. Reich. 2. 71. hort. cliff. 121. Berg. cap. 58. Pluk. phyt. t. 78. f. 3. Raii suppl. 359. n. 7.
 Spines in fours, branches aggregate round, leaves setaceous.]
12. *Asparagus farmentofus.* Linear-leaved *Asparagus.*
 Lin. spec. 450. Reich. 2. 71. fl. zeyl. n. 124.
 Herm. lugdb. 62. Raii hist. 1877. Rheed. mal. 10. 19.
 Leaves solitary linear-lanceolate, stem flexuose, prickles recurved.
- [13. *Asparagus verticillaris.* Whorl-leaved *Asparagus.*
 Lin. spec. 450. n. 11. Reich. 2. 71. Tourn. cor. 21. Buxb. cent. 5. app. 47. t. 37.
 Leaves verticillate.

DESCRIPTIONS, &c.

The genus of *Asparagus* is allied to *Convallaria*, as may easily be seen, if we have recourse to those species which have lanceolate leaves, for these approach very near to *Convallaria racemosa*. It may however readily be distinguished by the general appearance of the species^a. The stem is commonly branched, in some herbaceous, in others shrubby. The leaves in general are linear or bristle-shaped, and produced in bundles. The flowers usually solitary and axillary. There is a two-valved spathe, and sometimes a spine, under each twig and bundle of leaves^b. The corolla is hexapetalous, but closed in form of a companulate flower, as if it were monopetalous. Some of the species are prickly, and others not^c. Some also are dioecous, or have male and female flowers on distinct individuals.

1. Root perennial, large, composed of many succulent round bulbs forming a kind of transverse tuber, whence spring numerous stems, which are round, smooth, green, stiff, branched, in the wild plant a foot and half high or more, but in the garden plant much higher; branches alternate, thinly subdivided into alternate twigs with a few leaves between them: at their base is a single stipule, which is membranaceous, brownish, triangular-ovate, tapering to a point, the base also running down into a pointed prominence: there is also a stipule at the base of each bundle of leaves, which is cordate-ovate, pointed, ragged at the edge, and often cracking at the sides, its base inclosing the whole bundle. Linneus mentions two smaller stipules within this. Leaves, three, four, or five in a bundle, (sometimes from ten to thirteen, according to some); of different sizes, linear or bristle-shaped, green with a white point, smooth, four or five lines in length. Peduncles axillary, pendulous, solitary or two together, one-flowered sometimes two-flowered; they have a tubercle or joint above the middle, and are protected at the base by the stipule of the twigs. Corolla yellowish green. Berries red, with the remains of the corolla at the base^d.

Authors differ much respecting the sex of the flowers in this species. Pollich affirms, that the flowers are always hermaphrodite, as far as he has

observed; Leers on the contrary always remarked male and female flowers on separate plants, both in the wild and garden sort. Hudson observed male, female, and hermaphrodite flowers: Gerard, in his *Flora Gallo-Provincialis* says that it is dioecous; and Gouan, that it is so at least in the wild varieties. According to Linneus the garden *Asparagus* is certainly not so. With us however there are barren and fertile plants. Dr. Stokes, who examined the fructification in cultivated plants, thus describes it. Pollen and seed produced on different plants. Flowers of the plants producing pollen nearly as large again: stamens nearly as long as the petals; filaments adhering to the petals for half their length; anthers oblong, upright, orange; pollen orange; germ half as long as the filaments, and as large as the other at the same stage of growth; style none. Flowers of the plants producing seeds not so conspicuous, of a greener and browner hue: stamens not half so long as the petals, with whitish, membranaceous, barren anthers; and no pollen. Seeds generally two, but sometimes three; and, according to Mr. Hudson, one, in each cell.]

α. The second sort of Miller is mentioned to grow naturally in Wales, and also near Bristol: I have received seeds from the island of Portland, which have succeeded in the Chelsea garden, by which I am convinced it is a different species from the Garden *Asparagus*; and also from the wild sort which grows naturally at Gibraltar, and also near Montpellier, and is different from both; Mr. Magnol, of Montpellier, was also of opinion that it is a different species, for he says, the common wild *Asparagus* and this grew near each other in the neighbourhood of Montpellier, and the young shoots of the former were sweet, whereas those of the latter were bitter. The same has been confirmed to me by several gentlemen, who have resided many years at Gibraltar and Minorca, where this grows naturally in plenty.

β. [The stipules of this variety have a recumbent soft spine at the base, as in *A. declinatus*, whence there is an affinity between them; only in this the spine is rather more stiff. The leaves are bristle-shaped at top. The branches are angular and streaked, whereas in the Garden *Asparagus* they are round and smooth^e.

According to Mons. Villars, the wild differs from the cultivated *Asparagus*, in having the leaves much finer, and standing out wide from the twig; in being shorter, straighter, and of a higher green. Situation may very well produce these differences; α being found wild on the sea coast, and β in inland countries, frequently on mountains, and among bushes on rocks.]

Mr. Miller is of opinion that the common *Asparagus*, which is cultivated for the use of the table, may have probably been brought by culture to the perfection it now is, from the wild sort, which grows naturally in the fens of Lincolnshire, where the shoots are no larger than straws; but if so, it must have been from very long culture and good management; for a friend of mine, says he, procured some seeds of the wild sort, which he cultivated with great care, in very rich ground, yet could not bring the roots to produce shoots more than half the size of the garden kind, which grew on the same ground; but he always found the wild sort came up a week or ten days earlier in the spring, and the shoots were exceeding sweet.

I have lately had some doubt, adds Mr. Miller, whether the sort of *Asparagus* which grows naturally in England, was the same with that mentioned by Caspar Bauhin^f, because Tournefort and Vaillant both assert that they had cultivated that wild sort in the royal garden at Paris several years, and it had never altered, therefore I procured specimens of that, which I find to be extremely different from the English sort. The leaves are much finer and shorter, and are produced in much larger clusters; the branches grow much closer together, and the foot-

^a Linn. prælect. ^b Jussieu. ^c Linn. prælect.
^d Stokes in With. Lian. Pollich, Krock.

^e Linn. mant.

^f *A. sylvestris tenuissimo folio.*

stalks of the flowers are longer ; therefore I believe it to be a distinct species from our wild sort, which appears to me undoubtedly the same as the Garden Asparagus.

[It is a native of most parts of Europe, and also of Japan. With us it occurs on many parts of the coast, as at the Lizard point, Harwich, below Bristol, in the isle of Portland, &c. flowering in July.

The young shoots are generally esteemed in the spring, and are cultivated for the table, especially near London, in great abundance. According to Dr. Withering they are nutritious ; but Lewis on the contrary says, they are supposed to promote appetite, but afford little nourishment. What is more certain is that they impart a very strong smell to the urine, in a very little time after being eaten, and for this reason they are accounted by some an useful diuretic ; by others however they are supposed to be injurious to the kidneys. It does not appear from common experience that they possess either of these qualities in any considerable degree. Many have an opinion of them for removing obstructions, in dropical and calculous cases ; but their qualities appear to be too mild to expect much from them as a medicine : others regard them as bad in gouty habits. The roots are supposed to be more aperient and diuretic than the young shoots ; but neither the roots, nor the stalks when grown up so as to part into branches, give any ill smell to the urine^g.

The largeness and tenderness of the shoots are probably the circumstances that have brought them into general use for the table. Pliny^h mentions, that about Ravenna some of them were so large, that three weighed a pound. I do not recollect to have heard of any with us, which were more than half that weight.

Our old English writers call it *Asparagus* and *Sperage* ; when these names were vilely corrupted into *Sparrowgrass*, and thence frittered down into *Grass*, I am unable to say. In German it is called *Spargel* ; in Dutch *Aspergie* ; in Danish *Aspargis* or *Asparris* ; in Swedish *Sparis* or *Spargel* ; in French *Asperge commune* ; in Italian *Sparagio* ; in Spanish *Asparrago* ; in Portuguese *Espargo* ; in Russian *Sparsa* or *Sparsch* : all evidently from the same origin.

2. This resembles the common sort, but is higher ; it has more leaves, and they are twice as long. The stem is annual. The stipules are solitary, lanceolate-subulate, with a membranaceous point at the base downwards. Leaves seven or ten in a bunch, filiform, spreadingⁱ. Native of the Cape of Good Hope. Introduced in 1787, by Mr. Francis Masson^k.

3. Stem round branching. Leaves linear or sword-shaped, sharp, narrow at the base, smooth. At the base of the leaves is a small recurved prickle. Racemes axillary short simple. Native of Ceylon^l.

4. Branches round, dichotomous, warted at the divisions, with a minute nodding prickle^m.]

It has very crooked irregular stalks, shrubby, and rising eight or ten feet high, putting out several weak side branches, having long narrow leaves on them, coming out in clusters like those of the Larch-tree ; under each of these clusters is placed a single sharp thorn. The stalks continue several years, and the leaves keep green all the winter. It is a native of the Cape of Good Hope. [Cultivated in 1759, by Mr. Miller. It flowers in August and Septemberⁿ.

5. This resembles *A. falcatus*, but the leaves are smaller, and about seven in a bunch, not three as in that. The stipules put forth a reversed spine. Branches flexuose, angular, in a manner shrubby, green. Native of the Cape^o.]

6. This sends up many weak shoots growing in clusters, and armed with sharp spines, both on the sides and at the ends of the shoots ; the leaves come out in small clusters and continue green all the

year. [It is a native of Asia, and was cultivated in 1768, by Mr. Miller^p.]

7. Stems shrubby, three or four feet high, with very white bark, and armed with thorns which are single, coming out just below each tuft of leaves. The stems continue several years, and put out many branches, with short narrow leaves. These continue green all the winter, if the plants are screened from severe frost. [The spines are straight, spreading, or reflex^q. It was cultivated in 1640 ; and is a native of Spain and Portugal^r.]

8. This has white, crooked, shrubby stalks, which rise four or five feet high, but have no spines on them ; the leaves come out in clusters like those of the Larch-tree ; they are very short, and end in sharp prickles, so that they are troublesome to handle. [It resembles *A. apyllus*, but the leaves are generally seven, scarcely thicker than a thread ; whereas that has usually three together, of thrice the thickness, and very much awl-shaped^s. Scopoli remarks, that if the leaves are to be called spines, then this is the *A. apyllus* of Linneus : but if they are to be called leaves, then it is the *acutifolius*. The specimens which were sent him of *A. apyllus* had all the marks of *acutifolius*.—It is a native of Spain, Portugal, and the Levant : and was cultivated in 1739, by Mr. Miller^t.

9. The spines of this are a finger's length. It is a native of Spain^u.]

10. This sends up many weak irregular shoots, which have no leaves, but instead thereof they are armed with short stiff thorns, coming out four or five together, and spreading from each other every way. The flowers are small, and of an herbaceous colour ; the berries are larger than those of the common sort, and are black when ripe.

[Native of the south of Europe ; and cultivated in 1640^x.

11. Root tuberous. Stems shrubby, filiform, flexuose. Spines spreading, a little recurved, very acute. Branchlets from the axils of the spines, filiform, loose, unarmed, deciduous. Leaflets acute, unarmed, short. Branches among the branchlets or twigs, solitary, stiff^y. Native of the Cape of Good Hope. Cultivated 1691, in the royal garden at Hampton-court^z.]

12. This sends out from the root many weak climbing branches, which rise five or six feet high ; the shoots are armed with short crooked spines, which are so closely set on, that it is difficult to touch the branches.

[Roots long, fusiform, many, whitish, fleshy, of a sweetish pleasant flavour. Hence arise very long twigs, divided into many axils, with short sharp prickles, either upwards or downwards, climbing up the neighbouring trees. Leaves broader, longer, and stouter than in the rest of this genus : from which come out small pale flowers, on slender peduncles ; these are succeeded by red berries, in which are generally three angular seeds. The roots are eaten in Ceylon, where it grows naturally, with broth or milk ; and the inhabitants are very fond of them^a. Linneus remarks, that it is very nearly allied to *Medeola asparagoides*. Cultivated in 1714, by the Dutchess of Beaufort^b.

13. Found by Tournefort in the Levant, about Derbent and elsewhere.]

PROPAGATION AND CULTURE.

The Garden Asparagus is propagated by seeds, in the procuring of which, there should be particular care to get it from a person of skill, who may be depended upon for his choice of the shoots, and integrity in supplying with his best seeds. But where a person is in possession of some good beds of Asparagus, it is much the best way to save it himself ; in order to which, a sufficient number of the fairest buds should be marked early in the spring, and permitted to run up for seeds ; because those which run up after the season for cutting the Asparagus is over,

^g Lewis mat. med.

^h Hist. nat. l. 19. c. 4.

ⁱ Linn. syst.

^p Hort. kew.

^q Linn.

^r Hort. kew.

^s Linn.

^k Hort. kew.

^l Linn.

^m Linn. syst.

ⁿ Hort. kew.

^t Hort. kew.

^u Linn.

^x Hort. kew.

^y Linn.

^o Linn. mant.

^z Hort. kew.

^a Herman & Ray. hist.

^b Hort. kew.

are

are generally so backward, as not to ripen the seeds unless the summer is warm, and the autumn very favourable. In the choice of the buds to be left for seeds, there must be great regard had to their size and roundness, never leaving any that are inclinable to be flat, or that soon grow open headed, always choosing the roundest, and such as have the closest tops. But as several of these produce only male flowers, a greater number of buds should be left, than might be necessary, if there could be a certainty of their being all fruitful. When the buds are left, it will be proper to thrust a stick down by each, but there must be care had in doing this, not to injure the crown of the root. These sticks will serve as marks to distinguish them from the others when they are all run up. Toward the end of september the berries will be fully ripe, when the stalks should be cut off, and the berries stripped into a tub, in which they may remain three weeks or a month to sweat, by which means the outer husks will be rotten; then fill the tub with water, and break all the husks by squeezing them between your hands. These husks will all swim upon the water, but the seeds will sink to the bottom; so that by pouring off the water gently, the husks will be carried along with it, and by putting fresh water two or three times, and stirring your seed about, you will make it entirely clean: then spread the seed upon a mat or cloth, and expose it to the sun and air in dry weather, until it is perfectly dry, when it may be put into a bag, and hanged up in a dry place till february, or the beginning of march, which is the proper season for sowing it; at that time you must prepare a bed of good rich earth made very level, whereon you must sow your seeds broadcast, but not too thick, which will cause the plants to be small; then tread the bed all over to bury the seed in the ground, and rake it over smooth.

The following summer keep the ground diligently cleared from weeds, which will greatly add to the strength of the plants; and toward the latter end of october, when the haulm is quite withered, you may spread a little rotten dung over the surface of the ground, about two inches thick, which will preserve the young buds from being hurt with the frosts, &c.

Planting.

The spring following the plants will be fit to plant out for good, for plants of more than one year's growth are unfit to remove, as I have often experienced; and young plants will produce finer roots: you must therefore prepare your ground by trenching it well, burying therein a good quantity of rotten dung at the bottom of each trench, that it may lie at least six inches below the surface of the ground; then level the whole plot very exactly, taking out all large stones: but this should not be done long before you intend to plant your Asparagus, in which you must be governed according to the nature of your soil or the season; for if your soil be dry and the season forward, you may plant early in march; but in a wet soil, it is better to wait till the end of that month or the beginning of april, which is about the season that the plants are beginning to shoot. I know many people have advised the planting of Asparagus at michaelmas, but this I have experienced to be very wrong; for in two different years I was obliged to transplant large quantities at that season, but I had better have thrown away the plants: for upon examination in the spring, I found most of the roots were grown mouldy, and decaying, and I am sure, not one in five of them succeeded, and those which did were so weak, as not to be worth their standing.

The season being come for planting, you must, with a narrow pronged dung-fork, carefully fork up the roots, shaking them out of the earth, and separating them from each other, observing to lay their heads even, for the more convenient planting them, which must be performed in this manner:

The plot of ground being levelled, you must be-

gin at one side thereof, ranging a line very tight cross the piece, throwing out a trench exactly straight by the line about six inches deep, being careful not to turn up the dung; into which trench you may lay your roots, spreading them with your fingers, and placing them upright against the back of the trench, that the buds may stand forward, and be about two inches below the surface of the ground, and at twelve inches distance from each other; then with a rake, draw the earth into the trench again, laying it very level, which will preserve the roots in their right position; then remove the line a foot farther back, and make another trench in the like manner, laying therein your plants as before directed, and continuing the same distance row from row, only observing between every four rows, to leave a distance of two feet four inches for an alley to go between the beds to cut the Asparagus, &c.

The plot of ground being finished and levelled, you may sow thereon a small crop of Onions, which will not hurt the Asparagus, provided the Onions are not too close, and tread in the seeds, raking the ground level.

There are some persons who plant the seeds of Asparagus in the place where the roots are to remain, which is a very good method, if it is performed with care. The way is this: after the ground has been well trenched and dunged, lay it level, and draw a line cross the ground in the same manner as is practised for planting the young plants; then with a dibble make holes at a foot distance, into each of which drop two seeds, for fear one should miscarry; these holes should not be more than half an inch deep; then cover the seeds, by striking the earth in upon it; and go on removing the line a foot back for another row; and after four rows are finished, leave a space for an alley between the beds, if it is designed to stand for the natural season of cutting; but if it is to be taken up for hot-beds, there may be six rows planted in each bed, and the distance in the rows need not be more than nine inches. This should be performed by the middle of february, because the seeds lie long in the ground; but if Onions are intended to be sown upon the ground, that may be performed a fortnight or three weeks after, provided the ground is not stirred so deep as to disturb the Asparagus-seeds, in raking the Onion-seeds into the ground.

As the roots of Asparagus always send forth many long fibres which run deep into the ground, so when the seeds are sown where they are to remain, the roots will not be broken or injured, as those must be which are transplanted; therefore will shoot deeper into the ground, and make much greater progress, and the fibres will push out on every side, which will cause the crown of the root to be in the centre; whereas in transplanting, the roots are made flat against the side of the trench.

When the Asparagus is come up, and the Onions have raised their seed-leaves upright (which will be in six weeks after planting) you must with a small hoe cut up all the weeds, and thin the crop of Onions where they may have come up in bunches: but this must be done carefully, and in dry weather, that the weeds may die as fast as they are cut up, being careful not to injure the young shoots of Asparagus, as also to cut up the Onions which grow near the shoots. This work must be repeated about three times, which if well done, and the season not too wet, will keep the ground clear from weeds until the Onions are fit to be pulled up, which is commonly in august, and is known when their greens fall down and begin to wither. When you have drawn off the Onions, it will be necessary to clean the ground well from weeds, which will keep it clean till the alleys are dug to earth the beds, which must be done in october, when the haulm is decayed; for if you cut off the haulm while green, the roots will shoot fresh again, which will greatly weaken them. This young haulm should be cut off with a knife, leaving the stems two inches above ground, which will be a guide for you to distinguish the beds from

from the alleys; then with a hoe clear off the weeds into the alleys, and dig up the alleys, burying the weeds in the bottom, and throw the earth upon the beds, so that the beds may be about four or five inches above the level of the alleys: then a row of Coleworts may be planted in the middle of the alleys, but never sow or plant any thing upon the beds, which would greatly weaken the roots; nor would I ever advise the planting of Beans in the alleys, as is the practice of many; for that greatly damages the two outside rows of Asparagus. In this manner it must remain till spring, when some time in march, the beds should be hoed over, to destroy all young weeds; then rake them smooth, and observe all the succeeding summer to keep them clear from weeds, and in october dig up the alleys again, as was before directed, earthing the beds, &c. [If you wish to save a year, you may purchase year-old plants from the nursery-men or kitchen-gardeners at a shilling or eighteen-pence the hundred.]

Dressing.

The second spring after planting, some persons begin to cut some of the buds of Asparagus for use, though it would be much better to stay until the third year; therefore now the beds should be forked with a flat-pronged fork made on purpose, which is commonly called an Asparagus-fork: this must be done before the buds begin to shoot in the spring, and should be performed with care, lest you fork too deep, and bruise the head of the root; then rake the beds over smooth, just before the buds appear above ground, which will destroy all young weeds, and keep your beds clean much longer than if left unraked, or if done so soon as forked. When the buds appear about four inches above ground, you may then cut them; but it should be done sparingly, only taking the large buds, and suffering the small to run up to strengthen the roots; for the more you cut, the greater will be the increase of buds, but they will be smaller and the roots sooner decay. In cutting the buds, you must open the ground with your knife (which should be very narrow-pointed, and long in the blade, and filed with teeth like a saw) to see whether any more young buds are coming up close by it, which might be either broken or bruised in cutting the other, then with the knife saw it off about two inches under ground. This may appear a very troublesome affair to people unacquainted with the practical part, but those who are employed in cutting Asparagus, will perform a great deal of this work in a short time; but care in doing it is absolutely necessary to be observed by all who cut Asparagus.

The manner of dressing the Asparagus-beds is every year the same as directed for the second, viz. keeping them clean from weeds in summer, digging the alleys in october, and forking the beds toward the end of march, &c. only observe every other year to lay some rotten dung (from a Melon or Cucumber-bed) all over the beds, burying some in the alleys also, at the time for digging them up. This will preserve the ground in heart to maintain the roots in vigour, and by this management, a plot of good Asparagus may be continued for ten or twelve years in cutting, and will produce good buds, especially if it is not cut too long each season; for when it is not left to run up pretty early in june, the roots will be greatly weakened, and the buds will be smaller: therefore, in those families, where Asparagus is required late in the season, a few beds should be set apart for that purpose, which will be much better than to injure the whole plantation, by cutting it too long.

Dunging.

I cannot help taking notice of a common error that has long prevailed with many people, which is, that of not dunging the ground for Asparagus, believing that the dung communicates a strong rank taste to the Asparagus, which is a great mistake, for the sweetest Asparagus is that which grows upon the richest ground; for poor land occasions that rank taste so often complained of, the sweetness of As-

paragus being occasioned by the quickness of its growth, which is always proportionable to the goodness of the ground, and the warmth of the seasons. In order to prove this, I planted two beds of Asparagus, upon ground which had dung laid a foot thick; and these beds were every year dunged extremely thick, and the Asparagus produced from these beds was much sweeter than any I could procure, though they were boiled together in the same water.

Quantity.

The quantity of ground necessary to be planted with Asparagus, to supply a small family, should be at least eight rods, less than that will not do; for if you cannot cut one hundred at a time, it will scarcely be worth while, for you must be obliged to keep it after it is cut two or three days, especially in cold seasons, to furnish enough for one mess; but for a larger family, sixteen rods of ground should be planted, which, if a good crop, will furnish two or three hundred each day in the height of the season.

Forcing.

But as there are several people who delight in having early Asparagus, which is become a very great trade in the kitchen-gardens near London, I shall give proper directions for the obtaining it any time in winter.

You must first be provided with a quantity of good roots (either of your own raising, or purchased from such gardeners as plant for sale,) such as have been two or three years planted out from the seed-bed; and having fixed upon the time you would willingly have your Asparagus fit to cut, about six weeks before, you should prepare a quantity of new stable horse-dung, which should be thrown in a heap for ten days or more, to ferment, mixing some sea-coal ashes with it; then it should be turned over into a heap, where it must lie another week, when it will be fit for use. Then dig out a trench in the ground where you intend to make the bed, one foot and an half deep, the width of the frames that are designed to cover it, and the length in proportion to the quantity you intend to have: if designed only to supply a small family, three or four lights at a time will be sufficient, but for a larger family, six or eight lights will not be too much: then lay down your dung into the trench, working it very regularly, and beat it down very tight with a fork, laying it at least three feet in thickness or more, when the beds are made in december; then put your earth thereon about six inches thick, breaking the clods and laying it level; and at one end, begin laying your roots against a little ridge of earth, raised about four inches high: your roots must be laid as close as possible one to the other, in rows, with their buds standing upright: and between every row lay a small quantity of fine mould, observing to keep the crown of the roots exactly level. When you have finished laying your bed with roots, you must lay some stiff earth up to the roots, on the outsides of the bed, which are bare, to keep them from drying; and thrust two or three sharp-pointed sticks, about two feet long, down between the roots, in the middle of the bed, at a distance from each other. The use of these sticks is to inform you what temper of heat the bed is in, which you may find by drawing up the sticks, and feeling the lower part; and if, after the bed has been made a week, you find it does not heat, you may lay a little straw or litter round the sides, and also upon the top, which will greatly help it; or if you find it very hot, so as to endanger scorching the roots, it will be advisable to let it remain wholly uncovered, and to thrust a large stick into the dung, on each side of the bed in two or three places, to make holes for the great steam of the bed to pass off, which in a short time will reduce the bed to a moderate heat.

After the bed has been made a fortnight, you must cover the crowns of the roots with fine earth, about two inches thick; and when the buds begin to appear above ground through that earth, you must again lay on a fresh quantity, about three inches

thick, so that in the whole, it may be five inches above the crowns of the root, which will be sufficient.

Then you must make a band of straw (or long litter,) about four inches thick, which must be fastened round the sides of the bed, that the upper part may be level with the surface of the ground: this must be fastened with straight sticks about two feet long, sharpened at the points, to run into the bed; and upon this band you must set your frames, and put your glasses thereon; but if, after your bed has been made three weeks, you find the heat decline, you must lay a good lining of fresh hot dung round the sides of the bed, which will add a fresh heat thereto; and in bad weather, as also every night, keep the glasses covered with mats and straw; but in the day time, let it be all taken off, especially whenever the sun appears; which, shining through the glasses, will give a good colour to the Asparagus.

A bed thus made, if it works kindly, will begin to produce buds for cutting, in about five or six weeks, and will hold about three weeks in cutting: if rightly planted with good roots, it will produce, in that time, about three hundred buds in each light; so that where it is proposed to be continued until the season of natural Asparagus, a fresh bed should be made every three weeks, until the beginning of march, from the time of the first bed being made; but if the last bed is made about a week in march, it will last till the season of natural Asparagus; for the last beds will come a fortnight sooner to cut after making, than those made about Christmas; and the buds will be larger, and better coloured, as they will then enjoy a greater share of the sun.

Where this method of forcing early Asparagus is intended, there should be every year such a quantity planted, as you shall judge necessary, unless you intend to buy the roots from some other garden. The quantity of roots necessary to plant one light, is commonly known by the measure of the ground where they grow; for where there is a good crop, and few roots are missing, one rod of ground will furnish enough for a light; but this calculation is made from the ground planted with roots, which are designed to be taken up after two or three years growth for forcing, in which there are six rows in a bed, at but ten inches distance, and the plants eight or nine inches asunder in the rows; but where there is a greater space between the rows, and fewer rows in a bed, then there must be a greater quantity of ground allotted for each light. Most of the kitchen-gardeners about London, take up their Asparagus roots after two years growth from planting; but where the land is not very good, it will be better to let it have three or even four years growth, for if the roots are weak, the buds of Asparagus will be very small, and not worth the trouble of forcing. The best ground for planting Asparagus, to have large roots for hot-beds, is a moist rich soil; but for those that are to remain for a natural produce, a middling soil, neither too wet nor too dry; but a fresh sandy loam, when well dunged, is preferable to any other.

Of the other species, which have a place among exotic plants in botanic gardens, those which are natives of the southern parts of Europe (n. 7, 8, 9, 10) may be propagated by seeds, in the same manner with the common sort: but being more tender, some plants should be set in pots, that they may be sheltered in winter, and the rest in a warm situation, where they may be occasionally protected. The species from the Cape, &c. rarely producing seeds in England, may be increased by parting the roots in april. They must be planted in pots, and removed into the green-house or dry stove in the autumn. The third and twelfth sorts must be placed in a moderate stove.

ASPARAGUS DRACO. See *Dracæna*.

ASPARAGUS scandens. See *Medeola*.

ASPEN-TREE. See *Populus*.

ASPERUGO. (*Ab asperitate; from its roughness, a quality common to it with several other genera appertaining to the same natural order; and from which all these plants are called Asperifoliae.*)

Lin. gen. n. 189. Reich. 201. Schreb. 249.

Tournef. 54. Juss. 131.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Asperifoliae*. *Borragineæ* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, five-cleft, erect with unequal toothlets, permanent.

COR. one-petalled, funnel-shaped; tube cylindrical, very short; border semiquinquefid, obtuse, small; throat closed, with five convex, prominent, converging little scales.

STAM. Filaments five, in the throat, very short: anthers oblongish, covered.

PIST. Germs four, compressed; style filiform, short: stigma obtuse.

PER. none. Calyx very large, erect, compressed: lamellas flat-parallel, sinuate.

SEEDS four, oblong, compressed, distant by pairs.

ESSENTIAL CHARACTER.

Cal. of the fruit compressed: lamellas flat-parallel, sinuated.

SPECIES.

1. *Asperugo procumbens*. *Procumbent Asperugo*.

Lin. spec. 198. Reich. 399. lapp. 76. fuc. 166.

hort. cliff. 44. Hudf. angl. 82. With. 198.

Hall. belv. n. 606. Scop. carn. n. 199. Oed.

dan. t. 552. Sabb. hort. 2. t. 25. Dod.

pempt. 356.

Buglossum. Baub. pin. 257. Mor. hist. 3. f. 11.

t. 26. f. 13. Ger. 963. 2. emac. 1122. 2. Raii

hist. 502.

Calyxes of the fruit compressed.

[2. *Asperugo ægyptiaca*. *Egyptian Asperugo*.

Lin. spec. 198. Reich. 399. mant. 344. Jacqu.

hort. v. 3. t. 21.

Calyxes of the fruit swelling.

DESCRIPTIONS, &c.

1. Root annual. Stems prostrate, angular with unequal sides, rough with little hooks at the angles pointing backwards. Leaves petiolate, oblong-ovate, with hairs pointing toward the end, alternate, the upper ones almost opposite, mostly in threes, pointing upwards, on the same side of the stem with the flowers. When the plant is young, the flowers are crowded on the top of the stalks; when old, they are single from the axillas, on very short peduncles. Calyx of the fruit appears very different from that of the flower, as if composed of two distinct valves, though in reality of one leaf; teeth tapering to a point, the middlemost in one of the valves longer than the rest, but in the other valve shorter, and cloven at the end. Corolla scarcely exceeding the calyx, deep blue, often white. Fruits on short peduncles, bowed down in a direction opposite to that of the leaves.

In roads and among rubbish. Newmarket, Boxley in Suffex, Holy I. and near Purfleet. Flowering in april and may. Horses, goats, sheep, and swine eat it. Cows are not fond of it. It is called by our old English writers, *Small wild Bugloss*, or *Borage*. *Great Goose-grass*, or *German Madwort*.

2. Root annual, columnar, the thickness of a quill, red. Stem half a foot high or more, branched from the bottom, divaricate or diffused, round below, but slightly angular in other parts, hispid. Leaves broad-lanceolate, sometimes toothed, thickish, alternate, stiffish, the lower ones blunt and subpetiolate, the upper ones sharp and sessile, on both sides and about the edges extremely hispid with almost pungent hairs, taking their rise from a white knob. Flowers void of scent, all directed the same way, coming out successively on thick peduncles on the branches produced, solitary by the side of a leaf, seldom axillary. Calyx hispid divided almost to the base into lanceolate-linear upright segments, nearly of the same length with the corolla. Petal pale yellow, and the scales of the throat yellow. Anthers blackish. Seeds black, wrinkled, obliquely acute, concave underneath. Native of Egypt. It flowers from june to august.]

* Stokes in Withering, Haller, Ray.

b Jacquin.

PROPAGATION AND CULTURE.

1. The common sort may easily be propagated by seeds sown in autumn; or, if they be permitted to scatter, the plants will come up of themselves.

[2. The Egyptian sort may also be raised from seeds, but they must be sown in a moderate hot-bed. The plants will flower in the open air in summer, but they must be housed in winter.]

[*ASPERULA*. (*A diminutive from asper, rough, the seeds being roughish*.)

Lin. gen. n. 121. Reich. 128. Schreb. 157. Juss. 196.

Class. 4. 1. Tetrandria Monogynia.

Nat. order of *Stellatæ. Rubiaceæ* Juss.

GENERIC CHARACTER.

CAL. Perianth small, four-toothed, superior.

COR. one-petalled, funnel-shaped; tube cylindric, long; border four-parted: divisions oblong, obtuse, reflex.

STAM. Filaments four at the top of the tube: anthers simple.

PIST. Germ twin, roundish, inferior: style filiform, bifid at top: stigmas headed.

PER. Two dry, globular, united berries.

SEED solitary, roundish, large.

OBS. *A. tinctoria* and *pyrenaica* have most of the flowers trifid. Reich.

ESSENTIAL CHARACTER.

Cor. one-petalled, funnel-shaped. Seeds two, globular.

SPECIES.

1. *Asperula odorata*. Sweet-scented Woodroof.

Lin. spec. 150. Reich. 294. succ. 121. mat. med. 50. hort. cliff. 33. 2. Hudf. angl. 66. With. 158. Curtis lond. 4. 15. Hall. belv. n. 728. Pollich pal. n. 145. Oeder dan. t. 562. Mill. fig. t. 55. f. 2. Blackw. t. 60. Berg. phyt. 7. Mor. hist. f. 9. t. 22. f. 4. Ger. 966. emac. 1124. 1. Park. 563. 1. Turn. herb. 3. p. 24, 25. Baub. hist. 3. 718. 3. Raii hist. 483. 1. Plenck. ic. t. 53.

Galium odoratum. Scop. carn. n. 158.

Leaves eight in a whorl lanceolate, flowers in bunches peduncled.

2. *Asperula arvensis*. Blue or Field Woodroof.

Lin. spec. 150. Reich. 294. hort. cliff. 33. 1. upf. 27. Hall. belv. n. 733. Scop. carn. n. 159. Pollich pal. n. 146. Baub. pin. 334. 2. Dod. pempt. 355. 3. Raii hist. 483. 2.

Rubia. Baub. hist. 3. 719. f. 1.

Leaves six in a whorl, flowers sessile terminal aggregate.

3. *Asperula taurina*. Broad-leaved Woodroof.

Lin. spec. 150. syst. 148. Reich. 295. hort. cliff. 33. 3. vir. cliff. 9. Hall. belv. n. 732. Sauv. monsp. 164.

Galium taurinum. Scop. carn. n. 148.

Rubia. Baub. hist. 3. 717. f. 2. Mor. hist. 3. f. 9. t. 21. f. 1. row. 3. Lob. ic. 800.

Leaves four in a whorl ovate-lanceolate, flowers in terminal bunches.

4. *Asperula crassifolia*. Thick-leaved Woodroof.

Lin. syst. 149. Reich. 295. mant. 37.

Leaves four in a whorl oblong lateral revolute bluntish pubescent.

5. *Asperula calabrica*. Calabrian Woodroof.

Lin. syst. 149. suppl. 120. L'Herit. stirp. nov. 4. 65. t. 32.

Oleander creticus. Raii hist. 1919. Zan. hist. 216. t. 166. (Thymelæa).

Leaves four in a whorl oblong obtuse smooth and even.

6. *Asperula tinctoria*. Narrow-leaved Woodroof.

Lin. spec. 150. Reich. 295. succ. 122. Gmel. fib. 3. 166. 41. Jacq. vind. 35. Hall. belv. n. 729. Sauv. monsp. 163.

Galium tinctorium. Scop. carn. n. 149.

G. album 3. Tabern. hist. t. 733. f. 1. good.

Leaves linear: the lower six, the middle four in a whorl: stem flaccid: most of the flowers trifid.

7. *Asperula pyrenaica*. Pyrenean Woodroof.

Lin. spec. 151. Reich. 296. Hall. belv. n. 731.

Rubia. Baub. pin. 333. 7. prodr. 146. 8. Mor. f. 9. t. 22. f. 10.

Leaves four in a whorl lanceolate-linear, stem erect, flowers generally trifid.

8. *Asperula cynanchica*. Squinancy-wort.

Lin. spec. 151. Reich. 296. Hudf. angl. 66.

With. 159. Hall. belv. n. 730. Pollich pal.

n. 147. Sauv. monsp. 163. Mor. hist. f. 9.

t. 22. f. 9. Berg. phyt. t. 81. Sowerby engl.

bot. t. 33.

Rubia cynanchica. Baub. pin. 333. Baub. hist. 3.

723. 2. Raii hist. 485. syn. 225.

Galium cynanchicum. Scop. carn. n. 147.

G. montanum, &c. Col. ecphr. 1. 296. t. 297. f. 1.

G. album minus. Tabern. hist. 433. f. 2.

Leaves four in a whorl, linear: the upper ones opposite; stem erect: flowers quadrifid.

9. *Asperula aristata*. Awn-flowered Woodroof.

Lin. syst. 149. suppl. 120.

Leaves linear, rather fleshy; the lower ones four in a whorl; flowers subtern awned.

10. *Asperula lævigata*. Shining Woodroof.

Lin. syst. 149. Reich. 296. mant. 38. 330. Bocc

fic. 10. t. 11. f. 5. and 13. t. 6. f. 1.

Galium rotundifolium. Lin. spec. 157. Hall.

belv. n. 727. Jacq. austr. 1. 58. t. 94.

Rubia. Baub. hist. 3. 718. f. 2. Mor. f. 9. t. 21.

f. 4. & 5. Baub. pin. 334. 11. prodr. 145. 3.

Leaves four in a whorl, elliptic, nerveless, smoothish: peduncles divaricate, trichotomous; seeds scabrous.

11. *Asperula hexaphylla*. Six-leaved Woodroof.

Allion. pedem. n. 48. t. 77. f. 3.

Leaves six in a whorl, linear; flowers umbelled terminal, subsessile.

DESCRIPTIONS, &c.

1. Root perennial, slender, jointed, yellowish, creeping a little below the surface, and sending out many small fibres. Stem upright, about a short span in height commonly simple, four-cornered with a groove on each side, smooth. Leaves smooth, a little rolled back at the sides: the edges and nerves set with little soft spines: the lower ones obtuse, the upper pointed: two sessile leaves at each division of the peduncles. Panicle or corymb commonly trifid, each division bearing about four flowers. Calyx scarcely any: corolla three lines and a half in diameter, snowy white, and when a little magnified, appearing sprinkled with shining particles: nectary a small gland surrounding the base of the style: anthers small white, growing brown with age: germ hispid; style short; stigma bifid, white: fruit covered with stiff, hooked hairs.—Native of many parts of Europe, in woods and shady places: flowering in may, sometimes in april.

The scent is pleasant, and when dried this plant diffuses an odour like that of Vernal-grass (*Anthoxanthum odoratum*). It is said to give a grateful flavour to wine: and, when kept among cloaths, not only to impart an agreeable perfume to them, but to preserve them from insects. Cows, horses, sheep, and goats are reported to eat it.

Since it contains an acid principle, with much fixed alkaline salt, it is thought by some that it may be useful in obstructions of the liver and biliary ducts; modern practice however rejects it^a.

The English name is not derived from any foreign language, and the orthography of it is various.—Turner calls it *Wood-rose* or *Wood-rowell*; Gerard *Woodrooffe*, *Woodrowe* and *Woodrowell*; Parkinson *Woodrooffe*; Dr. Withering says, it is spelt in some old authors *Woodderowffe*. Among the moderns *Woodroof* and *Woodruff* have obtained. It seems at first, that these names are derived from the place of growth, and the roughness of the seeds; but the learned Turner has given us another and more probable derivation, in these words. "It is a short "herbe of a span long, foursquare and smal, about "the which growe certaine orders of leaves, cer- "tayne spaces goynge betwene, representing some

^a Curtis, Withering, Haller, Scop. Pollich, Bergias.

" kindes

"kinder of rowelles of sporres, whereof it hath the name in English." The corruption from *Woodrowel* to *Woodroof* through *Woodrowe* is easy.

2. Root annual, slender, with a yellow bark. Stem upright, a foot high, roughish, jointed, dichotomous; the divisions opposite. Leaves from six to eight, linear-lanceolate, bluntish or but little acute, eight lines long and one broad, the edges turned back, smooth and of a lively green above, beneath whitish with hairs pressed to the surface, and rough. A close umbel of sessile flowers terminates the stem and branches, surrounded with leaves ciliate round the edge. Corollas blue with streaks of darker blue. Germs smooth. Anthers and stigma yellowish^b. It flowers in July.

Native of France, Germany, Switzerland, Austria, Carniola, Savoy, Piedmont.

The roots dye a fine red.

It was introduced here in 1772, by Monsieur Richard^c.

3. Roots perennial, woody, red, branching, intertwined. Stems upright, a foot high, with alternate branches. Leaves a little hairy, with nerves like Plantain^d. Peduncles one or two, alternate. Bractes ciliate. All the flowers hermaphrodite, with a two-parted pistil, which seldom grows up before the flower fades^e.

According to Scopoli, it resembles the *A. cynanchica*, but differs in its manner of flowering, not from the axils, but from the top of the stem; in having all the flowers hermaphrodite; and in the whole plant being moderately villose.

It is a native of the mountains of Switzerland, Italy, &c. Mr. Miller cultivated it in 1739; and it flowers from April to June^f.

4. Stem alternately branching, diffused, subpubescent. Leaves the length of the internodes, gibbous above like those of *Sedum*: on the branches the whorls are more remote, the leaves narrow-lanceolate and unequal. The flowering-branches upright, branching alternately. The last leaves in pairs. The flowers few in terminating bunches. Corollas pubescent on the outside. Native of Crete and the Levant^g. It flowers in June, and was introduced in 1775, by Monf. Thouin^h.

5. This is an undershrub, about a cubit high, prostrate, and extremely fetid in all its parts. Stem branched, diffused, somewhat woody, with an ash-coloured bark: branches opposite, spreading, procumbent, round, somewhat rugged, red. Leaves opposite, subsessile, linear-lanceolate, sharp at both ends, quite entire, one-nerved, smooth, thickish, having a small degree of ruggedness arising from almost invisible stiff points along the edges and the rib; they are of a paler green underneath, spreading, twelve or fifteen lines in length, and three or four in breadth. There is a short, sharp, upright stipule between the leaves, half embracing the stem. The flowers are in terminating corymbs, composed of three upright peduncles; they are three or four in number, scarcely pedicelled, red. Bracte two-leaved, acute, spreading a little, below the germsⁱ. It resembles the foregoing species, but is smooth^k.

Native of Syria between Aleppo and Antioch, Calabria and Sicily. It flowers during most of the summer, and some part of the autumn. The shrubby stalks, leaves in pairs, and fetid smell sufficiently distinguish this species^l.

6. Stems branching, procumbent unless supported, streaked, swelling under the leaves, three feet in length. Leaves four in a whorl, sometimes five, at top two, at bottom six; under the flowers ovate-lanceolate, resembling those of Wild Thyme. Peduncles from the axils forming little umbels. Corolla white. Seeds smooth. The whole plant is green and smooth^m.

The roots are used in Gotland instead of Madder, for dying wool of a red colourⁿ. Native of Swe-

den, Germany, Switzerland, France, Carniola, Siberia.

It was cultivated in 1764, by Mr. James Gordon^o.

7. Roots perennial. Stems six or seven inches high. Leaves keeled; acute, smooth; the lower ones shorter, more obtuse, lanceolate; the upper and floral leaves opposite, broader, acute, lanceolate. Flowers red. It has the stature of *Sberardia arvensis*^p. Native of the Pyrenees and about Batil.

8. Roots perennial. Stems from four inches to a foot and half in length, prostrate, hard, numerous, branching dichotomously. Leaves generally in fours, rarely five in a whorl, very unequal in length, commonly two longer and two shorter, the upper ones generally conjugate, but sometimes two very small leaves appear besides, they are all entire, roughish and sessile, blunt but tipped with a sharp point. The flowers grow on erect branches, from the axils of the leaves; they are long and divided, forming thin fastigate umbels. The corollas are bluish-coloured, elegantly marked with red lines; sometimes they are white. Linneus has described them as they are when dry, rugged and a little wrinkled on the outside. Germs smooth, red. The flowers have a sweet smell, rarely perceived, like those of the Woodroof^q. They are commonly four-cleft, but Haller remarked it about Martinach with a trifid corolla.

Native of France, Germany, Switzerland, Carniola, Italy, and the Levant. Abundant in many parts of England on chalk downs, as about Dartford in Kent, on Epsom downs, Hertfordshire, Gogmagog hills, Newmarket heath, Swaffham in Norfolk, Armingale wood by Norwich, the Suffex downs, &c. flowering from June to August.

It has the trivial name from *κωων* and *αγγειον*.—Dalechampius seems to be the chief authority for the reputation this plant formerly acquired in the cure of quinsies. He says it should be applied externally as well as taken internally. It is entirely out of use^r.

9. Stem upright. Flowers pale, yellowish, placed parallel, with the divisions bluntly awned. Native of the south of Europe^s.

10. Stems simple, smooth, spreading. Leaves subpetioled, obtuse, spreading, scarcely ciliate. Flowering branches horizontal, bifid. Two small lanceolate bractes. Flowers usually in threes, peduncled, white^t.

According to Monf. La Chenal^u, Linneus's plant comprehends two distinct species, namely, First—*Galium* n. 727. of Haller, and Jacqu. austr. t. 94. the stem of which is hirsute at bottom; the four leaves ovate, three-nerved, the edges ciliate with longish hairs, hirsute at the nerves; the seeds white and hispid.—Secondly, with a smooth stem; the four leaves ovate-oblong, very soft, the edges ciliate with short hairs, the nerves hardly visible; the seeds a little rough, but by no means hairy. This is what Linneus has described in his Mantissa, under the name of *Asperula rotundifolia*^x. The leaves become quite smooth by cultivation, and hence probably Linneus finally gave it the name of *levigata*. The plant of Jacquin, and probably of Haller, seems to be a distinct species: the specimen sent from Switzerland by Monf. Duval; in Dr. Smith's herbarium, has the seeds remarkably rough, whereas in the original *Galium rotundifolium* of the Linnean herbarium, now *Asperula levigata*, they are only rugose, which appearance they may have taken up in drying.

Jacquin doubts whether his plant be the same with that of Linneus's Mantissa. He describes it thus. Root perennial, fibrose, branched, brownish, two or three lines thick. Stems several, herbaceous, weak and mostly prostrate, four-cornered, smoothish, very much branched, half a foot or at most a foot in height, diffused often circularly. Leaves obovate, blunt with a small point, which however

^b Pollich. ^c Hort. kew. ^d Haller. ^e Linneus. ^f Hort. kew.
^g Linn. mant. ^h Hort. kew. ⁱ L'Heritier. ^k Linn. suppl.
^l L'Heritier. ^m Haller. ⁿ Linn. succ.

^o Hort. kew. ^p Linn. ^q Haller, Pollich, Engl. Bot.
^r Eng. Bot. ^s Linneus. ^t Ibid. ^u Act. helv. 8. 144.
^x p. 38. & 330.

is sometimes wanting, three-nerved, ciliate with small hairs, and having a few scarcely visible hairs on both sides. The small branches end in two or three peduncles, which are themselves single, bifid or trifid, and capillary. Corollas small, white, some quite flat, others slightly campanulate at the base; the segments are semiovate and sharp, with scarcely any tube. Germs and seeds hispid with hooked hairs. Anthers pale-coloured.

Native of the south of Europe. Introduced in 1775, by Monf. Thouin. It flowers in June and July¹.

11. Root perennial. Stems sometimes branching at the base, but generally simple. Leaves acuminate, flat, erect; the internodes a little longer than the leaves. The umbels are accompanied with ten or twelve leaves, like the others, only shorter. Corollas purple, white within, the segments a little revolute. Seeds oblong, compressed. The whole plant is smooth. It grows in the fissures of the rocks near Tende².

PROPAGATION AND CULTURE.

All these plants being perennial, except the second, may be increased by the roots, as well as by seeds. The first sort will prosper under the shade of shrubs in wilderness quarters. The fifth must have the protection of a greenhouse, and does not continue many years, but it may be increased both by seeds and cuttings. The eighth, growing naturally in chalk; and most of the others being natives of rocks, must have a dry open situation.]

ASPHODELUS. [From α and $\sigma\phi\alpha\lambda\lambda\omega$, subplanto. Lin. q. $\sigma\phi\acute{o}\delta\epsilon\lambda\omicron\nu$, from $\sigma\phi\omicron\delta\omicron\varsigma$ ashes: Asphodel being planted with the mallow on graves. Ray.]

Lin. gen. 421. Reich. 454. Schreb. 569. Tournef. 178. Gærtn. 17. Juss. 52.

Class. 6. 1. Hexandria Monogynia.

Nat. order of Coronarieæ. Asphodeli Juss.

GENERIC CHARACTER.

CAL. none

COR. one-petalled, six-parted: *divisions* lanceolate, flat, spreading. Nectary, six very small valves, converging into a globe, inserted into the base of the corolla.

STAM. Filaments six, subulate, inserted into the valves of the nectary, bowed; alternately shorter. Anthers oblong, incumbent, rising.

PIST. Germ roundish; within the nectary: style subulate, in the same situation with the stamens: stigma truncate.

PER. Capsule globular, fleshy, three-lobed, three-celled.

SEEDS several, triangular, gibbous on one side.

OBS. The filaments in some are declining, in others bowed outwardly.

ESSENTIAL CHARACTER.

Cor. six-parted. Nectary, six valves covering the germ.

SPECIES.

1. *Asphodelus luteus*. Yellow Asphodel or King's-spear. Lin. spec. 443. syst. 330. Reich. 2. 60. hort. cliff. 127. 1. upf. 83. Jacqu. hort. 1. 32. t. 77. Blackw. t. 233. Hall. helv. n. 1206. Raii hist. 1192. n. 4. Plenck. ic. t. 266. Dod. pempt. 208. Baub. hist. 2. 632. Mor. hist. f. 4. t. 1. f. 6. Ger. 87. 4. emac. 94. 4. Park. theat. 1218. f. 4.

Stem leafy, leaves three-sided striated.

2. *Asphodelus ramosus*. Branched Asphodel or King's Spear.

Lin. spec. 444. syst. 330. Reich. 2. 60. mat. med. 94. hort. cliff. 127. 2. Sauv. monsp. 20. Scop. carn. 2. n. 412. Villars dauph. 2. 265. Murray in comm. gott. 1776. 37. t. 7. Baub. pin. 28. n. 1. Raii hist. 1191. 1. Plenck. ic. t. 267. Black. t. 238. Clus. hist. 1. 196. 1. Mor. hist. t. 1. f. 1. Baub. hist. 2. 625. Ger. 86. 1. emac. 93. 2. Park. 1218. f. 3.

¹ Hort. kew.

² Allioni.

3. *Asphodelus fistulosus*. Onion-leaved Asphodel. Lin. spec. 444. Reich. 2. 61. Gærtn. fruct. 1. 68. Gouan hort. 174. illustr. 26. Baub. pin. 29. 7. Clus. hist. 197. f. 2. Ger. emac. 48. f. 3. Mor. hist. f. 4. t. 1. f. 5. Raii hist. 1193. 4. (Phalangium.)

Stem naked, leaves stiff subulate striated subfistulose.

DESCRIPTIONS, &c.

1. The roots of *Yellow Asphodel* are composed of many thick, fleshy, yellow tubers, joined into a head at the top; whence arise strong, round, single stalks, near three feet high, covered their whole length with long, three-cornered, boat-shaped leaves, of a sea-green colour; the upper part of the stalk is adorned half way with yellow star-shaped flowers, which begin to open at bottom, so that on the same spike there is often a succession of flowers during a full month from the time of its beginning to flower, which is in June, or towards the end of May. [The tubers of the root are four or five inches long, and hardly so thick as the little finger. The leaves are subulate, acuminate, striated, smooth, spreading, but embracing the stem by the base dilated on both sides into a whitish membrane. Towards the top of the stem there are thin, membranaceous, whitish, subpellucid bractes, from the axils of which come out one-flowered peduncles. The corolla smells sweet, and is so deeply divided, that it can scarcely be called monopetalous: three of the petals, which were the outer ones whilst the flower was closed, and are placed alternately with the three others, are only half their breadth; of these, the lowest is more distant from the two next than the rest are from each other. The scales of the nectary are nothing else but the bases of the filaments spread out, each fastened to a petal, and all converging so as to cover the germ: which is roundish and marked with six grooves, three deeper than the rest; in these, a little above the middle, is a pore, whence issues a sweet liquor, which in time fills the space between the scales and the germ: this pore becomes an oblong dark-green spot in the fruit, but when that is ripe it vanishes. All the filaments are bent down in a curve, and bend up again towards the end; three of them are double the length of the other three, and have much larger anthers. The capsule is at first green, shining, even: but when ripe it becomes wrinkled and brownish: it opens by three distinct valves, having a partition in the middle, on each side of which at the bottom is lodged a single seed; so that there are two seeds in each cell, and six in each capsule: they are very sharply three-cornered^a.

It is a native of Sicily, where it was found by Ray.]

2. The *White* or *branched Asphodel* has roots composed of many thick fleshy fibres, to each of which is fastened an oblong tuber, as large as a small potatoe; the leaves are long and flexible, having acute edges, they grow in irregular clusters from the crown of the root; among these come out the stalks, which rise more than three feet high, sending out several side branches, which are naked; the upper parts of these are adorned with many star-shaped flowers, which are white with a purple line running longitudinally along the outside of each segment. They grow in long spikes, flowering successively from the bottom upwards. They appear the beginning of June, and the seeds ripen in autumn.

3. Mr. Miller makes the unbranched *White Asphodel* to be a distinct species. The roots, he says; are the same, but the leaves are longer and narrower; the stalks are single, never putting out any side branches; the flowers are of a purer white, and grow in longer spikes.

[Native of the south of Europe. Immense tracts

^a Jacquin

of land in Apulia are covered with it, and it affords very good nourishment to the sheep^b.]

3. *Onion-leaved Asphodel* is an annual plant. The roots are composed of many fleshy yellow fibres. The leaves are spread out from the crown of the root, close to the ground in a large cluster; they are convex on their under side, but flat above, and hollow. The flower-stalks rise immediately from the root, and grow about two feet high, dividing upwards into three or four branches, which are adorned with white starry flowers, having purple lines on the outside: these come out in July and August, and their seeds ripen in October, soon after which the plants decay. It grows naturally in the south of France, Spain, and the island of Crete.

[Capsule superior, globular, the size of a small pea, transversely wrinkled, the valves having a partition in the middle of each. Two seeds in each cell, but one often abortive; they are oblong, three-sided, acuminate downwards, and have deep pits and transverse wrinkles, their colour is a brown bay^c.

Linneus recommends it to be considered whether this be not a species of *Anthericum*.

These three *Asphodels* were all cultivated by Gerard in 1596^d.

Scopoli has described and figured another species, under the name of *Asphodelus liburnicus*^e. It has a round stem, a foot high, and a line in thickness. Flowers pendulous, yellow, loose, an inch long, streaked with five brownish lines: peduncles simple, half the length of the corollas: under each an oval bracte, whitish and pointed. The leaves are setaceous, at the base of the stem, subtriquetrous, an inch or more long, with a very thin membrane to each, the angles rough, and appearing toothed when magnified. Three stamens are longer than the other three: and the filaments are saffron-coloured. It was found in Istria by Mygind^e.]

PROPAGATION AND CULTURE.

1. The yellow *Asphodel* multiplies very fast by roots, and will soon overspread a large border, if suffered to remain unremoved, or if the side shoots are not taken off.

2. The second does not increase very fast by roots, nor should it be often transplanted, for that will weaken it, so that the flower stems will not rise so tall, or produce so many flowers, as when left undisturbed for some years; therefore the best way is to propagate it by seeds.

The variety is not quite so hardy as either of the others, but in very severe frost is sometimes killed, unless the roots be covered in winter.

These *Asphodels* are pretty ornaments for a flower-garden, and, requiring very little trouble to cultivate them, are rendered more acceptable. They may be propagated by seeds, which should be sown soon after they are ripe, on a warm border of light fresh earth: in the spring the plants will appear, when you should carefully clear them from weeds, and in dry weather they must be frequently watered: if this be duly observed, the plants will have acquired strength enough to be transplanted by the Michaelmas following: at which time you must prepare a bed of fresh earth in the flower nursery, into which you should plant the roots, at about six inches distance every way; observing to plant them so low, as that the top of the roots may be three or four inches under the surface of the bed; and some old tan, or dung, should be spread over the surface of the ground, to keep out the frost: in this bed they may remain one year, during which time, they should be kept clear from weeds; by which time, the roots having acquired strength enough to produce flowers the following year, they should, in autumn, when their leaves are decayed, be carefully taken up, and transplanted into the flower-garden, observing to place them in the middle of the borders, amongst other hardy kinds of flowers, where

being properly intermixed, they will make an agreeable variety, and continue a long time in flower.

3. The third sort is an annual plant, and is only propagated by seeds; these should be sown in the autumn, when they will more certainly grow than if sown in the spring: when the plants are up, they will require no other trouble but to keep them clean from weeds, until they have put out four or five leaves, when they should be carefully removed to the places where they are to remain. If the seeds of this plant are permitted to scatter, the plants will come up without care, and those which are not removed, will be the strongest plants, and produce a greater number of flowers.

[**ASPLENIUM.** (From α and $\sigma\pi\lambda\eta\nu$, because it was supposed to dry up the spleen.) *Spleenwort*.

Lin. gen. n. 1178. *Reich. 1295.* *Schreb. 1631.*

Lingua Cervina Tournef. 319. *Trichomanes Tournef. 315. a, b.*

Class. 24. 1. Cryptogamia Filices. Ferns.

GENERIC CHARACTER.

Fruifications disposed in right lines along the under disk of the frond.

SPECIES.

* Frond simple.

1. *Asplenium rhizophyllum.* *Root-leaved Spleenwort.*

Lin. spec. 1536. *Reich. 4. 401. amæn. 2. 337.*

Gron. virg. 2. 166.

Phyllitis. Pluk. alm. 154. t. 105. f. 3. Mor.

hist. 3. 557. 14. f. 14. t. 1. f. 14.

Fronds cordate-ensiform undivided, top filiform rooting.

2. *Asplenium Hemionitis.* *Mule's-tongue, Mule's-Fern or Spleenwort.*

Lin. spec. 1536. Reich. 4. 401. Lour. cochinch. 677.

Hemionitis. Baub. pin. 353. 2. Clus. hist. 2. 214.

Raii hist. 135.

Fronds simple cordate-hastate five-lobed quite entire, stipes smooth and even.

3. *Asplenium Scolopendrium.* *Hart's-tongue Spleenwort.*

Lin. spec. 1537. Reich. 4. 401. mat. med. 224.

vir. cliff. 103. hort. cliff. 474. suec. 941. Hudf.

angl. 452. Wither. arr. 3. 51. Curtis lond. 1. 67.

Lightf. scot. 660. Bolton. fil. 18. t. 11. Weisf.

crypt. 292. Hall. helv. n. 1695. Scop. carn.

n. 1261. Pollich pal. n. 957. Sauv. monsp. 27.

Berg. phyt. 2. 105. Fungh. offic. cent. 1. f. 5.

Lour. cochinch. 677.

Lingua cervina. Baub. pin. 353. Plum. fil. 34.

t. A. f. 4. Blackw. t. 138. Mor. 14. 1. 1.

Phyllitis. Ger. emac. 1138. f. 1. Park. 1046.

Raii hist. 134. syn. 116.

β . *Phyllitis crispa. Baub. hist. 3. 757.*

Curled Hart's-tongue Spleenwort.

γ . *P. f. Lingua Cervina maxima, undulato folio*

auriculato per basim. Pluk. phyt. t. 248. f. 1.

Wave-leaved Hart's-tongue Spleenwort.

δ . *Lingua cervina multifido folio. Baub. pin. 353.*

Clustered Hart's-tongue Spleenwort.

ϵ . *P. f. Lingua Cervina minor crispa, fol. multifido,*

ramosa. Pluk. phyt. t. 248. f. 2.

Branching-clustered Hart's-tongue Spleenwort.

Fronds simple cordate-lingulate quite entire, stipes bifurcate.

4. *Asplenium nidus.* *Bird's-nest Spleenwort.*

Lin. spec. 1537. Reich. 4. 402. Forst. floruk

n. 425.

Phyllitis, &c. Mor. 3. 558. 14. 1. 15.

Scolopendria, &c. Breyn. cent. 129. t. 99.

Fronds simple lanceolate quite entire smooth.

5. *Asplenium ferratum.* *Serrate-leaved Spleenwort.*

Lin. spec. 1538. Reich. 4. 402. Brown. jam. 92. 1.

Lingua cervina, &c. Plum. amer. 27. t. 39. fil.

t. 124.

Phyllitis, &c. Pet. fil. 106. t. 6. f. 7. Sloan.

jam. 1. 72. n. 5.

Fronds simple lanceolate serrate subsessile.

6. *Asplenium plantagineum.* *Plaintain-leaved Spleenwort.*

Lin. spec. 1537. Reich. 4. 403. Brown. jam. 92.

Fronds simple ovate-lanceolate subcrenate, stipe four-

cornered.

7. *Asplenium*

^b Symonds in Young's Annals.

^c Gartner.

^d Hort. kew.

^e Fl. carn. n. 411. t. 12.

7. *Asplenium lanceum*. Lance-leaved Spleenwort.
Lin. syst. 933. *Thunb. jap.* 333.
Fronde simple elliptic entire smooth, stipe round scaly.
8. *Asplenium bifolium*. Double-leaved Spleenwort.
Lin. spec. 1538. *Reich.* 4. 403.
Lingua cervina, &c. Plum. fil. 116. *t.* 133.
Phyllitis, &c. Pet. fil. 107. *t.* 13. *f.* 11.
Fronde pinnate; leaflets lanceolate subsinuate connate.

** *Fronde pinnatifid.*

9. *Asplenium Ceterach*. Common Spleenwort or Milt-waste:
Lin. spec. 1538. *syst.* 933. *Reich.* 4. 403. *hort. cliff.* 474. *mat. med.* 225. *Huds. angl.* 452. *Lightf. scot.* 661. *Bolton fil.* 20. *t.* 12. *Sauv. monsp.* 270. *Hall. helv. n.* 1694. *Scop. carn. n.* 1262. *Berg. phyt.* 2. 107. *Blackw. t.* 216. *Mor.* 561. *f.* 14. *t.* 2. *row.* 3. *Plum. fil.* 33. *t. B. f.* 3. *Ger.* 978. *i. emac.* 1140. *f.* 1. *Park. theat.* 1046. *f.* 1. *Baub. hist.* 3. 749. *Raii hist.* 139. *syn.* 118.

Fronde pinnatifid; lobes alternate confluent obtuse.

10. *Asplenium obtusifolium*. Blunt-leaved Spleenwort.
Lin. spec. 1538. *Reich.* 4. 404.
Adiantum alis latioribus. Pet. fil. 117. *t.* 2. *f.* 4.
Fronde subpinnate; pinnae obtuse sinuate, decurrent, alternate.

*** *Fronde pinnate.*

11. *Asplenium nodosum*. Knotted-stalked Spleenwort.
Lin. spec. 1539. *Reich.* 4. 404. *Brown. jam.* 93. *Lour. cochinch.* 678.
Phyllitis. Pet. fil. 143. *t.* 6. *f.* 16.
Lingua cervina nodosa. Plum. fil. t. 108. *Raii suppl.* 63.
Filix. Plum. amer. 4. *t.* 6. *Sloan. jam.* 1. 85. *t.* 41. *f.* 1.

Fronde pinnate; pinnae opposite lanceolate quite entire.

12. *Asplenium falicifolium*. Willow-leaved Spleenwort.
Lin. spec. 1538. *Reich.* 4. 404.
Lonchitis glabra major. Plum. amer. 18. *t.* 27. *fil. t.* 60. *Raii suppl.* 67.
Lonchitis striata. Pet. fil. 110. *t.* 3. *f.* 2.
L. major, &c. Sloan. jam. 1. 78. 24.
Fronde pinnate; pinnae sickle-lanceolate crenate from the base upwards angular.

13. *Asplenium Trichomanes*. Common Maidenhair.
Lin. spec. 1540. 19. *Reich.* 4. 404. *lapp.* 388. *succ.* 942. *hort. cliff.* 474. *mat. med.* 225. *Woodv. med. bot.* 565. *t.* 204. *Huds. angl.* 452. *Wither. arr.* 3. 52. *Lightf. scot.* 662. *Bolton fil.* 22. *t.* 13. *Hall. helv. n.* 1693. *Scop. carn. n.* 1263. *Weis. crypt.* 296. *Pollich pal. n.* 958. *Lour. cochinch.* 678. *Blackw. t.* 370. *Fl. dan. t.* 119. *Berg. phyt.* 2. 109. *Mor.* 14. 3. 10. *Ger. emac.* 1146. *f.* 1. *Park. theat.* 1051. *Raii hist.* 140. *syn.* 119. *Plum. fil.* 26. *t. B. f.* 1.
Fronde pinnate; pinnae roundish crenate.

14. *Asplenium viride*. Green Spleenwort.
Huds. angl. 453. *Wither. arr.* 3. 52. *Lightf. scot.* 663. *Bolt. fil.* 24. *t.* 14.
Trichomanes costa viridi quandoque bifida fol. lenticularibus crenatis. Raii syn. 119.
 β. *Tr. fol. eleganter incis. Tourn. inst.* 539. *t.* 350. *f.* 1, c. *Raii syn.* 120. *Mor. hist. f.* 14. *t.* 3. *f.* 13. *Pluk. phyt. t.* 73. *f.* 6.
Fronde pinnate; pinnae roundish crenate truncate at the base.

15. *Asplenium eburneum*. Ivory-stiped Spleenwort.
Ait. hort. kew. 3. 462.
Fronde pinnate; pinnae lanceolate subfalcate serrate eared at the base, stipe very glossy simple.

16. *Asplenium dentatum*. Tooth-leaved Spleenwort.
Lin. spec. 1540. *Reich.* 4. 405. *Brown. jam.* 93. 5. *Plum. amer.* 35. *t.* 50. *fil. t.* 101. *Pet. fil.* 120. *t.* 2. *f.* 15.
Fronde pinnate; pinnae wedge-shaped obtuse crenate-emarginate.

17. *Asplenium marinum*. Sea Maidenhair or Spleenwort. Dwarf Sea-Fern.
Lin. spec. 1540. *Reich.* 4. 405. *hort. cliff.* 474. *Huds. angl.* 453. *Lightf. scot.* 664. *Wither.*

- arr.* 3. 53. *Bolt. fil.* 26. *t.* 15. *Mor.* 14. 3. 25. *good. Pet. gaz. t.* 91. *f.* 1. *good. Ger. emac.* 1143. *f.* 4. *t.* 33. *f.* 1.
Fronde pinnate; pinnae obovate serrate gibbous above obtuse, wedged at the base.
18. *Asplenium cultrifolium*. Sickle-leaved Spleenwort.
Lin. spec. 1538. *Reich.* 4. 405. *hort. cliff.* 474. *Plum. fil.* 45. *t.* 59.
Fronde pinnate; pinnae sickle-lanceolate, gasb-serrate, from the base downwards angular.
19. *Asplenium rhizophorum*.
Lin. spec. 1540. *Reich.* 4. 406. *Swartz. obs.* 399. *Brown. jam.* 92. *Pluk. alm.* 9. *t.* 253. *f.* 4.
Fronde pinnate rooting at top; pinnae ovate repand somewhat eared: very small ones remote quite entire.
20. *Asplenium monanthemum*. One-flowered Spleenwort.
Lin. syst. 933. *mant.* 130. *Reich.* 4. 406. *Smith ic. ined.* 3. 73.
Fronde pinnate; pinnae trapeziumed obtuse serrate entire behind; one line of fructification.
21. *Asplenium Ruta muraria*. Wall-rue. Tentwort. White Spleenwort.
Lin. spec. 1541. *Reich.* 4. 406. *succ.* 943. *mat. med.* 225. *Huds. angl.* 453. *Wither. arr.* 3. 53. *Engl. bot.* 150. *Bolt. fil.* 28. *t.* 16. *Lightf. scot.* 665. *Hall. helv. n.* 1691. *Scop. carn. n.* 1265. *Weis. crypt.* 298. *Pollich pal. n.* 959. *Berg. phyt.* 2. 111. 113. *Fl. dan. t.* 190. *Blackw. t.* 219. *Mor.* 14. 5. 22. *Ger.* 983. *emac.* 1144. 3. *Park.* 1050. 4. *Raii hist.* 146. *syn.* 122. *Plum. fil.* 29. *t. A. f.* 3.
Fronde alternately decompose; leaflets wedge-shaped crenulate.
22. *Asplenium alternifolium*. Alternate-leaved Spleenwort.
Lin. syst. 933. *Jacq. misc.* 2. 51. *t.* 5. *f.* 2. *Hall. helv. n.* 1690. *Breyn. cent.* 1. 189. *ic.* 97. *Mor. f.* 14. *t.* 5. *f.* 25.
A. Breynii. Retz. obs. 1. 32.
Fronde simply pinnate; leaflets alternate, wedge-shaped, gasbed above.
23. *Asplenium Adiantum nigrum*. Black Maidenhair.
Lin. spec. 1541. *Reich.* 4. 407. *Huds. angl.* 454. *Wither. arr.* 54. *Lightf. scot.* 666. *Bolt. fil.* 30. *t.* 17. *Hall. helv. n.* 1692. *Scop. carn. n.* 1264. *Pollich pal. n.* 960. *Berg. phyt.* 2. 115. *Fl. dan. t.* 250. *Blackw. t.* 220. *Mor.* 14. 4. 16. *Ger.* 975. 1. *emac.* 1137. 1. *Park.* 1049. 2. *Baub. hist.* 3. 743. *Raii hist.* 152. 2. *syn.* 126.
Fronde subtripinnate, leaflets alternate, pinnae lanceolate gasb-serrate.
24. *Asplenium Trichomanes ramosum*. Branched Maidenhair.
Lin. spec. 1541. *Reich.* 4. 407. *Baub. hist.* 3. 755. *f.* 1. *Raii syn.* 119.
A. lanceolatum. Huds. angl. 454. *Bolt. fil. t.* 17. *f.* 2.
Fronde doubly-pinnate, pinnae obovate crenate, lower leaflets smaller.
25. *Asplenium marginatum*. Margined Spleenwort.
Lin. spec. 1539. *Reich.* 4. 407. *Pet. fil.* 108. *t.* 12. *f.* 2. *Plum. fil.* 88. *t.* 106.
Fronde pinnate; pinnae opposite cordate-lanceolate submarginate quite entire.
26. *Asplenium squamosum*. Scaly-stiped Spleenwort.
Lin. spec. 1539. *Reich.* 4. 407. *Pet. fil.* 112. *t.* 5. *f.* 2. *Plum. fil.* 86. *t.* 103.
Fronde pinnate; pinnae acuminate gasbed, stipes caly.
27. *Asplenium striatum*. Striated Spleenwort.
Lin. spec. 1539. *Reich.* 4. 408. *Pet. fil.* 113, 114. *t.* 3. *f.* 3, 4. *Plum. fil.* 15. 16. *t.* 18. 19.
Fronde pinnate; pinnae pinnatifid obtuse crenate; the terminal one acuminate.
28. *Asplenium erosum*. Lacerated Spleenwort.
Lin. spec. 1539. *Reich.* 4. 408. *Brown. jam.* 94. *Sloan. jam.* 1. 78. *t.* 33. *f.* 2.
Fronde pinnate; pinnae trapeze-oblong, striated, erose, eared at the base.
29. *Asplenium japonicum*. Japanese Spleenwort.
Lin. syst. 934. *Thunb. jap.* 334.

Fronde

- Frona. pinnate; pinnae acute gasb-pinnatifid ferru-
late; stipe scaly.*
30. *Asplenium resectum.* Half-leaved Spleenwort.
Smith ic. ined. 3. t. 72.
*Fronde pinnate; pinnae trapezium-shaped acuminate
gasb-crenate entire behind.*
31. *Asplenium bulbosum.* Bulbous-rooted Spleenwort.
Loureiro cochinch. 678.
*Fronde pinnate; pinnae lanceolate slightly crenate;
root bulbous.*
Species from Swartz.
32. *Asplenium proliferum.*
Swartz. prodr. 129. Sloan. jam. 1. 71. t. 26. f. 1.
*Fronde subsessile broad-lanceolate, the first leaves obo-
vate, rooting at the end.*
33. *Asplenium pumilum.*
Swartz. prodr. 129.
*A. anthriscifolium. Jacqu. collect. 2. 103. t. 2.
f. 3, 4.*
Hemionitis. Plum. fil. t. 66. f. A.
Fronde ternate, leaflets three-parted gasbed.
34. *Asplenium dimidiatum.*
Swartz. prodr. 129.
*Fronde pinnate, pinnae trapeze-oblong acuminate, an-
gular upwards, entire and flat downwards.*
35. *Asplenium fragrans.*
Swartz. prodr. 130.
*Fronde subtripinnate, leaflets alternate, pinnae lanceo-
late broadish, serrate at the tip.*
36. *Asplenium grandiflorum.*
Swartz. prodr. 130.
*Fronde pinnate; pinnae alternate lanceolate subserrate,
at the base rectangular above, rounded below.*
37. *Asplenium dissectum.*
Swartz. prodr. 130. Plum. fil. 46. (Lonchitis.)
*Fronde pinnate: pinnae lanceolate gasb-serrate tailed
at the tip.*
38. *Asplenium præmorsum.*
Swartz. prodr. 130.
*Fronde tripinnatifid, pinnae somewhat wedge-shaped,
pinnules erose-toothed at the tip.*
39. *Asplenium cicutarium.*
*Swartz. prodr. 130. Sloan. jam. 1. 92. t. 52. f. 3.
bad.*
*Fronde tripinnate very smooth, the upper ones pinna-
tifid, leaflets lanceolate entire.*
Species from Forster.
40. *Asplenium flaccidum.*
Forst. fl. austral. n. 426.
*Fronde pinnate; leaflets alternate remote pinnatifid,
linear stiff.*
41. *Asplenium lucidum.*
Forst. fl. austral. n. 427.
*Fronde pinnate; leaflets opposite oblong-ovate acumi-
nate serrulate.*
42. *Asplenium polyodon.*
Forst. fl. austral. n. 428.
*Fronde pinnate; leaflets trapezoid acuminate acute
doubly-serrate,*
43. *Asplenium obliquum.*
Forst. fl. austral. n. 429.
*Fronde pinnate; stipes scaly; leaflets oblong opposite
acuminate serrate, the outer margin shorter.*
44. *Asplenium obtusatum.*
Forst. fl. austral. n. 430.
Fronde pinnate; leaflets opposite oblong obtuse serrate.
45. *Asplenium tenerum.*
Forst. fl. austral. n. 431.
*Fronde pinnate; leaflets rhomb-oblong obtuse gasb-ser-
rate.*
46. *Asplenium caudatum.*
Forst. fl. austral. n. 432.
*Fronde pinnate; leaflets pinnatifid linear bristle-shaped
at the tip, segments blunt gasb-serrate at the tip,
stipe rough with hairs.*
47. *Asplenium bulbiferum.*
Forst. fl. austral. n. 433.
*Fronde subbipinnate; leaflets decurrent oblong obtuse
pinnatifid; fructifications proliferous.*

DESCRIPTIONS, &c.

1. Root fibrose, Fronds triangular, acuminate,
point long, linear; at the base hollowed, eared; on

long petioles. Fructifications irregularly dispersed
over the whole disk of the leaf in oblong spots^a.
The ends of the fronds bend down to the ground,
and there throw out roots, by which means this spe-
cies of fern propagates itself: It was sent to Morison
from Virginia by Banister in 1680^b, and is found in
other parts of North America. According to the
catalogue of the royal botanic garden at Kew, it was
introduced about 1764, by Mr. John Bartram. Pro-
bably Morison had only dry specimens, and not the
living plant. This is not Sloane's *Phyllitis*, figured
in t. 26. f. 1. of his history of Jamaica. See *Asp.*
proliferum n. 33.

2. Mule's-Fern is very nearly allied to Hart's-
tongue (n. 3.), but the longitudinal diameter of the
frond scarcely exceeds the transverse one^c.

It is a low fern, not above six inches in height,
with a fibrose root. The stipes are slender and in
tufts. The fronds are smooth, with five sublinear,
unequal, expanded lobes. The fructifications are in
oblique lines, making an acute angle with the
rachis^d.

Native of the South of Europe, and Madeira.
Introduced in 1779, by Mr. Francis Masson^e.

3. Root black, hard, covered with scales, and
emitting numerous strong black fibres. Stipe and
lower part of the midrib covered with brown mem-
branaceous, chaffy narrow scales. Fronds from five
inches to a foot in length, and from an inch to
an inch and half in breadth; lanceolate, rounded
and hollowed at the base, of a tough and firm tex-
ture, of a dark shining green above, paler under-
neath, having numerous parallel veins running ob-
liquely from the midrib to the margin; which is
usually more or less waved: but the fronds are much
subject to vary; and hence several varieties have
been noticed by authors, as the curled, waved, clus-
tered and branching Hart's-tongue.

Fructifications in parallel lines, oblique to the
midrib, commonly in one row on each side of it,
but sometimes there is a double row, those of the
inner row much larger than the outer; the lower
part of the frond is often barren: the lines are narrow
at first, and covered with a pale membranaceous pel-
lucid involucre, which bursts when the capsules swell,
and then they are much wider, and the capsules are
globular and brown, each surrounded with a jointed
elastic ring; when the seeds are ripe, the capsule is
forced open by this, and they are dispersed to a con-
siderable distance. The seeds are very numerous,
and scarcely visible to the naked eye; when magni-
fied they appear roundish, and full of little project-
ing points^f.

Native of most parts of Europe, in shady lanes,
on walls and rocks, in wells and damp caverns.
Common in many parts of England, especially in
the north. It is in full seed from september to no-
vember. The officinal names are *Lingua cervina*,
Phyllitis and *Scolopendrium*. It is called *Hart's-
tongue*, from the form of the leaf, in all the northern
languages, with very little variation; in French
Langue de cerf; in Italian *Lingua di cervo*; in Spa-
nish and Portuguese *Lingua cervina*.

The leaves were recommended as aperients
and corroborants, in obstructions of the viscera,
&c. They have been chiefly used in apozems and
infusions^g.

Ray recommends the plant, from his own expe-
rience, as a good medicine against convulsive disor-
ders; but it is discarded from the present practice.
The common people indeed still use an ointment
made with the leaves of this, as also of *Ophioglossum*,
or Adder's tongue, in burns and scalds.

4. The leaves of this are two feet long, and six
or seven inches wide, firm and thick, smooth, and
streaked at an acute angle. The lines of fructifica-
tion between the nerves or parallel streaks are short,
scarcely extending one-third of the breadth of the
leaf. It roots into the tops of trees. The leaves

^a Colden in Gron. virg. ^b Morison. ^c Linneus ^d Loureiro.
^e Hort. kew. ^f Curtis, Lightf. Bolton. ^g Lewis.

come out in a circle, are erect, and form a kind of umbel, in the middle of which birds make their nests^b.

Native of Java and the Society isles.

5. The root consists of brown fibres, sending up eight or nine fronds, three inches long, three quarters of an inch broad where broadest, yellowish green, narrow at the beginning, increasing to near the end, and then decreasing to a blunt point.

Native of woods in the inland parts of Jamaica¹.

6. This seldom rises above ten or twelve inches; the fronds rise from a thick fibrous root, which generally runs into the ground, whereas the foregoing sometimes grows upon trees. The margin of the fronds is even, and the stipe smooth. Native of Jamaica^k.

7. The stipe is flexuose and decumbent. The lines of fructification are nearer to the outer edge. It differs from the fourth in having the fronds smaller and sharp, the stipe round, and scaly at the base, and the lines of fructification remote from the rib. It differs from the third in having a lanceolate frond not cordate. Native of Japan¹.

8. Root composed of many thickish branching black fibres; fronds all double, or composed of two equal similar leaflets united at the base by a common membrane. Each part resembles a frond of common Hart's-tongue, (n. 3.) except that it is sinuate on the edge. The common peduncle forks a very little above the base, and forms the midrib, whence branch other nerves oblique to the midrib, but parallel to each other; and between these are the lines of fructification^m.

Native of South America.

9. The root consists of many fibres adhering to a short shapeless head, which is surrounded thickly by the stumps of decayed leaves, and is of a dark-brown colour. Fronds many, from three to six inches in length, the hollows between the lobes nearly of the same size and shape as the lobes themselves: there are about twenty pairs of these lobes in a frond, they are short, broad, roundish, entire but waved on the edge, largest in the middle of the frond, diminishing gradually both to the end and the base; they are of a dark shining green on the upper side; and when the plant is old the edges are rolled backwards. The stipe is short and brown. Linneus remarks, that the leaves are so scaly underneath, that the fructifications are not distinguishable; but this is only when the fronds are old, and is occasioned by the involucre of the fructification being very large: for when they are young the lines are sufficiently distinct, they are three or four, and sometimes five, six, and even seven in number, placed obliquely near the midrib on each side; at first they are pale coloured; but as the plant advances in growth, the seed-vessels enlarge, turn brown, and when they burst run together, and cover the whole lower disk, as in the genus *Acrostichum*ⁿ.

Native of most parts of Europe, on old walls and in the clefts of moist rocks: as about Bristol, Bury in Suffolk, Heydon in Norfolk, Asheridge in Hertfordshire; near Malham Tarn, and many other places in the northern countries. It is in seed from may to october.

It has been recommended as a pectoral, and as an aperient in obstructions of the viscera: and an infusion of the leaves has been given against the gravel^o. It was recommended by the ancients for the various disorders of the spleen, but it is entirely a stranger to modern practice^p.

10. Native of South America.

11. Height a foot and half, (Browne says three or four feet) upright, smooth. Pinnas long, striated. Fructifications in oblique straight parallel lines from the edge of the frond to the rachis^q. In old leaves they are so close, that it may easily be mistaken for an *Acrostichum* at first view^r.

Native of the West-Indies and Cochinchina.

12. Height a foot and half. Stipe blackish. Pinnas alternate, a third of an inch distant from each other, on very short footstalks: the middle pinnas are largest, being an inch and quarter long, and about half an inch broad at the base; they end in a point, are ferrate on the edges, and are eared at the uppermost edge of each pinna^s.

Native of Jamaica and the Antilles.

13. Roots small, consisting of brown capillary fibres. Fronds five or six inches in length, sometimes shorter and sometimes longer, lanceolate. Stipe and rachis smooth, glossy, blackish purple. Pinnas fifteen or twenty pairs, the lowest most remote, the rest nearer and nearer by slow gradation to the top, all opposite, their figure approaching to an oval, largest below, gibbous on the upper side at the base, and obliquely cut off on the lower, rounded or blunt at the end, crenate except at the base, where they are entire^t. The seminal lines are oblique to the midrib, three, four, or five in number, pale yellow or whitish when young, and covered with a membranous involucre; when this bursts, a multitude of brown capsules come out, which at length cover the whole under surface^u. According to Gleditsch, it differs from the others, in having the scale of the involucre ovate, gaping at the edge, and the capsules sub sessile. The leaflets vary sometimes in figure, and manner of notching about the edge.

Native of Europe, in the crevices of rocks and walls, and in shady places among stones. It is in seed from may to october.

The country people sometimes give a tea or syrup of it for coughs and other complaints of the thorax. A little of the syrup mixed with water makes a very pleasant draught. That which is brought from abroad has orange-flower water in it. But several different ferns are made use of for syrup of Capilaire.

14. The stipe of this is more tender, and frequently of a pale green colour, but sometimes brownish towards the root: in some specimens they are brown and glossy, as in the foregoing. Pinnas eighteen or twenty pairs: leaflets sometimes alternate, rhomboidal or trapezium-shaped, attached to the rachis by one of the angles, the upper and lower sides of the base entire, the remainder of the edge crenate^x, more deeply than in the preceding^y. The seed-vessels first appear in two or three white oblong spots about the centre of the leaflet; these turn of a yellowish brown, and when burst become confluent, covering the middle with a brownish nap^z. Though the leaflets of this be rather angular than roundish, the notches deeper, and the base more truncate, yet I think it may be doubted whether this is really distinct from the preceding; the green colour of the rachis can hardly be admitted as a specific difference.

Native of moist rocks on the mountains of Yorkshire, Westmoreland, and North Wales. Sometimes the leaves are proliferous or branched, which induced Linneus to call this *A. Trichomanes ramosum*^a.

15. Native of North America. Cultivated in 1779, by John Fothergill, M. D.^b

16. Native of South America and the West-Indies. *A pygmaeum* of Linneus, is nothing more than a young plant of this species^c.

17. *Sea Spleenwort* has fronds from three inches to a foot in length, but commonly about five or six inches. Stipes smooth, generally reddish brown. Pinnas from seven or eight to twenty pairs, from half an inch to an inch in length, nearly rhomboidal, sometimes lanceolate, sharply crenate, the notches equal in number to the lines of fructification; they are lobed on the upper side next the base, and on the lower side obliquely truncate, both above and below, at the base, entire, rounded or blunt at the end. Lines of fructification four or five (Lightfoot says, from three to nineteen) on

^b Linneus. ¹ Sloane. ^k Browne. ¹ Thunberg.
^m Plumier. ⁿ Bolton. Woodw. in With. Haller. ^o Lewis.
^p Lightf. ^q Loureiro. ^r Browne.

^s Sloane. ^t Bolton. ^u Weis. ^x Bolton. ^y Lightf.
^z Bolton. ^a Lightf. ^b Hort. kew. ^c Swartz. obs.

each side of the nerve, running obliquely, always distinct^d.

Native of Suffex, Devonshire, Cornwall, Cumberland, Lancashire, Scotland, and Wales, on rocks of the sea coast.

Mr. Lightfoot observed some imperfect starved specimens of this species, in the coves at Weems in Scotland, which he believes to be the same with the plant described and figured by Sibbald in p. 7. part 2. of his *Scotia illustrata*, and which Mr. Hudson named *Adiantum trapeziforme*.

18. Native of the island of Martinico.

19. This seldom grows above ten or twelve inches in length, and is always found with the top bending towards the ground^e. The young plant is simply pinnate, but when farther advanced it is bipinnate^f.

Native of Jamaica.

20. Fronds numerous, ascending, a foot high, frequently twisted, linear-lanceolate, acute, very smooth. Stipes slightly quadrangular, flat above with sharp edges, roundish beneath, dark brown, shining, smooth. Leaflets very numerous, slightly alternate, sessile, spreading very much, half an inch long, the lower ones opposite. Line of fructification single (seldom two), towards the middle of the leaflet, between the hinder edge and the nerve. Involucre membranaceous, brown, opening towards the nerve, with an entire waving margin; it is never turned back. Capsules brown, globular, with a jointed ring. This is confounded by the younger Linneus with *A. reflexum* (n. 30.) Native of the Cape of Good Hope^g.

21. Fronds many from one root, three or four inches high, furnished at the end with three (sometimes only two) pinnae, placed alternately; they are short, broad, either rhomboidal or trapezium-shaped, very dark green above, paler underneath; the two sides next the base entire, the two others finely crenate. The fructifications first appear in two or three longish white oblique dots on each side the nerve; when the seeds are ripe the vessels burst, and cover the whole disk of the frond except the edge^h.

Native of Europe, in the fissures of walls and rocks. In seed from June to October. This also was formerly used in coughs and obstructions, but is now entirely out of repute.

22. This differs from our common Wall-Rue in having the stems more simple, black at the base, with one or two short divisions only, having three leaves lobed and two-lobed: the other leaves are solitary, the first cut with four toothlets at most; the upper ones simple, with the tip shortly cut, much longer and more simple than those of *Ruta muraria*. In the lower part of the leaf are two or three lines, seldom four, of a longish formⁱ. Linneus persisted in regarding this as a variety only of the foregoing^k. Native of Switzerland and Austria.

23. *Black Maidenhair* has the fronds commonly eight or nine inches high, sometimes a little more or less; their outline is triangular. Stipes glossy, black or very dark red. Pinnae alternately pinnate, bright glossy green above, paler underneath; these are also pinnate, and the pinnules are subdivided half way into oval ferrate lobes. The fructifications appear at first in oblique whitish lines (three to seven), which afterwards become brown, and when they burst cover the disk of the leaflet except the edge^l.

Native of Europe, in the fissures of rocks and old walls, and among stones in shady places. In seed from April to October.

There are varieties in the leafing of this Fern.

24. Mr. Bolton describes the plant which he has figured thus. Leaves not broader below than in the middle, lance-shaped: second leaves alternate, remote, tapering; lobes divided down to the middle rib, of a roundish figure, and deeply crenate at top.

^d Bolton, Lightf. Woodw. M.S.

^e Smith. ^f Bolton, Lightf.

^g Lightfoot,

^h Browne.

ⁱ Haller.

^j Swartz.

^k Jacquin.

He looks upon it as a variety of the preceding species, and asks whether it be *A. lanceolatum* of Hudson; whose specific character runs thus—"fronds doubly pinnate lanceolate, leaflets alternate, pinnae obovate gash-crenate." The plant figured by John Bauhin seems to be a variety of *A. Trichomanes*, and this being referred to by Linneus, his plant cannot be the same with that of Hudson.

25, 26, 27. Natives of South America.

28. Height from fourteen to eighteen inches. Stipe black and simple. Leaves pointed, and appearing as if torn at the margin. Native of Jamaica^m.

29. Stipe compressed, furrowed, scaly at bottom, smooth above, upright, two feet high. Pinnae opposite, sessile, lanceolate, the lower longest, the upper subtriangular, pointed; the lobes ovate, obtuse, ferrulate. Lines of fructification parallel approximating, three or four contiguous. It differs from *A. squamosum* in having gashed ferrulate pinnaeⁿ. Native of Japan.

30. Frond a foot high, lanceolate, acute, smooth. Stipe round, dark brown, shining, furnished very seldom with a very few scattered little scales. Leaflets numerous, alternate, subsessile, spreading, an inch long, entire at the base and along the hinder edge, and appearing as if cut off at the nerve in front and at the tip unequally gash-crenate, veined with cloven veins; the lower ones are commonly opposite: the end lobe is lengthened out, almost linear, alternately ferrate. Lines of fructification two or three, very seldom four, towards the tip of the leaflets, commonly between the hinder margin and the nerve. Integument or involucre membranaceous, brown, always taking its rise from a vein, gaping on the inside or towards the nerve, with an entire waving edge; it is never turned back. Capsules brown, shining, with a jointed ring. This and *A. monanthemum* seem as if the leaflets had been cut in half. Found by Commerfon in the island of Bourbon^o.

31. Root bulbous, roundish, farinaceous, large, brown. Height one foot, diffused. Stipes fleshy, thick, tubercled, reclining. Leaflets smooth. Fructifications in oblique parallel lines. Native of the mountains of CochinChina, where the root is eaten^p.

32. Root small, scaly, black, with many long dark-brown fibres. Leaves many, of different sizes, the largest two inches and a half long, and about half an inch broad near the middle. They end in a point, which bows down to the ground, takes root, and sends out rounder leaves, in time growing longer, and with their ends taking root. The seed lies in round spots on each side of the middle rib underneath^q. Native of Jamaica.

33. Fronds several, upright, about four inches high, very like the leaves of *Terdylum Anthriscus*. Stipes round, slender, black and shining at bottom, but among the leaflets green, with small bristles scattered over it. Leaflets elongate-triangular, acute, subpetioled, divided into rounded blunt lobes; the lowest and end leaflets are longer than the rest, and eared on each side at the base; on the nerves are very small bristles, scarcely visible with the naked eye. Fructifications on the whole back of the frond, oblong, ascending, rufous, from two to four lines in length^r. Native of Jamaica and Martinico.

34—39. Natives of Jamaica. The last has a solid black root, covered with a black hairy moss towards its top, whence rise nine or ten leaves about three inches high. Stipes dark green, at an inch from the ground dividing into several alternate twigs, those in the middle being largest, about three quarters of an inch long, made up of alternate, small, roundish pinnules, deeply cut in at the edge, of a pale green colour above, and underneath having very many ferruginous spots^s.

40—47. Natives of New Zealand.

Some of these may probably be of the genus

^m Browne.

ⁿ Thunberg.

^o Smith.

^p Loureiro.

^q Sloane.

^r Jacquin.

^s Sloane.

Cenopteris. The 39th species is thought to be so by Dr. Smith¹.

PROPAGATION AND CULTURE.

Whoever is desirous of cultivating any of these Ferns, must have walls, rocks or heaps of stones to set the hardy species in; or pots may be filled with loamy undunged earth, or sand, gravel and lime rubbish for that purpose, placing them in the shade. Hart's-tongue has been raised from seed; but all the sorts may be increased by parting the roots. Some of the foreign ones must be placed under a common frame in winter; and it is evident that such as are natives of the West-Indies and other hot climates, require the protection of a stove.

ASPLENIUM. See *Acrostichum*, and *Meniscium*.

ASPRELLA. See *Leersia*.

ASSA-FOETIDA. See *Ferula*.]

[ASSONIA. (So named in honour of Ignatius de Azzo, a Spanish Botanist, author of a *Flora of Aragon*, &c.)

Lin. gen. Schreb. n. 1123. Cavanill. diff. 3. p. 120.

Dombeya, ib. p. 121.

Class. 16. 5. Monadelphia Dodecandria.

Nat. order of *Columniferae*. *Malvaceae* Juss.

GENERIC CHARACTER.

CAL. Perianth double.

Outer three-leaved, unilateral, deciduous.

Inner one-leaved, five-parted; parts lanceolate, acute, reflex.

COR. Petals five, roundish, narrowed at the base, spreading, withering, affixed to the pitcher of the stamens.

STAM. Filaments fifteen, filiform, upright, shorter than the corolla, conjoined at the base into the form of a pitcher. Anthers oblong subsagittate, erect: five linear-lanceolate, somewhat erect, coloured, petal-formed straps between the stamens, proceeding from the pitcher.

PIST. Germ roundish, five-furrowed. Style simple, longer than the stamens, permanent. Stigmas five, recurved.

PER. Capsule subglobose or turbinate, five-celled: cells separable, bivalve.

SEEDS solitary or in pairs, subovate.

OBS. *Affonia* differs from *Pentapetes*, as *Sida* from *Lagunæa*.—*Affonia* Cav. with the outer perianth one-leaved, three-toothed, and with five styles, does not seem separable from *Dombeya* Cav. with the outer perianth three-leaved, and a single style, any more than the *Hibiscus tiliaceus* from the other *Hibisci*; or the one-styled *Sidas* from the rest; especially as *Dombeya ovata* Cav. has the style divided nearly to the base. S.

ESSENTIAL CHARACTER.

Cal. double: outer one-leaved or three-leaved, inner one-leaved. Cor. five-petalled, without any tube, affixed to the pitcher of stamens. Filam. connected in form of a pitcher, with petal-shaped straps between them. Style one or five. Caps. five-celled. Seeds not winged.

SPECIES.

1. *Affonia populnea*.

Cavan. diff. 120. t. 42. f. 1.

Leaves cordate ovate-acuminate, flowers corymbed.

2. *Affonia palmata*.

Dombeya palmata. Cavan. diff. 122. t. 38. f. 1.

Leaves cordate palmate smoothish, lobes seven acute, serrate-crenate; flowers corymbed.

3. *Affonia acutangula*.

Dombeya acutangula. Cavan. diff. 123. t. 38. f. 2.

Leaves cordate roundish-three-cusped crenate, at first tomentose; flowers racemed.

4. *Affonia angulata*.

Dombeya angulata. Cavan. diff. 123. t. 39. f. 1.

Leaves cordate roundish, angular at top, serrate-toothed, tomentose; umbels numerous; common peduncles shorter than the petiole.

5. *Affonia tiliæfolia*.

Dombeya tiliæfolia. Cavan. diff. 124. t. 39. f. 2.

Leaves cordate roundish-acute crenate; flowers raceme-corymbed.

¹ Ic. ined. 2. 59.

6. *Affonia tomentosa*.

Dombeya tomentosa. Cavan. diff. 125. t. 39. f. 3.

Leaves cordate roundish crenate tomentose, with almost circular veins; flowers umbelled.

7. *Affonia punctata*.

Dombeya punctata. Cavan. diff. 125. t. 40. f. 1.

Leaves ovate-lanceolate long quite entire tomentose underneath, rugged with dots in the upper surface.

8. *Affonia decanthera*.

Dombeya decanthera. Cavan. diff. 126. t. 40. f. 2.

Leaves ovate acuminate repand-crenate smooth; stamens five two-anthered; flowers small umbelled.

9. *Affonia umbellata*.

Dombeya umbellata. Cavan. diff. 127. t. 41. f. 1.

Leaves cordate ovate-oblong, acuminate repand smooth; flowers umbelled globular.

10. *Affonia ovata*.

Dombeya ovata. Cavan. diff. 127. t. 41. f. 2.

Leaves ovate toothed five-nerved tomentose; style very small.

11. *Affonia ferruginea*.

Dombeya ferruginea. Cavan. diff. 128. t. 42. f. 2.

Leaves ovate-oblong seven-nerved ferruginous beneath; petioles, peduncles, and calyxes tomentose.

DESCRIPTIONS, &c.

Not approving of multiplying genera, I have followed Schreber in uniting *Dombeya* with *Affonia*. I have left the species as I find them in Cavanilles, except that I refer to *Pentapetes* for his *Dombeya phoenicia*. Perhaps some of the other species of *Dombeya*, and even his *Affonia populnea*, may hereafter be found to range more properly under the genus *Pentapetes*.

1. This is a middle-sized tree, resembling *Hibiscus populneus*: the wood is sweet-scented, and blue in the centre; whence the French in the isle of Bourbon call it *Bois de senteur bleu ou galeux*; when it is of a certain age it becomes very hard. Leaves alternately scattered, large, generally quite entire but sometimes having a few teeth and being waved, acuminate, and hanging down obliquely. Flowers in a sort of corymb both axillary and terminating; the common peduncle dichotomous, and having usually a single flower on each division on a longer pedicel. Outer calyx so small as scarcely to be observed without an attentive inspection: the segments of the inner calyx spreading very much at first, then turned back, and finally bent upwards, so as closely to embrace the fruit. Petals small, oblong, obliquely sickle-shaped, at first white but afterwards becoming ferruginous. The five straps or barren filaments are broader and a little shorter than the other fifteen. Germ somewhat flattened, pubescent. Styles five, very short. Fruit globular, umbilicate, five-capsuled, the capsules converging, one-celled, and each cell containing two seeds.

Native of the isle of Bourbon, in hilly woods; flowering there in May.

2. Stem arboreous branched. Leaves alternate, on long petioles, but yet longer than they; lobes oblong, acuminate. Stipules lanceolate, acute, tomentose, deciduous. Flowers on solitary peduncles at the ends of the branches, longer than the petiole, branched above, and in a sort of corymb; these, with the pedicels, branches, petioles, and calyxes are tomentose. Leaflets of the outer calyx cordate, roundish, the middle one larger, sessile, the side ones petioled; the inner calyx much longer. Corolla an inch and half wide, at first white, then sulphur-coloured, and finally, when it invests the fruit, ferruginous; but this is the case with the following species. Style villose at the base, purple at top. Fruit subovate, woolly, with five obtuse angles; and one seed in each capsule. Native of the isle of Bourbon; flowering there in May and June. The natives call it *Mabot-tantau*, on account of the resemblance which the leaves bear to those of *Ricinus Palma Christi*, which is there named *Tantan*.

3. Stem arboreous. Leaves alternate, petioled, large, about the same length with the petioles, seven-

^a Cavanilles. ^b Jussieu. ^c Cavanilles. ^d Ibid.

nerved, having frequently an angle or tooth between the base and the lateral cusps; they are tender, and ferruginously tomentose, but become almost bald with age. Stipules lanceolate, deciduous. Racemes solitary, axillary, upright, longer than the petiole; flowers on long pedicels. Peduncles, petioles, and branches tender. Calyxes extremely tomentose. These and the corolla as in the foregoing; but the latter smaller, about an inch wide, veined and coriaceous. Fruit shaped like a pear, tomentose, and having one seed in each cell or capsule. Native of the isle of Bourbon^c.

4. Stem arboreous, with tomentose branches. Leaves with three angles at the tip, and frequently another on each side at the base; they are seven-nerved, and near five inches in diameter. Stipules broad, oblong, acuminate, stem-clasping, deciduous. Umbels solitary, axillary. Common peduncle an inch long, thick, woody; pedicels about ten, scarcely three lines in length, tomentose. Inner calyx tomentose; segments small, containing the fruit. Style small: stigmas longer, villose, permanent. Fruit globular, tomentose; with two seeds in each cell or capsule. Native of the isle of Bourbon^f.

5. Stem arboreous. Branches, peduncles, calyxes, and petioles tender and very tomentose. Leaves alternate, numerous, nearly equal to the petioles, the same size and figure with those of the Lime-tree (*Tilia europæa*), seven-nerved, tomentose but becoming almost bald by age. Stipules sub lanceolate, broad at the base, very sharp at the tip, villose. Peduncles axillary, solitary, upright, longer than the petiole, divided at the end into two opposite horizontal racemes, in which are several flowers on short pedicels. The middle leaflet of the outer calyx is kidney-shaped, sessile, and broader; the lateral ones are shortly ovate, and petioled. Corolla an inch in diameter. Native of the isle of Bourbon^g.

6. Stem arboreous, branched; the branches and whole tree very tomentose. Leaves alternate, nearly equal to the petiole, sharp, seven-nerved. Stipules coriaceous, broad-ovate, acuminate, ciliate, half-stem-clasping. Common peduncle very long, axillary, solitary at the top of the branches, forked at the top, and terminated by two umbels; pedicels near twenty, an inch in length; between the two umbels is a long single pedicel, sustaining one flower. Middle leaf of the outer calyx cordate, roundish, sharp, sessile, veined; the two lateral ones are sub-ovate, and end in a petiole: the inner calyx is somewhat larger. Petals roundish-sickle-shaped. Anthers short. Native of Madagascar^h.

7. This is a tree with a trunk growing to the thickness of the human leg or thigh, with a very dark-brown bark. Branches alternate, tomentose. Leaves three or four inches long, and about an inch and half broad, commonly entire (but sometimes crenulate or sinuate), slightly repand, rounded at the base, five or six times longer than the petioles. Stipules narrow lanceolate, very sharp, long, tomentose, deciduous. Flowers on a long, axillary common peduncle, umbelled, white but becoming ferruginous by age, the eye and stamens purple, scarcely more than half an inch in diameter. Pedicels (twenty to thirty) half an inch in length, one-flowered. Leaflets of the outer calyx, subulate: both that and the inner extremely tomentose. Petals sub-ovate, spreading very much. Germ roundish, tomentose, without any style: this tree may therefore probably be dioecous, and Commerçon saw only the male. Native of the isle of Bourbonⁱ.

8. Stem arborescent, with a brown, furrowed bark. Leaves alternate, scattered, four times as long as the petioles. Stipules subovate, oblong, deciduous. Common peduncles axillary, solitary, at the ends of the branches, shorter than the leaf: pedicels fifteen to twenty, two or three lines in length. The outer calyx consists of three very small bristles; the segments of the inner acute; both are

smooth. Corolla small, scarcely three lines in diameter. Filaments only ten, five barren, broader, longer; five fertile, half the length of the others, supporting two anthers, the upper one shortly pedicelled, the lower subsessile: anthers subfagittate, short. Germ ovate-five-cornered, very small: style short, cloven into two or three at the tip; stigmas red, revolute. One seed in each cell of the fruit. Native of Madagascar^k.

9. This is a tree entirely smooth, with a brown bark. Leaves petioled, longer than the petioles, either repand about the edge or obsoletely and broadly crenate. Stipules short, sublinear, deciduous. Common peduncles solitary, axillary, on the tops of the branches, reddish, very smooth, shorter than the leaflets, terminated by a single globose umbel; pedicels twenty to thirty nearly an inch in length. Leaflets of the outer calyx small, lanceolate, lateral; segments of the inner narrow lanceolate. Corolla larger than in the foregoing species, spreading; petals roundish-sickle-shaped, at first whitish, but becoming finally deeply ferruginous; they are permanent. Fruit globular, five-furrowed, tomentose; with one seed in each cell or capsule.

Native of the isle of Bourbon, where they make ropes of the bark^l.

10. Stem frutescent or arborescent, branched, covered with a ferruginous nap. Leaves alternate, white underneath, rugged on the upper surface, double the length of the petioles. Stipules capillary, upright, tomentose. Flowers on axillary, solitary, upright peduncles, shorter than the leaf, at the ends of the branches. The peduncles are forked at the top, and there is a corymb on each division; the flowers are pedicelled. The leaflets of the outer calyx are narrow lanceolate and tomentose; the segments of the inner are sharp and not reflex. Corolla a little larger than the calyx and spreading; petals narrow, roundish at the end but not sickle-shaped, quite entire, the same colour as the foregoing; their claws are permanent and deeply ferruginous. Germ very small, villose. Style so very small as not to be visible with the naked eye except when the fruit is ripe. Stigmas thickish, upright, red, longer than the style, but very small. Fruit globular-five-cornered, within the segments of the calyx. Capsules or cells subtomentose, with one ovate-acuminate, black seed in each. Native of the isle of Bourbon^m.

11. Stem arborescent, from eight to ten feet high (scarcely four in our stoves); the branches, especially the younger ones clothed with a rufous nap. Leaves on the extreme twigs scattered alternately, acuminate, tooth-ferrulate, green on the upper surface and smooth, tomentose on the under. Stipules subulate, tomentose. Flowers on axillary, solitary peduncles, double the length of the petiole, nearly upright, forked at the top, with a many-flowered corymb on each division. Calyx, corolla, and stamens as in the foregoing species. Germ roundish, somewhat hirsute, reddish; style very small, divided into five threads shorter than the stamens. Fruit tomentose, roundish-five-cornered. Seeds rather oblong, keeled at the part of contact, convex on the other side. It may perhaps be no more than a variety of the preceding; the leaves however of this are acuminate, much broader at the base, seven-nerved and very much toothed; whereas in that they are strictly ovate, five-nerved, and the teeth are distant. Native of the isle of Mauritius. Cultivated in the royal garden at Paris; but it has not flowered there. Observed first by Commerçon in may 1769ⁿ.

PROPAGATION AND CULTURE.

See *Hibiscus*, and *Pentapetes*.

ASSONIA or Dombeya phoenicea. See *Pentapetes*.

ASTER: (*ἄστρον*, Gr. a star; so called because the flower is radiated.)

Engl. Starwort. Fr. *Astère*.

Lin. gen. n. 954. Reich. 1034. Schreb. 1291.

Tournef. 274. Vaill. mem. acad. 1720. Dill.

elth. 36. f. 41. Juss. 181. Gertn. t. 170.

^c Cavanilles. ^f Ibid. ^g Ibid. ^h Ibid. ⁱ Ibid.

^k Cavanilles. ^l Ibid. ^m Ibid. ⁿ Ibid.

Class. 19. 2. Syngenesia Polygamia Superflua.
Nat. order of *Compositi Radiati*. *Corymbiferae* Juss.

GENERIC CHARACTER.

- CAL. Common imbricate: the inner scales prominent a little at the end, the lower ones spreading.
COR. Compound radiate: Corollules hermaphrodite numerous in the disk. Females ligulate, more than ten in the ray.—Proper, of the hermaphrodite, funnel-shaped, with a five-cleft spreading border; of the female ligulate, lanceolate, three-toothed, at length rolling back.
STAM. hermaphr. Filaments five, capillary; very short: anther cylindric, tubulous.
PIST. hermaphr. Germ oblong: style filiform, the length of the stamens: stigma bifid, spreading—females, germ and style the same: stigmas two, oblong, revolute.
PER. none. Calyx scarcely changed.
SEEDS solitary, oblong, ovate. Down capillary.
REC. naked, flattish.

ESSENTIAL CHARACTER.

Recept. naked. Down simple. Cor. ray more than ten. Cal. imbricate, lower scales spreading.

SPECIES.

* Shrubby.

- [1. After taxifolius. Few-leaved Starwort.
Lin. spec. 1225. syst. 760. Reich. 3. 803. Berg. cap. 286. amæn. acad. 6. afr. n. 69. Raii suppl. 159. n. 27.
Undershrubby; leaves decurrent, subulate, channelled, ciliate, flowers terminal.
2. After reflexus. Reflected-leaved Starwort.
Lin. spec. 1225. syst. 760. Reich. 3. 803. amæn. 6. afr. 68. Berg. cap. 285. Comm. hort. 2. 51. t. 28. Raii suppl. 159. 22.
Shrubby; leaves ovate, subimbricate, recurved, serrate-ciliate; flowers terminal.
3. After crinitus.
Lin. spec. 1225. syst. 760. Reich. 3. 803. amæn. 6. afr. n. 66.
Shrubbyish; leaves ovate-oblong, acute, tomentose underneath; calyxes terminated with a hair.]
4. After fruticosus. Shrubby Starwort.
Lin. spec. 1225. 5. Reich. 3. 804. hort. cliff. 409. Berg. cap. 287. Mill. dict. n. 29. Comm. hort. 2. 53. t. 27.
β. Pluk. mant. 29. t. 340. f. 19. Raii suppl. 158. n. 20.
Shrubby; leaves linear, dotted; peduncles one-flowered, naked.
** Herbaceous, entire-leaved, peduncles naked.
[5. After tenellus. Bristly-leaved Starwort.
Lin. spec. 1225. syst. 760. Reich. 3. 804. mant. 471. amæn. 5. afr. 67. Jacqu. obs. 4. p. 8. t. 88. Curtis magaz. t. 33. Pluk. alm. 56. t. 271. f. 4. Raii suppl. 164. n. 84.
Leaves filiform prickly-ciliate; calyxes hemispheric, with equal leaflets.]
6. After alpinus. Alpine or great blue Mountain Starwort.
Lin. spec. 1226. syst. 761. Reich. 3. 804. Mill. dict. n. 1. Hall. belv. n. 82. Gouan. monsp. 442. Jacqu. austr. 1. t. 88. Gmel. fib. 2. 173. t. 73. f. 2. Curtis magaz. t. 199. Raii hist. 268. n. 15.
β. Baub. pin. 267. n. 4. A. scaber. Mill. dict. n. 16.
γ. Baub. pin. 267. n. 2. prodr. 124. Raii hist. 269. n. 16. Mor. hist. 119. n. 21.
Leaves subspatulate rough with hairs, quite entire; stems simple, one-flowered.
7. After fibricus. Siberian Starwort.
Lin. spec. 1226. Reich. 3. 805. Mill. dict. n. 34. Gmel. fib. 2. 186. t. 80. f. 1.
Leaves lanceolate almost stem-clasping, serrate hairy-scabrous; calyxes lax, leaflets lanceolate acuminate leafy bispid.
8. After Tripolium. Sea Starwort.
Lin. spec. 1226. Reich. 3. 805. succ. 753. Mill. dict. n. 3. Hudf. angl. 368. With. 915. Sowerby eng. bot. t. 87. Lightf. scot. 482.]

- Rehb. cant. 318. Gmel. fib. 2. 187. t. 80. f. 2.
Scop. carn. n. 1076. Fl. dan. t. 615. Mor. hist. 121. n. 37. f. 7. t. 22. f. 36. Pet. herb. t. 17. f. 10, 11. Ger. 333. emac. 413. 1, 2. Park. 674. Baub. hist. 2. 1064. 2. Raii hist. 270. n. 20. syn. 175.
α. Flore radiato. With a radiate flower.
β. Flore discoideo. With a naked discous flower.
Leaves linear-lanceolate quite entire fleshy smooth, three-nerved, calycine leaflets submembranaceous obtuse.
9. After Amellus. Italian Starwort.
Lin. spec. 1226. Reich. 3. 805. hort. cliff. 407. Hall. belv. n. 83. Scop. carn. n. 1077. Pollich pal. n. 801. Jacqu. austr. 5. t. 425. Allion. pedem. n. 702. t. 69. f. 2. Mill. dict. n. 2. Blackw. t. 109. Raii hist. 268. n. 13. Mor. hist. 119. n. 18.
Amellus. Virg. georg. 4. 271. edit. Mart. ic. p. 368. Calceol. veron. 8.
Leaves oblong-lanceolate entire scabrous; branches corymbed; calyxes imbricate, subsquarrose, leaflets obtuse, the inner membranaceous coloured at the end.
10. After divaricatus. Divaricate Starwort.
Lin. spec. 1226. Reich. 3. 806. Mill. dict. 35. Gron. virg. 123. & 1. p. 99. Pluk. alm. 56. t. 79. f. 1.
Branches divaricate; leaves ovate, serrate; floral leaves quite entire, rather obtuse, stem-clasping.
*** Herbaceous, entire-leaved, peduncles scaly.
[11. After hyssopifolius. Hyssop-leaved Starwort.
Lin. syst. 761. Reich. 3. 806. mant. 114, 517.
Leaves linear-lanceolate drawn to a point at the base, quite entire stiff; branchlets corymbed fastigate; leaflets frequently linear imbricate; calyxes imbricate.]
12. After dumosus. Bushy Starwort.
Lin. spec. 1227. Reich. 3. 806. hort. cliff. 408. Mill. dict. n. 27. Gron. virg. 123. Herm. par. t. 95. Pluk. alm. 56. t. 78. f. 6. Raii suppl. 165. n. 1. Mor. hist. 121. n. 44.
Leaves linear quite entire smooth, those on the branchlets very short; branches panicled; calyxes cylindric closely imbricate.
13. After ericoides. Heath-leaved Starwort.
Lin. spec. 1227. Reich. 3. 807. Mill. dict. n. 12.
Leaves linear quite entire very smooth, those of the branchlets subulate approximating, those of the stem elongated; calyxes subsquarrose, leaflets acute, stem smooth.
14. After tenuifolius. Fine-leaved Starwort.
Lin. spec. 1227. Reich. 3. 807. Mill. dict. n. 14. Pluk. alm. 56. t. 78. f. 5.
Leaves sublinear quite entire; peduncles leafy.
[15. After linarifolius. Savory-leaved Starwort.
Lin. spec. 1227. Reich. 3. 807. Pluk. alm. 56. t. 14. f. 7. Raii suppl. 165. n. 3. Mor. 121. n. 34.
Leaves linear quite entire mucronate scabrous stiff, upper ones lax remote; calyxes imbricate, branches fastigate.
16. After linifolius. Flax-leaved Starwort.
Lin. spec. 1228. syst. 761. Reich. 3. 808. hort. cliff. 408. Mill. dict. n. 4. Gron. virg. 123. Mor. hist. 3. 121. n. 33.
Leaves linear quite entire roughish; branches corymbed; fastigate with small leaflets; calyxes imbricate; rays about equal to the disk.
17. After acris.
Lin. spec. 1228. Reich. 3. 808. Gouan. monsp. 442. Sauv. monsp. 54. Garid. aix. 47. t. 11. Barr. ic. 606. good. Lob. ic. 349. good. Pluk. alm. 56. t. 271. f. 3?
A. linarifolius. Mill. dict. n. 10.
A. tripolii flore. Baub. pin. 267. Raii hist. 269. Mor. 120. n. 31.
Leaves lanceolate-linear stiff quite entire flat; flowers corymbed fastigate; peduncles leafy.
18. After concolor.
Lin. spec. 1228. Reich. 3. 808. Mill. dict. n. 11. Gron. virg. 123.
Leaves ovate sessile quite entire; stem quite simple; raceme terminal.]

19. *Aster rigidus*. Stiff-leaved Starwort.
Lin. spec. 1228. *Reich.* 3. 809. *Mill. dict. n.* 25?
Gron. virg. 124.
Leaves linear alternate; flowers terminal solitary.
20. *Aster Novæ Angliæ*. New-England Starwort.
Lin. spec. 1229. *Reich.* 3. 809. *hort. cliff.* 408.
Mill. dict. n. 5. *Gron. virg.* 124. *Herm. par.*
t. 98. *Raii suppl.* 156. *n.* 3.
α. ramis brevissimis subconfertis. With very short clustered branches.
β. ramis numerosis paniculatis. With numerous panicked branches.
Leaves lanceolate quite entire cordate stem-clasping hairy; calyxes longer than the disk, loose, leaflets linear-lanceolate nearly equal; stem hispid.
21. *Aster undulatus*. Waved Starwort.
Lin. spec. 1228. *Reich.* 3. 809. *hort. cliff.* 408.
Mill. dict. n. 6. *Gron. virg.* 124. *Herm. par.*
t. 96. *Mor. hist.* 3. 120. *n.* 26.
Leaves ferrate hairy waved, lower cordate; petioles winged dilated at the base; branchlets virgate, calyxes imbricate; stem hispid.
22. *Aster grandiflorus*. Catesby's Starwort.
Lin. spec. 1231. *syst.* 762. *Reich.* 3. 809. *Mill. dict. n.* 15. *fig. t.* 282. *Mart. rar. t.* 19. *Gron. virg.* 99, 124. *Dill. elth. t.* 36. *f.* 41.
Leaves stem-clasping linear quite entire hispid ciliate; those of the branches and calyx reflex.
***** Herbaceous, leaves ferrate, peduncles smooth.*
23. *Aster cordifolius*. Heart-leaved Starwort.
Lin. spec. 1229. *syst.* 762. *Reich.* 3. 810. *hort. cliff.* 408. *Mill. dict. n.* 13. *Mor. hist.* 3. 121. *n.* 35. *f.* 7. *t.* 22. *f.* 34. *Corn. canad.* 64. *t.* 65.
Leaves heart-shaped acute, finely ferrate, underneath hairy; petioles almost simple; branches panicked; stem rough with hairs.
24. *Aster puniceus*. Red-stalked Starwort.
Lin. spec. 1229. *Reich.* 3. 810. *hort. cliff.* 408.
Mill. dict. n. 7. *Herm. lugdb.* 649. *t.* 651.
Mor. hist. 3. 120. *n.* 28.
α. septempedalis, caulibus saturate purpureis. Ait. hort. kew. 209.
β. octopedalis, caul. e viridi rufescentibus. Ait. hort. kew. 209. *A. altissimus. Mill. dict. n.* 20.
γ. tripedalis. Ait. hort. kew. 209.
Leaves stem-clasping lanceolate ferrate subscabrous; branches panicked; calyxes surpassing the disk, leaflets linear-lanceolate nearly equal; stem hispid.
25. *Aster annuus*. Annual Starwort.
Lin. spec. 1229. *Reich.* 3. 810. *hort. cliff.* 409.
upf. 262. *Mill. dict. n.* 28. *Fl. dan. t.* 486.
Mor. hist. 3. 122. *n.* 48. *Corn. canad.* 193.
t. 194. *Park. theat.* 528. *f.* 4.
Leaves somewhat hairy, the lower ones subovate serrate; the upper lanceolate; calyxes hemispheric; leaflets subequal strigose.
- [26. *Aster vernus*. Vernal Starwort.
Lin. spec. 1230. *Reich.* 3. 811. *Gron. virg.* 124.
Root-leaves lanceolate quite entire obtuse; stem almost naked filiform a little branching; peduncles naked.
****** Herbaceous, leaves ferrate, peduncles scaly.*
27. *Aster indicus*. Indian Starwort.
Lin. spec. 1230. *Reich.* 3. 811. *Thunb. jap.* 316.
Pluk. alm. 57. *t.* 149. *f.* 4.
Leaves ovate-oblong, ferrate; floral leaves oval-lanceolate quite entire; branchlets one-flowered.
28. *Aster lævis*. Smooth Aster.
Lin. spec. 1230. *Reich.* 3. 811.
Leaves stem-clasping oblong quite entire shining, root-leaves subserrate; branches simple bearing about one flower; calyxes imbricate; peduncles leafy subdivided; leaflets somewhat wedge-shaped acute, thickened at the end; stem smooth.
29. *Aster mutabilis*. Variable Starwort.
Lin. spec. 1230. *Reich.* 3. 811. *Mill. dict. n.* 33.
Herm. lugdb. 65. *t.* 67. *Pluk. alm.* 56. *t.* 326.
f. 1. *Murr. prodr.* 180.
Leaves almost stem-clasping lanceolate ferrate glossy drawn to a point below; branchlets virgate; calyxes somewhat leafy, lux; stem smooth.
30. *Aster Tradescanti*. Tradescant's Starwort.
Lin. spec. 1230. *Reich.* 3. 812. *hort. cliff.* 408.

- upf.* 262. *Park. theat.* 132. *Mor. hist.* 3. 121.
n. 43. *Raii hist.* 270. *n.* 21.
α. flor. cæruleis. Tradescant's dwarf Starwort.
β. flor. albis. Tradescant's tall Starwort.
Leaves lanceolate ferrate sessile smooth; the middle branches virgate; calyxes closely imbricate; stem round smooth.
31. *Aster Novi Belgii*. New Holland Starwort.
Lin. spec. 1231. *Reich.* 3. 812. *hort. cliff.* 408.
upf. 262. *Mill. dict. n.* 9. *Murr. prodr.* 181.
Herm. lugdb. 66. *t.* 67.
Leaves almost stem-clasping lanceolate smooth but scabrous about the edge, the lower ferrate; branches subdivided; calyxes loosely imbricate, leaflets linear-lanceolate; stem round smooth.
- [32. *Aster tardiflorus*. Late-flowering Starwort.
Lin. spec. 1231. *Reich.* 3. 812.
Leaves sessile lanceolate drawn to a point at the base ferrate smooth; calyxes lax, leaflets lanceolate-linear subequal, smooth.]
33. *Aster miser*. Small white-flowered Starwort.
Lin. spec. 1232. *Reich.* 3. 813. *Mill. dict. n.* 8.
Leaves sessile lanceolate subserrate smooth; calyxes imbricate, leaflets acute; disk equal to the rays.
- [34. *Aster macrophyllus*. Broad-leaved blue Starwort.
Lin. spec. 1232. *Reich.* 3. 813. *L'Herit. stirp. nov.* 2. *t.* 66. *Vaill. act.* 583. *Gærtn. fruct.* 2. 449.
Leaves ferrate, oblong; the upper ovate sessile, those on the stem cordate petioled; upper petioles winged.]
35. *Aster chinensis*. Chinese Starwort, China Aster.
Lin. spec. 1232. *syst.* 763. *Reich.* 3. 813. *hort. cliff.* 407. *upf.* 262. *Dill. elth.* 38. *t.* 34. *f.* 38.
Mill. dict. n. 30.
Leaves ovate angular toothed petiolate, calyxes expanding leafy terminal.
- [36. *Aster tataricus*. Tartarian Starwort.
Lin. syst. 763. *suppl.* 373.
Root-leaves lanceolate-ovate ferrate scabrous; stem few-flowered.
-
37. *Aster hispidus*. Shaggy Starwort.
Lin. syst. 763. *Thunb. jap.* 315.
Lowest leaves oblong crenate scabrous, stem-leaves lanceolate entire ciliate; stem scabrous.
38. *Aster scaber*. Rugged Starwort.
Lin. syst. 763. *Thunb. jap.* 316.
Leaves oblong ferrate scabrous, peduncles panicked.]
Species recited by Mr. Miller, &c.
39. *Aster glaber*. Peach-leaved Starwort.
Mill. dict. n. 17.
A. perficæ fol. ferratis glabris, flor. sparsis pallido cæruleis. Dillen. cat. oxon.
Leaves oblong-lanceolate acute ferrate, stem branching, flowers terminal, calyxes linear erect.
40. *Aster ferotinus*. Late-flowering blue Starwort, vulg. Michaelmas Daisy.
Mill. dict. n. 18.
A. cæruleus ferotinus fruticescens Tradescanti. Raii hist. 269.
Leaves oblong acute broader at the base half-stem-clasping, stem branching, flowers terminal, for the most part solitary.
41. *Aster præcox*. Early Starwort.
Mill. dict. n. 19.
A. pyrenaicus præcox fl. cæruleo majori. H. R. Par.
Leaves oblong acute scabrous sharply toothed half-stem-clasping, stem erect hairy, flowers corymbed, calyxes hairy erect.
42. *Aster altissimus*. Lofty Starwort.
Mill. dict. n. 20. *See puniceus β. n.* 24.
43. *Aster ramosissimus*. Branching Starwort.
Mill. dict. n. 21.
Leaves linear-lanceolate stiff; stem very branching spreading, flowers placed regularly one above another, peduncles leafy.
44. *Aster umbellatus*. Umbelled Starwort.
Mill. dict. n. 22. *Ait. hort. kew.* 3. 199.
Leaves lanceolate, drawn to a point at the base, quite entire, about the edge scabrous; branches corymbed fastigiate.

45. *After nervosus*. *Three-nerved Starwort*.
Mill. dict. n. 23.
Leaves linear-lanceolate acute nerved; stem simple; flowers terminal in a kind of umbel.
46. *After paniculatus*. *Panicled Starwort*.
Mill. dict. n. 24. Ait. hort. kew. 207.
Lower leaves ovate half-stem-clasping at the base; upper leaves lanceolate small; stem panicled; branches one-flowered; peduncles leafy.
47. *After latifolius*.
Mill. dict. n. 26.
A. latifolius tripolii flore. H. R. Par. } according
A. canadensis linariæ folio. H. R. Par. } to Miller.
Leaves linear-lanceolate smooth three-nerved; flowers corymbed terminal.
48. *After procumbens*. *Procumbent Starwort*.
Mill. dict. n. 32. fig. t. 57. f. 2.
A. amer. proc. bellidis minoris facie. Houtt. M.S.S.
Leaves ovate toothed; stem procumbent; peduncles naked axillary one-flowered.
- [49. *After holosericeus*.
Forst. florul. n. 296.
Herbaceous, leaves oblong-lanceolate serrate, underneath silver-silky, scapes one-flowered leafy.
50. *After coriaceus*.
Forst. florul. n. 297.
Herbaceous, leaves ovate quite entire, furrowed above, woolly underneath, scapes one-flowered leafy woolly.

Species of After from the Kew catalogue.

51. *After Cymbalariae*. *Cymbalaria-leaved Starwort*.
Ait. hort. kew. 197.
Shrubby; leaves ovate sinuate rough with hairs, calyxes imbricate rough with hairs.
52. *After nemoralis*. *Wood Starwort*.
Ait. hort. kew. 198.
Leaves linear-lanceolate drawn to a point at the base somewhat scabrous; branches filiform one-flowered; calyxes lax imbricate, leaflets acute.
53. *After paludosus*. *Marsh Starwort*.
Ait. hort. kew. 201.
Leaves linear stem-clasping erect quite entire very smooth scabrous at the edge; peduncles almost naked, calyxes squarrose.
54. *After patens*. *Spreading hairy-stalked Starwort*.
Ait. hort. kew. 201.
Leaves oblong entire acute cordate almost stem-clasping scabrous; branches spreading elongated few-flowered; calyxes imbricate subsquarrose; stem rough with hairs.
55. *After foliolosus*. *Leafy Starwort*.
Ait. hort. kew. 202. Dill. elth. 39. t. 35. f. 39.
Leaves lanceolate-linear quite entire smooth, those on the branchlets spreading very much; calyxes imbricate, leaflets acute, stem pubescent.
56. *After multiflorus*. *Small-leaved Starwort*.
Ait. hort. kew. 203. Dill. elth. t. 36. f. 40.
α. ramulis submultifloris. Early-flowering Starwort.
β. ramulis unifloris. Late-flowering Starwort.
Leaves linear quite entire smoothish; branches one-ranked; calyxes imbricate squarrose; scales somewhat leafy acute; stem pubescent.
57. *After salicifolius*. *Willow-leaved Starwort*.
Ait. hort. kew. 203.
Leaves linear-lanceolate quite entire smooth, calyxes imbricate lax; stem glossy.
58. *After æstivus*. *Labrador Starwort*.
Ait. hort. kew. 203.
Leaves lanceolate almost stem-clasping quite entire smooth scabrous about the edge; calyxes lax, with equal leaflets.
59. *After juncus*. *Slender-stalked Starwort*.
Ait. hort. kew. 204.
Leaves lanceolate-linear sessile smooth, the lowest subserrate, those of the branchlets lanceolate; branches virgate; calyxes imbricate; stem smoothish.
60. *After pendulus*. *Pendulous Starwort*.
Ait. hort. kew. 204.
Leaves elliptic-lanceolate serrate smooth, those of the branchlets rather remote; branches very much divaricated pendulous; stem pubescent.

61. *After diffusus*. *Diffuse Starwort*.
Ait. hort. kew. 205.
α. caule tomentoso, ramis patentissimis, disco rubro. Red-flowered.
β. c. pubescente, ram. virgatis, disco stramineo. White-flowered.
Leaves elliptic-lanceolate serrate smooth proportioned; branches spreading; calyxes imbricate; stem pubescent.
62. *After divergens*. *Spreading downy-stalked Starwort*.
Ait. hort. kew. 205.
Leaves elliptic-lanceolate serrate smooth, those on the stem linear-lanceolate elongated; branches spreading; calyxes imbricate; stem pubescent.
63. *After corymbosus*. *Corymbed Starwort*.
Ait. hort. kew. 207.
α. caule purpureo.
β. caule viridi.
Leaves cordate smooth acuminate all finely serrate; petioles simple; branches fastigate; stem smooth.
64. *After spectabilis*. *Showy Starwort*.
Ait. hort. kew. 209.
Leaves lanceolate somewhat scabrous, the lower serrate; branches corymbed; calycine leaflets lax leafy nearly wedge-shaped sharpish squarrose.
65. *After Radula*. *Rough Starwort*.
Ait. hort. kew. 210.
Leaves lanceolate serrate acuminate wrinkled very scabrous; calyxes imbricate, leaflets lanceolate obtuse.

DESCRIPTIONS, &c.

In this numerous genus, the far greater part of the species are hardy, herbaceous, fibrous-rooted, autumn-flowering, showy perennials, with annual stems, from one to five feet in stature. America has furnished a considerable number of them; and they are particularly adapted to adorn large borders and plantations of shrubs in the latter season. Two only (n. 25. 35.) are annual: and no more than five (n. 6, 8, 9, 17, 25.) natives of Europe. Some species from the Cape (n. 1—4) are shrubby plants of the greenhouse.

1. Leaves alternate, much crowded, linear, revolute, tomentose underneath, rigid, acute: flowers sessile, solitary^a.

Stem scarce a foot high, erect, branching at top. Branches subaggregate, simple, leafy, erect. Leaves channelled-concave, ciliate, broader at the base, sessile, scattered, imbricate, erect-squarrose. Flowers subpedunculated^b.

2. Stem proliferous. Leaves crowded, sessile, little, smooth, the lower ones serrate, the upper ciliate almost like *Gorteria spinosa*, but all the parts only one tenth part of the size. Flowers solitary, sessile: ray blood-red^c.

3. Branches less divided. Leaves sessile, exquisitely pointed, rough about the edges. Peduncles terminal, leafy, one-flowered. Ray of the flower blue^d.]

4. Stems three feet high, with side woody branches having clusters of narrow leaves like those of the Larch tree. The flowers are produced from the side of the branches, upon long slender peduncles singly: they are of a pale blue colour, and appear the beginning of march. [Branches filiform, round, ascending, tomentose, rough with scars, determinately subdivided. Branchlets aggregate, divided into aggregate peduncles. Leaves narrow, acute, sessile, approximating. Peduncles in twos or threes, very long, finely tomentose, erect^e. Cultivated 1759, by Mr. Miller^f.

These all grow naturally at the Cape of Good Hope.

5. Root perennial. Stem annual, seven inches high, round, a little hairy, branching at top. Leaves scattered, linear, muricated underneath, with the end standing out. Flowers solitary, terminal, peduncled, hanging down before they open, and during the night. Disk of the corolla yellow; ray blue,

^a Linn. amæn.

^b Berg. cap.

^c Linneus.

^d Ibid.

^e Berg. cap.

^f Hort. kew.

often and especially in the night rolled back. Downy, sessile, white with very thin rays. This also is from the Cape^g. Introduced 1774 by Masson^h.

6. Calyx equalⁱ. Stem-leaves two, seldom three^k. Leaves dry, rather hairy, roughish; next the root petiolate, ovate, ciliate, entire; on the stem few, slender, lanceolate. Sometimes the ray of the flower is white^l.]

The Alpine Starwort seldom rises more than nine (four to six) inches high on the Alps, and when transplanted into a garden, (nine or ten) not above sixteen. At the top of each stalk is one large blue flower, somewhat like that of the Italian Starwort (n. 9.). It flowers in June; and grows wild on the Alps [and Pyrenees, in Austria, Savoy, about Montpellier, &c. Cultivated 1759, by Mr. Miller^m.]

β. Stems several, a foot and half high, with many side branches diverging every way; leaves lanceolate rough. Flower mostly solitary, large, blue, like that of the Italian Starwort, but paler, and flowering earlier. Alps.

[γ. Stem round, hairy, a foot high, dividing into one or two branches; leaves broad, roundish, roughish about the edge, ending in a stiff point, rigid, thick. On the top of the stem one large pale-blue flower. Austriaⁿ.]

7. Stems two feet high, sending out side branches. Peduncles one-flowered. Ray of the corolla blue. It flowers in August. Siberia. [Cultivated 1768, by Mr. Miller. It varies with leaves broader at the base, and numerous flowers; and leaves narrower at the base, with few flowers^o.

8. Root perennial. Stem smooth, striated, branched towards the top, one or more, from six or nine inches to two or three, and even four or five feet in height; whence some authors have made a great and less variety. Upper branches exceeding the stem; the lower gradually shorter, slightly compressed, deeply scored. Leaves alternate, pointed, half-stem-clasping, either bent down or expanding, edge somewhat serpentine, and beset with points, the rudiments as it were of serratures, thickish, beset above with very small whitish points, smooth, even, almost veinless. Flowering branches from the axillas of the upper leaves. Flowers abundant in thin loose umbels, having a sweetish scent. Calyx short cylindric; scales in two or three unequal rows, ovate, obtuse, scored, green and brown, with reddish brown tips. Florets of the ray twenty-one to twenty-three, generally pale purple: of the centre about eighteen, yellow. The florets of the ray are sometimes white; and flowers occur without any ray^p. This variety is found in the isle of Wight. Native of salt marshes on the sea coast of Europe: by inland salt lakes in Germany and Siberia. With us also frequent about Bristol; and not only on the coast, but in the interior parts of the kingdom; where Dr. Stokes supposes, with good reason, that its presence may indicate salt springs. It flowers in July and August.—Morison observes that in the morning, the flowers being expanded, appear blue; the blue florets quickly vanishing, and the disk remaining, they appear yellow; in the evening these go off, and the white down of the seeds shows itself: thus the flower undergoes a triple change within the day, and hence is called *Tripolium* (παρὰ τὸ τριχῶς πολέσθαι.)]

9. The stems of the *Amellus* or Italian Starwort grow in large clusters from the root, and each of them branch at the top into eight or ten peduncles, each terminated by a single, large flower, having blue rays, with a yellow disk. It flowers in August or September, and in mild seasons, will often continue till the middle of November. It grows naturally in the vallies of Italy, Sicily and Narbonne, [also in Austria, Carniola, Germany, and Switzerland, where I found it very common about Bienne.] It is generally supposed to be the *Amellus* of Virgil. The leaves and stalks being rough and bitter, the cattle seldom browse upon them, so that they re-

main in the pastures, after the grass is eaten bare, and making a fine appearance when they are full of flowers, might well engage the poet's attention. [Cultivated 1596, by Gerard^q.

Caspar Bauhin mentions an *Amellus* with roundish leaves, shorter than in the common sort, and obtuse, only throwing out a little spine at the end; they are also quite entire: whereas in the common sort the leaves are erect, of a long elliptic form, and pointed; sometimes entire, and sometimes slightly toothed about the edge: the branches are less spreading, the peduncles shorter, often bearing two flowers, only half the size of the others. The flowers are in other respects alike, and they grow in the same places. Their differences do not alter by culture^r. It varies with a white flower^s.]

10. Stems rough, about two feet high, dividing toward the top into many forked branches, diverging from each other. The flowers grow almost in an umbel, and appear the beginning of September. Virginia.

[11. Stem a foot high, rather stiff: rudiments of branches from each axilla. Leaves sharp to both ends, an inch long, bent inwards from the vertical line. Panicle of flowers fastigiate, with terminal peduncles, and two or three linear leaves. Calyxes ovate, closely imbricated. Eight purple florets in the ray; disk elevated greenish; stamens testaceous; pistil yellow. North America^t. Cultivated 1760, by Mr. Miller^u.

12. Stems upright, two feet high, full of branches, which are filiform. Stem-leaves narrow-lanceolate; on the branches linear. Peduncles filiform, striated, one-flowered, with very narrow leaflets on them. Flowers small, with an erect, imbricate, loose calyx; ray copious, white; disk yellow, with fewer flowers^v.

Cultivated 1725 in Chelsea garden^w.]

13. Stems slender, three feet high, with slender side branches most of their length, so as to form a thick bush; they are terminated by single flowers. [Cultivated 1758, by Mr. Miller^x.

14. Stems five feet high, slender, angular, smooth, not branching much. Leaves alternate, not very rough. Flowers terminal, solitary, small, white. The peduncles have very small subulate leaflets scattered over them^y.

15. Stems purplish. Leaves very rough, sharp, keeled, scattered. Peduncles alternate. Flowers terminal, solitary, few^z. Cultivated 1712^{aa}.

16. Leaves lanceolate, gradually narrowing to the end. Peduncles with very small subulate scales^{ab}.]

Stems strong, from two to three feet high, putting out many side branches near half their length, terminated by one blue flower, which appears in August and September. [Cultivated 1739, by Mr. Miller^{ac}. These are all natives of North America.]

17. The stems divide into a great number of branches, which divide again toward the top into several smaller ones, with very narrow leaves their whole length: the flowers grow in large clusters at the top, forming a sort of corymb; they are of a pale blueish colour, and appear the beginning of August. This grows naturally in the south of France about Montpellier, and in Italy. [Also in Spain and Hungary. Gmelin found a variety with a yellow flower in Siberia.]

18. Four feet high. Flowers pale blue, appearing about Michaelmas. [The whole plant is tomentose, especially the leaves and calyxes. Raceme simple, with very short peduncles^{ad}. Native of Virginia.

19. Leaves small, stiff, frequent; stem woody, weak, not branching, terminated by one specious flower; floscules of the ray long, purple; of the disk ferrugineous; calyx scaly, swelling, round. Native of Virginia^{ae}.

^g Linnæus. ^h Hort. kew. ⁱ Linn. ^k Gouan. ^l Haller.
^m Hort. kew. ⁿ Bauh. prodr. ^o Hort. kew.
^p Lightf. and Wither.

^q Hort. kew. ^r Allioni. ^s Casp. Bauh. Haller, &c.
^t Linn. ^u Hort. kew. ^x Linn. ^y Hort. kew. ^z Ibid.
^{aa} Linn. ^{ab} Ibid. ^{ac} Hort. kew. ^{ad} Linn. ^{ae} Hort. kew.
^{af} Linn. ^{ag} Clayton in Gron.

Though Miller refers to Gronovius, yet he says it has side branches, that the flower is white, and that it grows naturally in Philadelphia: he probably means therefore a different species.]

20. Stems many, five feet high, brown, terminated by large purple violet flowers, growing in a loose panicle, and expanding in august. [The peduncles are so short as scarcely to appear among the flowers^b. Native of New England and Virginia. Cultivated 1731, by Mr. Miller¹.]

21. Leaves broad heart-shaped at bottom. Stems between two and three feet high, with small side branches, upon which the flowers come out in loose spikes; they are of a pale blue colour, inclining to white. It flowers in august. [The leaves on the peduncles are minute and ovate. It is a North American plant^k. Cultivated 1699, by Jacob Bobart¹.]

22. Stems many, three and even four feet high, stiff and reddish, hairy, and branching pyramidically. The branches have small, lanceolate leaves, growing alternate, hairy and rough to the touch, the size of those on common Hyssop; and each is terminated by one large blue flower, coming out at the end of october, and making a fine appearance most part of november. Mr. Catesby brought it from Virginia about the year 1720, and gave it to Mr. Fairchild, gardener at Hoxton, who propagated it in such plenty, that in a few years it was distributed into most curious gardens near London, and is now become common.

23. [Stem smoothish, much branched at the top. Root-leaves cordate, sharply serrate, a little hairy underneath: the lower stem-leaves ovate, serrate, with edged petioles; the upper spatulate-lanceolate, stem-clasping. Panicle corymb. Peduncles naked. Calyxes imbricate, close. Ray whitish, scarcely purple, with twelve floscules^m. Morison says that it is purple extremely diluted.] According to Miller it is white; and the stems are slender, two feet high. It flowers in september. [Native of North America, and the northern parts of Asiaⁿ. Cultivated 1759, by Mr. Miller^o.]

24. Stems several, strong, upwards of two feet high, of a purple colour. Flowers on single peduncles, forming a corymb at top, and of a pale blue colour: they appear at the end of september.—North America. [Cultivated 1739, in Chelsea garden. It varies in height from eight to three feet. The stems are either dark purple, or reddish green^p.]

β. According to Mr. Miller, this variety has strong stems, eight or nine feet high, and upright. Leaves hairy. Flowers purple inclining to red, and surrounded by a few narrow leaves. It came from Philadelphia, and flowers in november.

25. Stems straight, about two feet high, terminated by a corymb of white flowers, opening in august. Annual. North America [and Denmark. Cultivated 1640^q.]

26. Stem green, hairy, erect; leaves like those of daisy, floscules slender, white. Virginia^r.

27. Stem herbaceous, round, striated, erect, smooth, branching, two feet high and upwards: branches alternate, erect, like the stem. Leaves on very short petioles, alternate, acute, green above, pale underneath, smooth; the lower oblong, remotely and acutely serrate, larger than the others and two inches long; the upper lanceolate, entire, gradually less and less. Flowers terminal, solitary. Native of Japan, and China, flowering from august to october^s.

28. Stem erect, smooth, angular, narrow. Leaves alternate, remote, a little serrate in the middle, quite smooth on both sides. Panicle not very branching. Very small subulate leaves scattered over the peduncles. Ray of the corolla blue. Observed in North America by Kalm^t. Cultivated 1758, by Mr. Miller^u.

29. This differs from the next in having the calyx more closely imbricate, and the ray of the corolla

deep purple; the disk is first yellow, then purple. The plant is lower than the 31st., and very corymbose. The leaves of the peduncles and calyx squarrose and recurved, by which it is easily distinguished: the lower scales are not larger than the rest^v.

Murray affirms that Herman's plant by no means agrees with this description of Linneus's. He thus describes it. Stem three feet high, upright, round, firm and almost woody towards the root, not so thick as a goose quill, rugged, deep red, towards the top smooth, and either green, or spotted or streaked with red; the upper half is paniced; the branches of the panicle are spreading, upright, stiff, alternate, forming a sort of pyramid. Leaves entire except a few obscure notches, broad-lanceolate, deep green, here and there red about the margin, glaucous, veined, gibbose at the base, the upper ones stem-clasping, the lower ones narrower towards the base. Flowers at the ends of the stem and branches, either solitary or several. Scales of the peduncle linear, acute. Calyx ovate-cylindric, with five rows of imbricate, lanceolate scales. Twenty or more florets in the ray. It flowers at the end of october^w. Miller says the end of august. Cultivated by him in 1731^x.

30. Radical leaves three or four inches long, like those of willow, from green inclining to brown, with small scattered serratures. Among these come out round, smooth, woody, brownish stems, clothed with similar leaves, only shorter; they are elegantly divided into many slender, hard branches, two or three feet high, adorned with abundance of very small white flowers during the months of september and october^y. According to Ray, the disk is purple. The ray of the corolla is first white, and afterwards becomes purplish. Native of Virginia^z. Cultivated 1656, by John Tradescant, junior^a.—For the *After Tradescanti* of Miller, see n. 40.

31. This is so like the *Aster mutabilis* (if that be the same with Herman's t. 57.) that it may be easily mistaken for it. The *A. novi belgii* however, flowers somewhat earlier. Stem obscurely furrowed, of a paler red, not so erect, but irregularly flexuose, corymbosely branched, the branches divaricate and much divided. Leaves of the same form, sometimes having a single serrature, the edge scabrous, if the finger be drawn toward the base, the surface rough with invisible hairs. Flowers more solitary, somewhat smaller; on long, scaly, yellow peduncles. Scales of the calyx distant, in five rows. Disk of the corolla yellow; ray pale blue, revolute^b. Height near four feet, having broad leaves at the bottom, which diminish gradually to the top. The flowers appear at the latter end of august. [Native of Virginia and Pennsylvania^c. Cultivated 1759, by Mr. Miller^d.]

32. Stems two feet high, scarcely branching, smooth, often prostrate. Leaves largish, smooth, rather stiff, serrate in the middle, and having a pubescent streak. The axillas of the branches divaricate, purplish. Flowers like those of the foregoing; disk yellow, the floscules of the ray narrower, pearl-coloured or pale blueish, scarcely notched at the end: leaflets of the calyx imbricate; the lower ones longest. The peduncles have one leaflet.—It differs from the 31st in having the branches more divaricate, with a kind of knot or joint at the base, and flexuose: the leaves twice as big, with the teeth standing out: the surface oblique and bent down above the base on each side. Native of North America^e. Linneus observes that it flowered with him only once in eighteen years. Introduced in 1775, by Mr. John Cree. With us it flowers from july to september^f.

33. Stem a foot and half high, thick, green, less paniced than in the rest. The stem-leaves a little serrate, nodding; those on the branches lanceolate. Calyxes ovate-imbricate, with erectish leaflets, the

^b Linn. ¹ Hort. kew. ^k Linn. ¹ Hort. kew. ^m Linn.
ⁿ Ibid. ^o Hort. kew. ^p Ibid. ^q Park. theat.
^r Clayton in Gronov. ^s Thunberg. ^t Linn. ^u Hort. kew.

^x Linn. ^y Prodr. 180. ^z Hort. kew. ^a Morison.
^b Linn. ^c Hort. kew. ^d Murray. ^e Linn. ^f Hort. kew.
^g Linn. ^h Hort. kew.

length of the ray, which is white, very small, and poor: disk small, very convex, pale, with darker yellow styles. Native of North America¹.] Stems slender, above three feet high, sending out many weak branches on every side, with very small leaves: flowers on short peduncles on every side of the branches, appearing in november, and often continuing part of december. [Introduced in 1776, by Mr. Thouin^k.

34. The radical leaves petiolate; those on the branches small and serrate. Peduncles crowded at the top, often trifid. Native of North America¹. Cultivated 1739, by Mr. Miller. It varies with the root-leaves oblong and ovate^m.

35. Linneus remarks that the *China Aster* recedes somewhat from the other species in the fructification: and Dillenius observes that it differs from them all in its manner of growth, in the form of its leaves, and the size of its flowers. The height is from eighteen inches to two feet; the stem erect, stiff, furrowed, as thick as the little finger, putting out long bending branches from top to bottom. The leaves next the ground and at the origin of the branches are large, and resemble those of common *Chenopodium* or Goosefoot: those on the branches are much smaller, and the upper ones are narrow and very entire. The flowers are the largest and handsomest of any in this genus: the disk yellow, at first flat, then convex; the floscules of the ray broad and long, scarcely notched at the endⁿ. Dillenius received the seeds from Professor van Royen of Leyden, and affirms, as well as Mr. Miller, that this species came originally to Europe from China. Linneus doubts of this.]

According to Mr. Miller, the seeds of the *China Aster* were sent by the Missionaries to France, where the plants were first raised in Europe. In the year 1731, says he, I received seeds, from which I raised plants, with red, and some with white flowers; and in 1736 I received seeds of the blue flower; but these were all single. They came by the title of *La Reine Marguerite*, as the French still call it. In 1752, I received seeds of the double flowers, both red and blue: and in 1753, the seeds of the double white sort, from Dr. Job Baster of Zirkzee.

[Besides the common varieties; white, blue, purple and red, both single and double; there is now another in the gardens, with variegated blue and white flowers.

36. Radical leaves large, running into the petioles; not three-nerved; not serrate either at the tip or base. Stem rough, scarcely twice as long as the radical leaves; with a few, narrower leaves. Flowers large, five or eight in number. The peduncle has two, alternate, slender, very entire bractes. Calyx a little imbricate, not at all purple at the tips. Ray of the corolla blue. Siberia^o.

37. Stem erect, hispid, branching, a foot high. Branches alternate, divaricate, resembling the stem. The lower leaves obtuse, remotely notched; the stem and branch-leaves also obtuse, gradually less; all rough. Flowers terminal solitary; ray white: down ferruginous^p.

38. Stem herbaceous round, striated, erect, purple, smooth, a foot and more high, at top branched in panicles. Leaves alternate, petiolate, pointed; above green, very rough with white cilia on the edge and surface; underneath pale, veined, smooth, spreading; the lower ones two inches long, the upper gradually less. Flowers terminal, in paniced branchlets. Peduncles and pedicels naked, leafless. A lanceolate bracte under each pedicel. Both natives of Japan¹.]

39. Height five feet, with branching stalks, divided at the top into several peduncles, terminated by large pale-blue flowers, which are in beauty in october. Native of North America.

40. This was brought from Virginia by John Tradescant. Stems numerous, three feet and a half high, shooting out many lateral branches, termi-

nated by pretty large flowers, very pale blue tending to white.

41. Stems several, strong, hairy, a foot and half high, dividing into many small branches at the top. Flowers large, blue, expanding at the end of july. Alps and Pyrenees.

43. Stems slender, purplish, about three feet high, sending out many side branches, spreading horizontally, almost the whole length. Flowers small, pale purple, appearing in november. North America.

44. [Stems stiff, channelled, about two feet high. Leaves placed alternately on every side. Flowers white, expanding at the end of september. Philadelphia. [Stem six feet high, stiff, smooth, branching only at top. Ray of the flower white. Native of Nova Scotia. Flowers in july and august. Cultivated 1759, by Mr. Miller^r.]

45. This has much the appearance of the foregoing sort, but the leaves are narrower, whiter on their under side, and have three longitudinal veins: the flowers are also larger and whiter. It grows about the same height, and flowers at the same time with the former. I received it from Mr. Peter Collinson, who procured it from Pennsylvania.

46. Height four feet. The stems put out side branches toward the top, which grow erect, forming a loose spike of large blue flowers, expanding about the end of october. North America.

47. Stems a foot and half high, terminated by peduncles on every side, each sustaining one pale-blue flower. Canada.

48. Roots bushy, fibrous, creeping in the ground, and sending out many slender round stems, which bend and incline to the ground: they are about four or five inches long, destitute of leaves, each sustaining one flower, the shape and size of the common field Daisy, of a whitish purple colour, but the rays are narrower. The calyx is scaly.—This species was discovered by Dr. Houstoun, in the year 1729, about Vera Cruz in America: he sent the seeds to England, some of which grew in the Chelsea garden, and the plants flowered the following summer, but did not perfect their seeds.

[Perhaps some of these may not be distinct from the foregoing ones: and there are doubtless many species recited by authors, which have not yet taken their proper place in the system. In Gordon's catalogue we have the following names, not to be found in Linneus.

1. *Aster alienatus*. *Strange-flowered Starwort*.
2. *A. virgatus*. *Slender-branched*. N. 59?
3. *A. salicifolius*. *Willow-leaved*. N. 57.
4. *A. purpureus*. *Purple*.
5. *A. aculeatus*. *Prickly-leaved*.
6. *A. repens*. *Broad-leaved creeping*.
7. *A. corymbosus*. *White, with heart-shaped leaves*. N. 63.]

But the whole genus requires the hand of some sagacious botanist to extricate it from the confusion in which it lies at present.

49, 50. Natives of New Zealand.

The following species are from the catalogue of the royal garden at Kew.

51. Found at the Cape by Masson. Introduced 1786. It flowers most of the summer.

52. Stem a foot high. Ray of the flower blue; disk white. Native of Nova Scotia. Introduced 1778, by Mr. William Malcolm. It flowers in august and september.

53. Leaves three or four inches long, and two or three lines broad, remote. Peduncles naked, except two leaflets for the most part, under the calyx. Ray blue, large: disk yellow. Native of the swamps of Carolina. Introduced 1784, by Mr. John Fairbairne. It flowers in september and october.

54. Stem three feet high. Branches remote divaricate pubescent. Leaves bent obliquely at the base, the upper minute subimbricate. Ray of the flower pale blue; disk tawny. Native of Virginia.

¹ Linn. ^k Hort. kew. ^l Linn. ^m Hort. kew.
ⁿ Dillen. hort. elth. ^o Linn. suppl. ^p Thunb. ^r Ibid.

Introduced about 1773, by George Aufrere, Esq. It flowers in september and october.

55. Native of North America. Cultivated 1732 at Eltham, by James Sherard, M. D. It flowers in october^{*}.

Stems several, straight, round, stiff, smooth, green or sometimes purplish brown; clothed almost from the bottom with oblong, narrow, cuspidate, pendulous, smooth leaves, roughish at the edge, deep green with rhomboidal veins. Flowers on long leafy peduncles at the ends of the twigs, larger than in the *ericoides*, with the ray of a pale blue[†].

56. Native of North America. Cultivated 1732, by Dr. Sherard. It flowers in september and october[‡]. Leaves, especially the lower ones, rough, the veins forming rhomboids on the surface. The stems require support on account of the abundance of flowers. Scales of the calyx minute, reflex; flowering-branches and peduncles covered with leaflets resembling these scales; ray white. The flowers are smaller and closer than in *A. dumosus*; the bottom leaves longer, more obtuse, rougher; and the stems are more branching^{*}.

57. Stem the height of a man. Leaflets of the calyx acute, expanding at the end. Ray of the flower blueish flesh-colour. Native of North America. Cultivated 1760, by Mr. Miller. It flowers in september and october.

58. Stem two feet high, hispid. Ray blue. Native of North America. Introduced 1776, by Mess. Gordon and Græffer. It flowers in july and august.

59. Stem four feet high. Leaflets of the calyx acute, spreading a little at the end. Ray slightly flesh-coloured; disk elevated, pale yellow. Native of North America. Cultivated 1758, by Mr. Miller. It flowers in october.

60. Ray of the flower white; disk yellow, changing to ferruginous. Native of North America. Cultivated 1758, by Mr. Miller. It flowers in october.

61. Ray white. Native of North America. Introduced 1777, by Mess. Kennedy and Lee. It flowers in september.

62. Stem five feet high and upwards, weak. Calyx cylindric, with numerous acute leaflets. Ray white, shorter than the calyx; disk reddish. Native of North America. Cultivated 1758, by Mr. Miller. It flowers in october.

63. Native of North America. Cultivated 1765, by Peter Collinson, Esq. It flowers in september.

64. Stem two feet high. Ray blue. Native of North America. Introduced 1777, by William Pitcairn, M. D. It flowers in august and september.

65. Native of Nova Scotia. Introduced 1785, by Dr. Pitcairn. It flowers in september[‡].]

PROPAGATION AND CULTURE.

The species from the Cape (n. 1—5. and n. 51.) together with the Indian Starwort (n. 27.) and the two Japanese species (n. 37, 38.) not producing seeds in England, are propagated by cuttings, any time during the summer. These should be planted in small pots filled with light earth, and plunged into an old hot-bed; where, if they are shaded from the sun, and gently watered, they will put out roots in six weeks, when they may be placed in the open air; and in about a month after, they should be separated, each into a small pot filled with light sandy earth. In october they must be removed into the greenhouse, and placed where they may enjoy as much free air as possible, but be secured from frost or damps, either of which will destroy them; so that they are much easier preserved in a glass-case, where they will enjoy more light and air than in a greenhouse; but they must not be placed in a stove, for artificial heat will soon destroy the plants. These sorts are at present in few English gardens.

The North American species, which make at least three fifths of the genus, together with the Alpine

and Italian Starworts, are easily propagated by parting the roots in autumn; they are most of them hardy, and will thrive in almost any soil or situation: [for these reasons, and because they adorn the latter season, with the abundance and variety of their specious flowers, they are very valuable plants, especially among shrubs, and in large ornamental plantations, properly mixed with Golden-rods, and other perennial autumnal hardy plants. The sorts most cultivated are the *grandiflorus*, *linifolius*, *linarifolius*, *tenuifolius*, *ericoides*, *dumosus*, *scrobinus*, *alpinus*, *noxa angliae* and *punicus* β or *altissimus*.] Some of the species (n. 6, 41, 42.) prefer a shady situation, and moist soil. They are apt to spread very much at the roots, so as to be troublesome; and the seeds of some few are blown about, and come up like weeds.

9. The Italian Starwort has not been so much cultivated in England, since the great variety of American species has been introduced, though it is by no means inferior to the best of them, and in some respects preferable to most; for it is not so subject to creep by the root, as many of the American sorts; nor do the stalks require supporting as they do, for these seldom grow more than two feet high, and are generally so strong as to be in little danger of being broken by the wind. This is also propagated by parting the roots, soon after the plant is out of flower; for those which are removed in the spring will not flower so strong the succeeding autumn. The roots should not be removed oftener than every third year, where they are expected to produce many flowers.

22. Catesby's Starwort, not multiplying fast by its roots, may be propagated in plenty, by cuttings made from the young shoots in may; which, if planted in a bed of light earth and shaded from the sun, will take root and flower the same year.

25. When the annual Starwort is once introduced into a garden, the seeds will scatter, and the plants come up without care.

35. The China Aster being an annual plant, is propagated by seeds, which must be sown in the spring on a warm border, or rather upon a gentle hotbed, just to bring up the plants; for they should be inured to the open air as soon as possible, to prevent their being drawn up very weak; when the plants are big enough to remove, (three inches high), they should be carefully taken up and planted in a bed of rich earth, at six inches distance every way, observing to shade them from the sun till they have taken new root; and if the season proves dry, they must be often refreshed with water. In this bed they may remain a month or five weeks, by which time they will be strong enough to transplant into the borders of the flower-garden, where they are designed to remain; or into pots to adorn court-yards &c. the plants should be taken up carefully, with large balls of earth to their roots, and the ground dug up, and well broken with the spade, where the holes are made to receive the plants; after they are planted, and the earth closed about their roots, there should be some water given them to settle the earth. This work should, if possible, be done when there is rain, for then the plants will soon take new root, after which time they will require no other care but to keep them clear from weeds.

In august these plants will flower, by which time, if the ground be rich, they will be two feet high, and furnished with many side branches, each terminated by a large radiated flower, forming one of the greatest ornaments of the flower-garden in autumn. The seeds ripen the beginning of october, and should be gathered when they are perfectly dry. In order to preserve the varieties with double flowers, those which grow upon the side branches, being commonly fuller of leaves than the flowers on the main stem, should always be preserved for seeds.

48. Procumbent Starwort being a native of a warm climate, will not live in the open air in England. The seeds must be sown in a hot-bed; and the plants will require a stove to maintain them through the winter.

^{*} Hort. kew.

[†] Dillenius.

[‡] Hort. kew.

^{*} Dillenius.

[‡] Hort. kew.

ASTER. See *Arctotis*, *Arnica*, *Bupbthalmum*, *Carpesium*, *Chrysanthemum*, *Chrysocoma*, *Cineraria*, *Conyza*, *Erigeron*, *Gorteria*, *Inula*, *Senecio*, *Solidago*, *Tussilago*.

ASTERIAS. See *Gentiana*.

ASTERISCOIDES. See *Osmites*.

ASTERISCUS. See *Anthemis*, *Bupbthalmum*, *Silphium*.

ASTERI SIMILIS. See *Erigeron*.

ASTEROCEPHALUS. See *Scabiosa*.

ASTEROIDES. *Bastard Starwort*. See *Inula*, *Bupbthalmum*, *Conyza*.

ASTEROPLATYCARPOS. See *Othonna*.

ASTEROPTERUS. See *Inula*, *Leysera*.

ASTRAGALOIDES. See *Astragalus*, *Phaca*.

ASTRAGALUS (ἀστράγαλος, vertebra or talus, the seed being squeezed in the legume into a squarish form in some species. It is the name of a shrub in the Greek writers.)

Lin. gen. 892. *Reich.* 965. *Schreb.* 1208. *Tournef.*

233. *Juss.* 358. *Gärtn.* t. 154. *Tragacantha*.

Tournef. 234.

Class. 17. 4. *Diadelphia Decandria*.

Nat. order of Papilionaceæ or Leguminosæ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, five-toothed, acute; lower toothlets gradually less.

COR. Papilionaceous. *Banner* longer than the other petals, reflex on the sides, emarginate, obtuse, straight: wings oblong, shorter than the banner: keel length of the wings, emarginate.

STAM. *Filaments* diadelphous, simple and novemfid, almost straight: *anthers* roundish.

PIST. *Germ* nearly columnar: *style* subulate, ascending: *stigma* obtuse.

PER. *Legume* two-celled (or geminate G.): the cells bent to one side, (with a longitudinal bifid septum, parallel to the valves. G.)

SEEDS kidney-shaped.

OBS. *Tragacantha* T. is a shrubby plant with the petioles becoming thorns.

Astragalus Riv. has an oblong many-seeded silique.

Glaux Riv. has a heart-shaped silicle.

ESSENTIAL CHARACTER.

Legume two-celled, gibbous.

SPECIES.

* *Stems leafy erect; not prostrate.*

1. *Astragalus alopecuroides*. *Fox-tail Milk Vetch*.

Lin. spec. 1064. *Reich.* 3. 525. *hort. cliff.* 361.

amæn. 2. 359. *Mill. dict.* n. 3. *fig. t.* 58.

Gärtn. fruct. 2. 339.

Caulescent, spikes cylindric subsessile, calyxes and legumes woolly.

2. *Astragalus christianus*.

Lin. spec. 1064. *Reich.* 3. 526. *Tourn. cor.* 29.

itin. 2. t. 254. *Mill. dict.* n. 10.

A. *Dioscor. vulgo Christiana radix. Dalech. app.* 26.

Caulescent erect, flowers glomerate subsessile from all the leafy axillas.

3. *Astragalus capitatus*.

Lin. spec. 1065. *Reich.* 3. 526. *Mill. dict.* n. 20.

Tourn. cor. 29. 1?

Caulescent, heads globular, peduncles very long, leaflets emarginate.

4. *Astragalus pilosus*. *Pale-flowered Milk Vetch*.

Lin. spec. 1065. *Reich.* 3. 526. *hort. upf.* 226.

Mill. dict. n. 17. *Hall. herb.* n. 411. *Comm.*

gott. 1. 340. t. 12. *Amm. ruth.* 166. & n. 171.

Gmel. sib. 4. 39. t. 16. *Crantz. austr.* 418. n. 5.

Jacqu. austr. 1. t. 51. *Baub. pin.* 347. n. 4.

prodr. 148. n. 2. *Raii hist.* 918. n. 3.

Caulescent erect hairy, flowers in spikes, legumes subulate hairy.

[5. *Astragalus fulcatus*. *Furrowed Milk Vetch*.

Lin. spec. 1065. *syst.* 681. *Reich.* 3. 527. n. 5. β,

Jacqu. hort. 3. 23. t. 40. *Zinn. gott.* 342.

A. *austriacus*. *Lin. syst. edit.* 13. 566. *see* n. 22.

Caulescent, erect smooth striated stiff, leaflets linear-lanceolate acute, legumes three-sided.]

6. *Astragalus galegiformis*. *Goat's-rue-leaved Milk Vetch*.

Lin. spec. 1066. *Reich.* 3. 527. *hort. cliff.* 362.

Mill. dict. n. 13. *Amm. ruth.* 162. *Gärtn.*

fruct. 2. 340.

A. *orient. altissimus*, *Galegæ fol. angustioribus*, fl. minimo, e viridi flavescente. *Tourn. cor.* 29.

Caulescent stiff smooth, flowers in racemes pendulous, legumes three-sided, mucronate at both ends.

[7. *Astragalus chinensis*.

Lin. spec. 1066. *Reich.* 3. 527. *fil. dec.* 1. t. 3.

Caulescent stiff smooth, flowers in racemes pendulous, legumes ovate inflated, mucronate at both ends.

8. *Astragalus Onobrychis*. *Purple-spiked Milk Vetch*.

Lin. spec. 1070. *syst.* 681. *Reich.* 3. 527. *Hall.*

herb. n. 412. *Gmel. sib.* 4. 43. n. 57. t. 21.

Scop. carn. n. 920. *Crantz. austr.* 415. *Jacqu.*

austr. 1. t. 38. *Willich. obs.* 115. *Retz. obs.* 2.

n. 72. *Clus. hist.* 1. 238. f. 2. *Ger.* 1062. f. 2.

emac. 1244. 3. *Park. theat.* 1082. n. 2. *Raii*

hist. 937. 9.

Caulescent procumbent diffused, spikes peduncled, banner twice as long as the wings; leaflets linear.

9. *Astragalus uliginosus*. *Violet-coloured Milk Vetch*.

Lin. spec. 1066. *syst.* 681. *Reich.* 3. 528. *hort.*

upf. 226. *Gmel. sib.* 4. 40. t. 17, 18.

Caulescent almost upright, flowers in spikes, legumes almost upright naked tumid, round-flatted, point reflex.]

10. *Astragalus carolinianus*. *Carolina Milk Vetch*.

Lin. spec. 1066. *syst.* 681. *Reich.* 3. 528. *Mill.*

dict. n. 15. *Dill. elth.* 45. t. 39. f. 45.

Caulescent upright even, peduncles in spikes, legumes ovate-cylindric, acuminate by the style.

[11. *Astragalus asper*. *Rough Milk Vetch*.

Lin. syst. 681. *Jacqu. misc.* 2. 335. *icon. rar.*

t. 33.

Caulescent stiff even roughish, flowers in spikes on elongated peduncles, legumes oblong.]

** *Stems leafy, diffuse.*

12. *Astragalus canadensis*. *Woolly Milk Vetch*.

Lin. spec. 1066. *Reich.* 3. 528. *mant.* 449. *Mill.*

dict. n. 16. *Dodart. mem.* t. 65. *Gron. virg.* 107.

Dill. elth. 46. t. 39. f. 45.

Caulescent diffuse, legumes subcylindric mucronate, leaflets almost naked.

13. *Astragalus Cicer*. *Bladdered Milk Vetch*.

Lin. spec. 1067. *Reich.* 3. 529. *hort. cliff.* 362.

upf. 220. *Mill. dict.* n. 4. *Hall. herb.* n. 409.

Crantz. austr. 413. *Jacqu. austr.* 3. t. 251. *Allion.*

pedem. n. 1266. t. 41. f. 2.

Cicer sylvestre. *Cam. epit.* 205. *Ger.* 1048. f. 1.

emac. 1223. 1. *Raii hist.* 935. n. 2.

Glaux. Riv. tetr. t. 108.

Caulescent prostrate, legumes subglobular inflated mucronate hairy.

[14. *Astragalus microphyllus*. *Small round-podded Milk Vetch*.

Lin. spec. 1067. *Reich.* 3. 529. *Gmel. sib.* 4. 41.

t. 19.

Caulescent erect-expanding, leaflets oval, calyxes rather tumid, legumes roundish.]

15. *Astragalus glycyphyllus*. *Wild Liquorice, or Liquorice Vetch*.

Lin. spec. 1067. *Reich.* 3. 529. *hort. cliff.* 362.

succ. 658. *Mill. dict.* n. 1. *Hudf. angl.* 322.

With. 787. *Lightf. scot.* 399. *Hall. herb.*

n. 413. *Neck. gallobr.* 312. *Crantz. austr.* 414.

Scop. carn. n. 919. *Pollich pal.* n. 695. *Riv.*

tetr. t. 103. *Mor. hist.* 107. f. 2. t. 9. f. 8.

Ger. emac. 1233. 2. *Park.* 1098. *Baub.*

hist. 2. 330. *Raii hist.* 935. 1.

Caulescent prostrate, legumes subtriquetrous bowed, leaves oval, longer than the peduncle.

16. *Astragalus hamosus*. *Dwarf yellow-flowered Milk Vetch*.

Lin. spec. 1067. *syst.* 682. *Reich.* 3. 530. *hort.*

cliff. 362. *upf.* 226. *Mill. dict.* n. 2. *Gärtn.*

fruct. 2. 339. *Sauv. monsp.* 237. *Gron.*

orient. 223. *Riv. tetr.* t. 107. *Clus. hist.* 2. 234.

Baub. pin. 349. n. 2. (*Securidaca*.) *Mor.* 2. 108.

f. 2. t. 9. f. 10. *Raii hist.* 936. n. 7. *Park.*

theat. 1088. f. 2.

Caulescent procumbent, legumes subulate recurved smooth, leaflets obovate ciliate underneath.

[17. *Astragalus*

- [17. *Astragalus contortuplicatus*. *Wave-podded Milk Vetch*.
Lin. spec. 1068. *Reich.* 3. 530. *hort. upf.* 227.
Buxb. cent. 3. 22. *t.* 39. *Astr. gott.* 2. 339.
t. 11. *Ann. ruth.* 164.
*Caulescent procumbent, legumes writhed channelled vil-
losc.*]
18. *Astragalus boeticus*. *Triangular-podded Milk Vetch*.
Lin. spec. 1068. *Reich.* 3. 531. *hort. upf.* 225.
Mill. dict. n. 7. *Gärtn. fruct.* 2. 339. *Ripin.*
tetr. t. 105. *Mor.* 2. 108. *f.* 2. *t.* 9. *f.* 11.
Securidaca. Bocc. sic. t. 4. *H. Raii hist.* 935. n. 3.
*Caulescent procumbent, spikes peduncled, legumes pris-
matic straight three-sided hooked at top.*
- [19. *Astragalus Laxmanni*.
Lin. syst. 682. *suppl.* 337. *Jacq. hort.* 3. 22.
t. 37.
*Caulescent procumbent, spikes elongated, legumes oblong
three-cornered, marked with a furrow, mucronate,
villose.*
20. *Astragalus Stella*.
Lin. syst. 682. *Reich.* 3. 531. *Gouan. illustr.* 50.
Pluk. phyt. 79. *f.* 4. *Baub. prodr.* 150. c. xi.
Baub. hist. 2. 350. *Tabern. ic.* 512. *Raii
hist.* 938.
*Caulescent diffuse, heads peduncled lateral, legumes
straight subulate mucronate.*]
21. *Astragalus sesameus*. *Starry Milk Vetch*.
Lin. spec. 1068. *syst.* 682. *Reich.* 3. 531. *hort.*
cliff. 361. *Retz. obs.* 2. n. 71. *Mill. dict.* n. 12.
Garid. aix. 50. *t.* 12. *Pluk. alm.* 60. *t.* 79.
f. 3. *Col. ecphr.* 1. 303. *t.* 301. *Raii hist.* 936. 4.
Ger. emac. 1627. n. 7.
*Caulescent diffuse, heads subsessile lateral, legumes subu-
late reflected at the point.*
- [22. *Astragalus austriacus*. *Austrian Milk Vetch*.
Lin. syst. 683. *Jacq. vind.* 263. *aust.* 2. 56.
t. 195.
*Caulescent prostrate smooth striated weak, leaflets sub-
linear emarginate, legumes round.*
23. *Astragalus leontinus*.
Lin. syst. 683. *Jacqu. misc.* 2. 59. *icon. rar.* t. 37.
*Caulescent prostrate, legumes ovate villose, flowers spiked
erect.*]
24. *Astragalus pentaglottis*.
Lin. syst. 683. *Reich.* 3. 532. *mant.* 274. *Gärtn.*
fruct. 2. 340.
A. procumbens. *Mill. dict.* n. 18.
A. echinatus. *Murr. prodr.* 222.
A. cristatus. *Gouan. illustr.* 50.
A. hispanicus, &c. *Herm. lugdb.* 74. *t.* 75.
Glaux hispanica. *Riv. tetr.* 109. *f.* 2.
*Caulescent procumbent, legumes beaded, folded back,
compressed, converging; crested, with a reflected
point.*
25. *Astragalus epiglottis*. *Heart-podded Milk Vetch*.
Lin. spec. 1069. *syst.* 683. *Reich.* 3. 532. *mant.*
274. *hort. cliff.* 362. *Mill. dict.* n. 5. *Murr.*
prodr. 173. *Herm. lugdb.* 76. *t.* 77. *Riv.*
tetr. 109. *f.* 1.
*Caulescent procumbent, legumes beaded, sessile, nod-
ding, cordate, mucronate, folded back, naked.*
26. *Astragalus hypoglottis*. *Purple mountain Milk
Vetch*.
Lin. syst. 683. *Reich.* 3. 533. *mant.* 274.
A. arenarius. *Huds. angl.* 323. *Lightf. scot.* 400.
Relb. cant. n. 534. *Mill. dict.* n. 8.
A. danicus. *Retz. obs.* 3. n. 86. *Fl. dan.* t. 614.
Wither. arr. 787.
Glaux montana purpurea. *Raii hist.* 939. *syn.* 326.
t. 12. *f.* 3.
*Caulescent prostrate, legumes beaded ovate folded back
compressed hairy, with a reflex point.*
- [27. *Astragalus syriacus*. *Syrian Milk Vetch*.
Lin. spec. 1069. *syst.* 683. *Reich.* 3. 533.
*Caulescent procumbent, heads peduncled, flowers re-
flected, legumes tomentose ovate-oblong.*
28. *Astragalus arenarius*.
Lin. spec. 1069. *Reich.* 3. 533. *succ.* n. 659.
Retz. obs. 2. 73. *& 3.* n. 87. *t.* 3.
*Subcaulescent, procumbent, flowers subracemed, erect,
leaves tomentose.*
29. *Astragalus Glaux*. *Small Milk Vetch*.
Lin. spec. 1069. *Reich.* 3. 534. *Baub. pin.* 347.
n. 3. *Clus. hist.* 2. 240. *t.* 241. *Raii hist.* 940.
n. 18.
*Caulescent diffuse, heads peduncled imbricate ovate,
flowers erect, legumes ovate callous inflated.*]
30. *Astragalus sinicus*.
Lin. syst. 683. *Reich.* 3. 534. *mant.* 103. *Mill.*
dict. n. 21. *Philos. transf.* 1764. p. 138. n. 2059.
Thunb. jap. 290.
*Caulescent prostrate, umbels peduncled, legumes pris-
matic three-sided erect subulate at top.*
- [31. *Astragalus alpinus*. *Alpine Milk Vetch*.
Lin. spec. 1070. *Reich.* 3. 534. *lapp.* 267. *t.* 9.
f. 1. *succ.* 661. *hort. cliff.* 362. n. 6. *Hall. belv.*
n. 404. *Gmel. sib.* 4. 45. *Fl. dan.* t. 51.
Scheuch. alp. 509. *f.* 7.
*Caulescent procumbent, flowers pendulous racemed, le-
gumes acute at both ends, hairy.*
32. *Astragalus Ammodytes*.
Lin. syst. 684. *suppl.* 338. *Pallas it.* 2. 742.
t. 10.
Medicago prostrata. *Jacq. hort.* 1. 39. *t.* 89. *Lin.*
suppl. 340. *sec.* Murray.
*Caulescent undershrubby, flowers twin, legumes ovate
twin woolly.*
33. *Astragalus trimestris*. *Egyptian Milk Vetch*.
Lin. spec. 1073. *syst.* 684. *Reich.* 3. 535. *Jacqu.*
hort. 2. t. 174. *Mill. dict.* n. 11.
*Subcaulescent, scapes mostly two-flowered, legumes
hooked subulate two-keeled.*
*** *Scape naked, without a leafy stem.*
34. *Astragalus verticillaris*.
Lin. syst. 684. *Reich.* 3. 535. *mant.* 275. *Gmel.*
sib. 4. 63. *Ann. ruth.* 149. *t.* 19. *f.* 1. & 150.
t. 19. *f.* 2.
Leaflets aggregate-semiverticilled.]
35. *Astragalus montanus*.
Lin. spec. 1070. *Reich.* 3. 535. *Mill. dict.* n. 6.
Hall. belv. n. 408. *Scop. carn.* n. 922. *t.* 45.
Jacq. vind. 264. *aust.* 2. t. 167. *Baub.*
hist. 2. 339. *f.* 1. *Villars dauph.* 3. 465. *Raii
hist.* 937. 11.
Phaca montana. *Crantz. austr.* 422.
Astragaloides alpina. *Till. pis.* 19. *t.* 14. *f.* 3.
Onobrychis 11. *Baub. pin.* 351.—4. *Clus. hist.* 2.
240.
*Nearly stemless, scapes longer than the leaf, flowers
loosely spiked erect, legumes ovate with an inflected
point.*
- [36. *Astragalus vesicarius*.
Lin. spec. 1071. *Reich.* 3. 536. *Magn. hort.* 27.
Raii suppl. 454. n. 13. *Allion. pedem.* n. 1269.
t. 80. *f.* 1. *Vill. prosp.* 42. *t.* 28. *dauph.* 3. 463.
t. 42. *f.* 1.
*Scapes longer than the leaves, flowers loosely spiked,
calyxes and legumes inflated hirsute.*]
37. *Astragalus physodes*.
Lin. spec. 1071. *syst.* 684. *Reich.* 3. 536. *aman.* 2.
359. *Mill. dict.* n. 9.
*Scapes equal to the leaves, legumes inflated subglobular
naked.*
- [38. *Astragalus caprinus*.
Lin. spec. 1071. *Reich.* 3. 536.
A. africanus, &c. *Breyn. cent.* 72. *Raii hist.* 936.
n. 6. *Magn. monsp.* 26. *Raii hist.* 936. 6.
A. perennis, &c. *Mor. hist.* 2. 203. *f.* 2. *t.* 24. *f.* 3.
Raii hist. 940. n. 20.
*Scape erect, leaflets ciliate, legumes ovate tumid vil-
lose.*]
39. *Astragalus uralensis*. *Silky Milk Vetch*.
Lin. spec. 1071. *Reich.* 3. 536. *hort. upf.* 226.
Mill. dict. n. 14. *Huds. angl.* 323. *With.* 789.
Lightf. scot. 401. *t.* 17. *Hall. belv.* n. 410.
t. 14. *Gouan. illustr.* 50. *Jacqu. ic.* 1. t. 155.
misc. 1. 150. *Villars dauph.* 3. 467.
*Scape erect longer than the leaves, legumes subulate
inflated villose erect.*
- [40. *Astragalus monspessulanus*. *Montpellier Milk
Vetch*.
Lin. spec. 1072. *syst.* 684. *Reich.* 3. 537. *mant.* 450.
hort.

- hort. upf.* 427. *Hall. belv. n.* 414. *Scop. carn.* n. 921. *t.* 45. *Villars dauph.* 3. 453. *Sauv. monsp.* 238. *Baub. hist.* 3. 338. *Mor.* 2. 106. n. 3. *Park. theat.* 1085. *Raii hist.* 920. *Scapes declining, the length of the leaves, legumes subulate, round, rather bowed, smooth.]*
41. *Astragalus incanus.*
Lin. spec. 1072. *fyf.* 684. *Reich.* 3. 537. *mant.* 450. *Mill. dict.* n. 19. *Gerard. prov.* 522. *Magn. monsp.* 33. *Villars dauph.* 3. 454. *Baub. pin.* 350. 6. *prodr.* 149. 3. *Raii hist.* 928. 2. 938. 13.
Scapes declining, leaflets tomentose, legumes subulate, rather bowed, hoary, incurved at top.
- [42. *Astragalus campestris.* *Field Milk Vetch.*
Lin. spec. 1072. *Reich.* 3. 537. *suec. n.* 662. *Hall. belv. n.* 406. *t.* 13. *Villars dauph.* 3. 466. *Calyxes and legumes villose, leaflets lanceolate acute, scape decumbent.*
43. *Astragalus depressus.* *Dwarf white-flowered Milk Vetch.*
Lin. spec. 1073. *Reich.* 3. 538. *amen.* 4. 327. *Allion. pedem. n.* 1277. *t.* 19. *f.* 3. *Villars dauph.* 3. 455.
β. *A. helminthocarpos.* *Vill. prosp.* 42. *t.* 25. *f.* 2. *dauph.* 3. 456. *t.* 42. *f.* 2.
Scapes shorter than the leaf, legumes nodding, leaflets subemarginate naked.]
44. *Astragalus uncatus.*
Lin. spec. 1072. *fyf.* 685. *Reich.* 3. 538. *Mill. dict.* n. 22.
Scapeless, legumes subulate, hooked, longer than the leaf, leaflets obcordate.
- [45. *Astragalus exscapus.* *Hairy-podded Milk Vetch.*
Lin. fyf. 685. *Reich.* 3. 538. *mant.* 275. *Buxb. hal.* 32. *cent.* 3. 21. *t.* 38. *f.* 2? *Rupp. jen.* 2. 270. *Jacq. ic. vol.* 2.
Cicer. Baub. pin. 347. n. 5. *prodr.* 147.
Scapeless, legumes woolly, leaves villose.
- **** *Stem woody.*
46. *Astragalus tragoides.*
Lin. spec. 1073. n. 38. *Reich.* 3. 539. *Hall. belv. n.* 415. *Gmel. fib.* 4. 52. n. 67. *Buxb. cent.* 3. 21. *t.* 38. *f.* 2. *Amm. ruth.* 170. *Retz. obs.* 3. n. 84.
Nearly stemless, flowers radical numerous subsessile.
47. *Astragalus Tragacantha.* *Goat's-thorn.*
Lin. spec. 1073. *Reich.* 3. 539. *mat. med.* 174. *Gartn. fruct.* 2. 340. *Hall. belv. n.* 405. *Villars dauph.* 3. 470. *Pluk. alm.* 60. *Woodv. med. bot.* 267. *t.* 98.
Tragacantha. *Lin. hort. cliff.* 361. *Mill. dict.* *Gouan. monsp.* 386. *Ger. prov.* 523. *Dubam. arb.* 2. 344. *t.* 100. *Garid. aix.* 469. *t.* 104. *Russ. alepp. t.* 5. *Blackw. t.* 264. *Cam. epit.* 446. *Ger. emac.* 1328. *Park. theat.* 996. *f.* 1. *Baub. hist.* 1. 407. *Raii hist.* 933.
β. *Tragacanthæ affinis lanuginosa, f. Poterium.* *Baub. pin.* 388. *Gron. orient.* 226. *Dubam. arb.* 2. *t.* 101.
Trunk arborescent, petioles becoming spinescent.
- Other species.
48. *Astragalus foetidus.*
Allion. pedem. n. 1275. *Vill. prosp.* 42. *t.* 27. *dauph.* 3. 468. *t.* 43. *f.* 1.
Stemless, leaves prostrate viscid sharply linear, scapes erect with few flowers.
49. *Astragalus Halleri.*
Hall. belv. n. 407. *Allion. pedem. n.* 1276.
Scapes leafless, leaves ovate-lanceolate, smooth, legumes inflated hirsute erect.
50. *Astragalus vulnerarioides.*
Allion. pedem. n. 1278. *t.* 19. *f.* 2.
Stemless, hirsute, scapes longer than the leaves, legumes inflated ovate in heads.]
51. *Astragalus tenuifolius.* *Upright Milk Vetch.*
Lin. spec. 1065. *Ait. hort. kew.* 3. 73.
A. Onobrychis β. *Lin. fyf.* 681.
Caulescent erect; spikes peduncled; banner twice as long as the wings; leaflets linear.
52. *Astragalus virescens.* *Green-flowered Milk Vetch.*
Ait. hort. kew. 3. 73.
Caulescent erect; legumes bent back; peduncles many-flowered longer than the leaf; leaflets lanceolate acute.
53. *Astragalus Garbancillo.*
Cavan. hisp. n. 93. *t.* 85.
Stem shrubby upright; pinnules ovate-oblong, somewhat tomentose; peduncles naked, elongated.
54. *Astragalus hispidus.*
Billardiere ic. fyr. 1. 18.
Caulescent, procumbent, leaflets and legumes ovate-oblong hispid, corollas shorter than the calyx.
55. *Astragalus emarginatus.*
Billard. ic. fyr. 19.
Almost stemless, scapes very long, heads globose, legumes woolly.
56. *Astragalus lanatus.*
Billard. ic. fyr. 21.
Stemless with a naked scape, the length of the leaves; legumes in close spikes, woolly, half-cordate, three-sided, subulate; leaves villose.
57. *Astragalus leucophæus.*
Transf. linn. soc. 1. 252.
Caulescent procumbent, legumes subcylindric straight smooth, leaflets obcordate villose underneath.
58. *Astragalus deflexus.*
Pallas æt. petrop. 1779. *p.* 268. *t.* 15. *L'Herit. fl. nov.* 6. 167.
A. hians. Jacqu. ic. t. 153.
Subcaulescent prostrate, scapes twice as long as the leaf, legumes gaping, leaves pectinate right-angled.
59. *Astragalus unifolius.*
L'Herit. stirp. nov. 6. 168.
Suffruticose procumbent, stipules solitary stem-clasping opposite to the leaves bifid.
60. *Astragalus varius.*
Gmel. it. 1. 116. *t.* 17. *L'Herit. stirp. nov.* 6. 169.
Caulescent fruticulose upright, flowers in loose spikes, legumes linear, stipules fuliginose downwards.
61. *Astragalus aristatus.*
L'Herit. stirp. nov. 6. 170. *Hall. belv. n.* 405.
Tragacantha alpina sempervirens, flor. purpurascens tibis. Tournef. inst. 417. *Garid. gallopr.* 469. *t.* 104.
Suffruticose prostrate, leaves hairy, petioles spinescent, calyxes awned.
62. *Astragalus pugniformis.*
L'Herit. stirp. nov. 6. 170.
Tragacantha orientalis latifolia, fl. purpureo magno. Tournef. cor. 30.
T. orientalis. Pocock it. 3. 188. *t.* 88.
Shrubby procumbent, heads stem-clasping tomentose, petioles and leaves pungent and smooth.
63. *Astragalus echinoides.*
L'Herit. stirp. nov. 6. 170.
Tragacantha altera. Alp. exot. 55. *t.* 54.
T. cretica, fol. minimis. incanis, fl. majore albo. Tournef. cor. 29.]
- DESCRIPTIONS, &c.
1. This rises with an upright hairy stem about two feet high, having long pinnate leaves with eighteen or twenty pairs of ovate leaflets. The flowers are produced in large close obtuse spikes from the axillas; their colour is yellow. The legumes are shut up in the woolly calyxes, and have two cells, containing three or four square seeds in each. It flowers in June or July, and the seeds ripen in September.
- This plant seldom continues longer than two or three years. The first year it rarely flowers; but when the plants come up in the spring, they will get strength before winter, and will flower stronger the following summer. It was discovered by Tournefort on the Alps, and since his time has been found growing naturally in Siberia, from whence I have received the seeds. [Linneus says it is from Siberia and Spain. It was cultivated in 1739, by Mr. Miller^a.]
2. This sends up stalks near three feet high, which are large at bottom, and gradually diminish
- ^a Hort. kew.

to the top; the leaves also at bottom are very long, and diminish upward, so as to form a sort of pyramid; these are winged, and composed of many large oval pairs of lobes, which are placed thinly on the midrib, and terminated by an odd one; the flowers come out in clusters from the wings of each leaf, beginning near the root where the foot-stalks are the longest, and continuing upward, diminishing in their number. These are large, of a bright yellow colour, and are succeeded by cylindrical pods opening in two cells, filled with square yellow seeds. It flowers in July, and in very favourable seasons will perfect seeds in England.

It was discovered in the Levant by Tournefort, who sent the seeds to the royal garden at Paris, where they succeeded, from whence I was furnished with them.

3. This has a perennial root which sends up several erect stalks. From the axils come out long peduncles supporting a head of purple flowers, which are rarely succeeded by pods in England. It flowers the end of July; and was discovered by Tournefort in the Levant, whence he sent the seeds to the royal garden at Paris.

4. [Root woody, perennial. Stem a foot or eighteen inches high, round, hard, branching. Stipules broad, lanceolate. Leaflets elliptic-lanceolate, hirsute, ten or twelve pairs. Peduncles from the axils; long, stout, erect; flowers to fifteen, in an erect, close spike: calyx white, hirsute, the upper teeth converging, the lower much longer and very acute: corolla light yellow. Legume almost cylindric, whitish, silky, erect^b. Native of the Valais, by the baths of Leuk, Siberia, Thuringia, and Austria. It flowers from June to August, and was cultivated in 1732, by Mr. Miller^c.

5. Root perennial woody. Stems erect, three feet high, leafy round smooth fistulous green, a little branching, streaked towards the upper part. Stipules lanceolate, quite entire, sharp, minute on the upper part of the stem. Leaflets about nine pairs with an odd one, smooth oblong, quite entire, bluntish, on very short petioles. Peduncles racemed, axillary, stiff, suberect, finally longer than the leaves, many-flowered. Bractes setaceous, these and the proper peduncles are short. Flowers erect; without smell. Calyxes hairy small green two-lipped, toothlets awl-shaped, the upper more distant and shorter. Corollas pale violet, banner obovate margined erect with the sides often a little reflex: wings shorter oblong obtuse erect with a very short claw: keel very short obtuse white with a brownish tip. Legumes smooth, acuminate with the style, one-celled, triangular with the back thrust inwards and furrowed on one side. Seeds many brown shining round-kidney-shaped. It flowers in the open air in June and July: ripens seeds in August. Differs from *austriacus* in stems stiffly erect; in a border to the calyx; the banner not reflex at a right angle, wings not two-lobed, legume quite smooth. Native of Siberia^d. Introduced in 1735, by Dr. William Pitcairn^e.]

6. Root perennial. Stems many upright more than five feet in height (Linneus says two feet). The leaves have about fourteen pairs (twelve to fifteen. Lin.) of oval leaflets, terminated by an odd one. Peduncles axillary, on which are small yellow flowers (whitish yellow. Lin.) in loose spikes, extending beyond the leaves. [Petiole swelling at the base. Legumes smooth, short, pedicelled within the calyx, with two seeds on each side^f. It is a native of Siberia.] Tournefort discovered it in the Levant, and sent the seeds to the royal garden at Paris, whence many of the European gardens were supplied with it. In June or July it flowers, and the seeds ripen in autumn. [Mr. Miller cultivated it in 1739^g.

7. This species resembles the foregoing in its stature and all its parts, differing from it chiefly in its legumes. The colour of the calyx is greenish

yellow, of the banner pale yellow streaked with green at the base, of the wings and keel white with yellow tips: the flowers finally become white. It is perennial, flowering and ripening seeds the second year in autumn. The seeds were sent from China to Sweden in the year 1760^h.

8. Stems procumbent at the base, but ascending so as to be upright towards the top; they are streaked and branching. Leaves lanceolate, spreading, with twelve pairs of lobes. Peduncles longer than the leaves, furrowed, stiff. Bractes lanceolate. Calyxes subsessile. Corollas red. The capsules and whole plant are sprinkled with white and black villose hairsⁱ.

According to Haller, the stems are hard, silky, a foot or a foot and half high. Stipules short, dry, triangular. Lower leaves ovate-lanceolate; upper ones slender, almost linear, sharp, covered with a silky pile. The stem and branches are terminated by a short close spike, in which are near twenty flowers. Calyx long, tubular, villose, whitish, with very short teeth. Corolla an inch long, very stiff, blue purple. Legume erect, short, hard, rough, swelling: in each cell are usually three shining, kidney-shaped seeds.

Retzius observes that the pinnules are frequently changed into ternate leaves.

This species ought regularly to stand in the second division of the genus after *A. Glaux*. n. 29.

Native of Austria. Cultivated here in 1640. It flowers in June and July^k.

9. This resembles *A. Cicer*. (n. 13.) except in the legumes. The top of the keel is violet-coloured. It was found by Gmelin in the moist meadows of Siberia^l; was introduced in 1775, by Mons. Thouin; and flowers from June to August^m.]

10. Root perennial. Stems annual, upright, three feet high. Leaves composed of eighteen or twenty pairs of oval smooth leaflets, terminated by an odd one. Peduncles axillary, terminated by spikes of greenish yellow flowers. [The root is not creeping; and the leaflets are a little tomentose underneathⁿ.] It flowers in July and August, but unless the season be warm the plants seldom ripen their seeds in England. It grows naturally in Carolina, whence Mr. Miller received the seeds. [But it had been cultivated before in the Eltham garden.

11. Root perennial branched. Stems annual, two feet high, round, streaked, leafy, with upright branches. Leaves alternate, pinnate, with about ten leaflets on each side, and an odd one at the end; they are lanceolate-linear, acute, quite entire, an inch long, and flat. Peduncles elongated, upright. Spikes long; flowers upright, each supported by a lanceolate, acuminate, stiff, whitish little bracte. Calyx clothed with stiff, dark, scattered bristles, pressed close; toothlets nearly equal, lanceolate-subulate, upright. The whole corolla pale: banner oblong, firm at the back; keel very blunt. Legume thickening above, acuminate, upright, scarcely grooved, small, subbilocular, roughish. Seeds few, reniform-oblong, somewhat compressed, shining, ash-coloured. The stems, the leaves on both sides, and the peduncles are rough and somewhat hoary. It flowers in June and the beginning of July; at the end of the same month the pods ripen.

Cultivated at Vienna from seeds sent from Astracan^o.

12. This resembles the tenth species very much. Root perennial, creeping. Stems round, about two feet high. Leaflets ten pairs, smooth on both sides, rather glaucous underneath. Peduncles axillary, streaked. Calyx smooth, green, in no part brown. Corollas all yellow. Anthers saffron-coloured. Legume concave along the lower side, oblong, flattened^p.

Native of Virginia and Canada; according to Mr. Miller of most parts of North America. It flowers here in July, and the seeds ripen the beginning of October. [Cultivated in 1732 by James Sherard, M. D.^q

^b Haller. ^c Hort. kew. ^d Jacquin. ^e Hort. kew. ^f Linn. ^g Hort. kew.

^h Linn. fil. dec. ⁱ Scopoli. ^k Hort. kew. ^l Linn. ^m Hort. kew. ⁿ Linn. ^o Jacquin. ^p Linn. ^q Hort. kew.

13. Root thick, sweet. Stems eighteen inches long and very branching. Stipules small, lanceolate. Leaflets from twelve to fifteen pairs, oval, obtuse, hirsute; according to Linneus oblong, sub-lanceolate. Peduncles axillary, supporting erect spikes of twenty to thirty flowers. Calyx hirsute, blackish. Corollas pale yellow. Legumes completely two-celled with many seeds^a.]

According to Mr. Miller, the stems are striated, and near three feet long; the leaves are placed alternately at two inches distance; the peduncles are two inches long, and the flowers in small loose spikes; each cell of the legume contains two or three hard reddish seeds. It flowers in July, and the seeds ripen in autumn.

[This species is recommended to be cultivated for the food of cattle. It is a native of Italy, Austria, Switzerland and Germany. Mr. Ray observed it between Geneva and Gex. Cultivated in 1739, by Mr. Miller^a.

14. This has the air of the last, but is only one fourth of it in size. Stem flexuose, a foot high, not smooth. Branches spreading, shorter. Leaflets thirteen or fifteen, blunt, sometimes emarginate. Stipules awl-shaped, very small. Peduncles solitary, longer than the leaves, with horizontal flowers at top. Calyx smooth, roundish, with scattered hairs scarcely visible. Corollas yellow, twice as long as the calyx. Legumes inflated, villose^a. Native of Siberia and Germany; flowering in June and July. Introduced in 1773, by Jos. Nich. de Jacquin, M.D.^a

15. Our wild Liquorice Vetch has the stem two feet high and more, smooth and branched. Leaves alternate; leaflets from four to six pairs, mostly opposite, sessile or on very short petiolules, smooth above, a little villose underneath, very entire or slightly emarginate, pointed. Petioles grooved above. Peduncles axillary. Flowers from ten to twenty, in a close raceme, on short pedicels. Bractes subulate, very slender, as long as the calyx, one at the base of each pedicel. Calyx pale, segments subulate, the two upper shortest, the lower one longest. Corolla greenish yellow. Germ slightly villose. Stigma pimpled. Pollen orange-coloured. Legumes swelling, two-celled; the partition however only approaches near to the lower suture, without joining to it. Seeds sometimes ten^a.

The leaves are sweet with a mixture of bitterness, and do not seem to be agreeable to cattle; at least the plant in its wild state is left untouched; otherwise, this being the largest of the European species, it might have been desirable to cultivate it.

Native of most parts of Europe, in woods, hedges and pastures, especially in a calcareous soil.] It flowers in June, and the seeds ripen in September. In gardens it is apt to spread much at the root.

16. Root annual. Branches striated, and trailing on the ground. Leaves composed of about eight pairs of leaflets, terminated by an odd one. Peduncles axillary, about three inches long, with a few pale yellow flowers towards the top, rising one above another. Legumes oblong, bending in form of a sickle, being round on their outer side, but flattened on the opposite, ending in a point, opening in two cells, each having a row of square seeds. It flowers in June, and the seeds ripen in September.

[Linneus observes that the stem is seldom erect; that the peduncles are equal to the leaves or longer; that the spikes have four or five flowers only; that the corollas are dusky and remote; and that the legumes are declining, hooked and very sharp at the end.

Native of Messina and Montpellier. It was cultivated here in 1640^a.

17. This is annual, and varies wonderfully in size and height in different soils. It is a native of Siberia^a; and was introduced here in 1783, by Mons. Thouin^a.]

18. This also is annual, and sends out several trailing branches near two feet long: the leaves are composed of about ten pairs of blunt leaflets, set thinly on the midrib, and terminated by an odd one: at each axil comes out a peduncle near two inches long, sustaining four or five yellow flowers at the top; which are succeeded by brown pods, shaped like a prism, growing erect, and opening in two cells filled with greenish square seeds. It flowers in July, and the seeds ripen in autumn.

[Native of Spain, Portugal and Sicily. Cultivated in 1759, by Mr. Miller^b.

19. Root perennial branching. Stems branching subangular, prostrate, a foot long, produced as are the branches into long rising peduncles, streaked and ending in a close spike. Leaves composed of about twelve pairs of leaflets with an odd one, oblong, sessile, quite entire. Stipules membranous quite entire acuminate. Spike, flowers, and legumes erect. Bractes setaceous. Calyx tubulous with black decumbent hairs, and five unequal, awl-shaped toothlets. Corolla pale blue: banner oblong, emarginate: wings oblong, obtuse, shorter than the banner, longer than the keel, with a long capillary claw: keel oblong, obtuse, deeper-coloured at the top, with long capillary claws. Anthers yellow. Legume villose, oblong, triangular, depressed before into a furrow, acute at the back, pointed, almost two-celled. Seeds many, small, kidney-shaped, shining. It flowers in June and July; and is a native of Siberia^c.

20. This is distinct from the following in having elongated peduncles, and many legumes^d. Gouan at first supposed it to be no more than a variety, but having cultivated them, he found them to be really different. He describes this to have several spreading stems a foot long, hispid with white crowded hairs, and striated. Branches numerous, a palm in length. Leaflets on each side the midrib nine, hairy, quite entire, ovate, obtuse, sometimes emarginate. Stipules ovate, acute. Peduncles striated, hairy, three inches long, that is, about the same length with the leaves, with about fifteen flowers at the top. Corollas blueish purple. Legumes in heads, very hairy, grooved on one side, with a reflex point. In gardens the plant is less hoary, laxer, more branched, and has larger leaflets. Native of Montpellier.]

21. This is an annual plant, which sends out several weak stems without any order; the leaves are composed of ten or twelve pairs of hairy leaflets, and are sometimes terminated by an odd one; the flowers are of a copper colour, and are succeeded by awl-shaped pointed legumes, growing erect, and reflex at their points.

[The flowers are minute and blueish, axillary, sessile, not longer than the calyx, according to Linneus. Retzius says that they are violet and white, six or seven together. Gouan justifies Bauhin and Columna for setting them down as yellow.

The stems are prostrate, with hairs pressed close to them. The calyxes are awned^e. Legumes about three together, bent in, hispid, spreading at top^f.

Native of France and Italy; flowering in June and July. Cultivated in 1616, by Parkinson^g.

22. Root perennial woody. Stems many, spread round on the ground, from seven inches to a foot high, sometimes longer, leafy, not branching, slender, somewhat streaked and angular. Stipules semi-ovate and acute or roundish, smooth quite entire. Leaves numerous, an inch long; leaflets at most seven or eight pairs, opposite, on very short petioles, sublinear, emarginate: on the lower leaves broader subovate, or obcordate. Peduncles streaked, longer than the leaves, axillary, above racemed. Flowers small without smell. Calyxes green with blackish pressed hairs, tubulous compressed, toothlets almost equal, the two upper ones much more distant. Banner pale blue obcordate ending in a greenish

^a Haller. ^b Hort. kew. ^c Linn. ^d Hort. kew.
^e Haller, Scop. St. and Woodw. in With.
^f Hort. kew, from Park theat. ^g Linn. ^h Hort. kew.

ⁱ Hort. kew. ^j Jacquin. ^k Linn. ^l Retz. ^m Linn.
ⁿ Hort. kew.

claw, from which it is reflected at a right angle: wings concolor spreading flat bifid and obtuse at the top: keel much shorter, entire, round compressed erect pale, with a brown spot towards the end. Legume round oblong subhirsute sharp subpendulous, with a longitudinal furrow, almost two-celled. Seed kidney-shaped compressed black shining. The whole plant, except the calyx and legume, smoothish. It flowers in may and june^b.

23. Stem procumbent, branching at bottom, round, streaked, at first covered with prostrate hairs, which at length disappear. Stipules short ovate-lanceolate, half-stem-clasping. Leaflets ten pairs or more, subsessile oblong-oval, quite entire, flat, pubescent most underneath. Branches longer than the leaves, leafless, with a spike of flowers at the end. Flowers on very short pedicels, erect, with a linear-lanceolate bracte the length of the pedicel. Calyx tubulous bell-shaped, five-toothed black-villose, toothlets almost equal, linear-awl-shaped. Banner longer, obcordate, sides plaited upwards, from white pale blue: wings something shorter than the keel, entire, oblong-subovate, with an obtuse side tooth, and a longish claw, converging towards the keel, whitish with a tinge of blue. Keel obtuse rising, deep blue towards the end. Anthers yellow. Legumes ovate with the back slightly imbricated, villose erect hooked at top with the permanent style. It has no smell, but the colour of *Galega officinalis*ⁱ.

24. Leaflets fifteen, oblong, emarginate, pubescent underneath: petioles hairy. Stipules ovate-lanceolate. Peduncles axillary, decumbent, shorter than the leaves, with white hairs; at the end are about five flowers in a head. Corollas purplish. Calyxes subinflated, with teeth the length of the tube. Legumes five, ovate, bent in, warted and rough with scales, hooked backwards at the top and converging^k. According to Linneus it is an annual plant;] but Mr. Miller says that it flowers and perfects its seeds the second year only, seldom continuing after that. He makes the flowers to be white, and adds that the stems are several and trailing, divided into many smaller branches; that the peduncles are about the same length with the leaves; that the pods are short and triangular, and that the whole plant is covered with a silvery down.

[According to Murray, it has the air of the twenty-first species, but the stems are not so long, nor are the heads sessile but peduncled; the wings of the corolla are not shorter than the banner, but of the same length: there are from six to eight flowers in a head, with a subulate bracte to each. It flowers the beginning of august, and bears seed at the end of the same month. Native of Spain, whence the seeds were sent to Mr. Miller.]

25. This is annual. It sends out from the root two or three hairy trailing branches, with winged leaves, composed of ten or twelve pairs of blunt leaflets, terminated by an odd one; peduncles axillary, naked, four or five inches long, terminated by a round head of flowers; these are pretty large, of a deep purple colour, and are succeeded by short pods, rough on their outsides, and when opened shaped like a heart, ending in a sharp point, and containing three or four seeds.

[Stem, according to Chevalier Murray, undivided, with hairs pressed close to it. Leaflets from four to six pairs, lanceolate, hirsute, or rather longer than the petiole, spreading. Stipules bristle-shaped. Flowers on short peduncles. Calyx with dark hairs, divisions bristle-shaped. Corolla longer than the calyx, scarcely opening, purple. Linneus says that the corolla is white. Native of Provence, Spain, Portugal, and the Levant, in mountainous woods.] It flowers in july, and the seeds ripen in autumn. [It was cultivated in 1768, by Mr. Miller^l.

26. Root perennial. The whole plant hairy. Stems weak, as many as six or upwards, toward the base close to the ground, the heads of flowers rising

up some distance from the root, as if without any leaves or stems. From six to twelve pairs of leaflets, elliptical or lanceolate. Petioles furrowed. Stipules ovate-lanceolate, sessile, in pairs, ciliate. Peduncles mostly from near the ends of the branches, ascending, larger than the petioles, about as long as the leaves; flowers five to seven, in a close head, on short pedicels. Bractes oval-lanceolate, one to each pedicel. Calyx covered with black hairs; teeth short, nearly equal. Corolla blueish purple, large and handsome: banner longest, straight, emarginate; keel shorter than the wings, simple emarginate^m. It varies with naked leaves, and white flowersⁿ.

According to Linneus, it resembles the twenty-fourth, but is more caulescent. The heads of flowers are peduncled, and the peduncle is elongated in like manner as in that. Flowers as many as eight or ten in a round head like the Trefoils, blue or purplish. Legumes (when ripe) have a double point, awl-shaped and recurved; they are covered with hairs (not scurfy scales) long, white and soft; but not spreading in a circle, as in *A. Stella*, nor awl-shaped, as in *A. sesameus*.

It is thus described by Retzius, under the name of *A. danicus*.—Height three or four inches, the whole hairy, green not white with down. Root a little branching. Stem decumbent, angular, hairy. Stipules opposite to the leaves, solitary, stem-clasping, bifid, membranous at the base, whitish with green tips. Leaves alternate; leaflets generally twenty-one, ovate or lanceolate, flat. Peduncle long, usually one upon a plant. Flowers erect, subpedicelled, from seven to twelve in a head. Bracte under each flower, lanceolate, black, hairy. Calyx greenish, black, hairy, with five sharp teeth, much longer than in *A. arenarius*. Banner subfalcate, blue at the edge: wings and keel with a blue tip only, shorter than the banner. Pistil longer than the keel, with a little headed stigma. Legumes hairy, broad-ovate, short, turgid, a little depressed, with a short straight tip, quite two-celled, with from one to three seeds in each cell. He observes that the legumes in Ray's figure are acute and too long.

This species was for some time supposed by our English botanists to be the *A. arenarius* of Linneus, which appears by the Linnean herbarium to be a very different plant.

It is found in sandy and chalky pastures, flowering from may to july.

27. This is a perennial plant, in appearance approaching to the next species, from which however it differs in being three times as large, and less hoary; in having numerous flowers head-spiked, not racemed, three times as large as in that, and more reflex. The leaves also are linear-lanceolate. The legumes oblong, hairy and erect^o. Native of Siberia.

28. Root perennial, filiform. Stem almost erect, six inches high, often branching, with a white nap on it. Leaves alternate, pinnate, hoary; leaflets nine or eleven, linear-lanceolate, quite entire, complicate. Stipules opposite to the leaves, bifid, scarious, tomentose. Peduncles axillary, longer than the leaf, having at the end about four flowers, not closely crowded, pedicelled, with minute bractes in form of stipules. Calyx bell-shaped, obliquely truncate with five toothlets, the upper so short that it may be said to be almost wanting; it is dark green and hirsute. Corolla blue without blue streaks. Legumes within the calyx, pedicelled, sickle-shaped, a little swelling, tomentose, acuminate, channelled at the back, two-celled, many-seeded. This is really caulescent. It is a native of Scania, in loose sand^p.

Linneus, supposing this to be our purple mountain Milkwort (n. 26.), found fault with the figure in the third edition of Ray's synopsis, which is a tolerable representation of our plant.

29. Root woody. Stems seven inches long, many, rather more villose towards the top. Leaflets twenty-

^a Jacquin.

ⁱ Ibid.

^k Linn.

^l Hort. kew.

^m Woodw. & Relh.

ⁿ Hudf.

^o Linn.

^p Retz.

one

one or twenty-three, very small, oval-oblong, with white hairs scattered underneath. Peduncles from the upper axils, generally shorter than the leaves, hairy. The head of flowers is like that of the Trefoils, ovate, with the calyxes black at the tips. Corollas pointed, near twice as long as the banner^a. Native of Spain. Cultivated in 1658, in the botanic garden at Oxford^r.]

30. Root annual. Stems spreading on the ground. Leaves composed of eight or ten pairs of oval smooth sessile leaflets, slightly emarginate. Peduncles axillary, generally two together, equal to the leaves in length, supporting a globular head of purple flowers, which are succeeded by three-cornered pods growing erect in a compact head, opening in two cells, filled with small triangular seeds.

[According to Linneus, the stems are seven inches long, and round. Leaflets seven or nine, suborbiculate, smooth and thin. Peduncles ascending, somewhat angular, shorter than the leaves. Flowers in umbels, subsessile, nine or ten together: banner emarginate, obcordate, reflex on the sides, purplish; wings white; keel purple. Legume flattish underneath, with the style hooked at the end.] It grows naturally in China; flowers in July and August, and the seeds ripen in autumn.

31. Stems a foot high or rather more, loosely leafed. Leaflets subhirsute, as far as ten pairs, ovate, not pointed. Peduncles axillary, bearing a short umbel of twelve to fifteen flowers. Stipules two, ovate-lanceolate, very short, white. Calyx rough with black hairs. Flowers specious, loose: banner the length of the keel, blue with deeper coloured lines, white at the base; wings stiff, short, narrow, hooked, white; keel white, with a broad obtuse blue beak. Legume rough, black, pendulous, inflated, crooked, one-celled, without any vestige of a septum. The figure in the Flora Danica has a mixture of purple in the corolla, which the alpine plant has not^s. Native of the mountains of Switzerland and Lapland. Introduced here about 1771^t.

32. The root is annual, but runs very deep. Stems very branching, woolly. Leaves on very long petioles, with from five to eleven leaflets, rather oblong, hoary. Flowers lateral; calyx hoary; corolla white. Legume swelling, lanuginose, pointed. Seeds kidney-shaped, yellow^u.

Murray does not think the *Medicago prostrata* of Jacquin to be different from this. Native of the sandy hills of southern Siberia.

33. Root annual. Before any stem pushes up, there often comes out a scape or two, so that it may in that state be regarded as stemless, and perhaps in a dry soil, it continues so: but in a garden a stem grows up six or seven inches high, erect round reddish, hirsute with white stiff pressed hairs, and a little branching at bottom. Leaflets ten or eleven at most on each side with an odd one, oblong emarginate subhirsute entire opposite very shortly petioled an inch in length. Stipules setaceous hairy. Common peduncles erect axillary solitary round villose, shorter than the leaves, with three or four spreading flowers in a raceme. Calyx green with brown hairs, and awl-shaped toothlets. Petals pale yellow: banner twice the length of the calyx; wings obtuse, keel concave arched. Anthers orange. Legume awl-shaped smoothish two inches long, keeled behind, round before. Seeds pale yellow. Native of Egypt; flowering in June and July, and ripening its seeds in August^v.

Introduced in 1777, by Ant. Gouan, M.D.^w Mr. Miller however had received seeds of it before from Jussieu. He describes the stems as upright, and a foot and half high.

[34. Leaves pinnate, but the leaflets not, as in the other species solitary, but four or five at each insertion; whence the erect leaves resemble whorled stems^x. Native of eastern Siberia, beyond Baikal.

35. The whole plant is slightly villose. Stipules

oblong, imbricate, covering the stems. Leaflets not more than fourteen, lanceolate, pointed, rounded at the base, on very short petioles, rather spreading; the lower ones shorter and bent down. Calyx three times the length of the bracte^y.

Haller says it has from twelve to sixteen pairs of leaflets; and from eight to twelve short flowers of a deep blue colour.

According to Linneus, this differs from *A. alpinus* in having the stem not at all or scarcely branching at the base; the flowers red and erect, not pendulous. Native of the south of France, Switzerland, the Valais, Austria, Carniola, and Siberia.] Mr. Miller says, that it grows naturally upon the mountains in Spain, whence he received it. He describes it as a low plant, seldom more than three inches high; the flowers large, purple, erect, in a loose spike, on long peduncles rising above the leaves; the pods oblong, crooked, opening in two cells, and filled with square seeds.

[36. Root perennial. This is not stemless but caulescent, half a foot in height and branching. Leaflets six or seven pairs, oval, hoary, entire or slightly emarginate. Peduncles firm, furrowed, higher than the whole plant besides, terminated with a head of from five to eight erect flowers. Calyxes inflated, tubulous, whitish, hairy, transparent, contracted a little at the orifice, with short green teeth. Banner of the corolla purple, wings yellow, keel white except at the end which is yellow; as the flower advances the banner becomes blue, and the keel all yellow. Germ hirsute. Legume oblong, half-two-celled, opening at top, the valves ending in a recurved spine^z.

Gouan unites this with *A. uralensis*, thinking them to be one species.

Native of Dauphiné and Siberia.]

37. Root perennial, creeping. Peduncles as long as the leaves, supporting a cylindrical spike of yellow flowers, succeeded by swollen pods, opening in two cells, containing several greenish seeds. [Bractes villose. Flowers purple. Legumes like those of *Colutea*, but rounder^{aa}.]

Native of Siberia; flowering in June.

[38. Root perennial, long, and thick. Leaves composed of fifteen to twenty pairs of leaflets, hairy on the edge, as is the rachis or midrib. Peduncles a foot long, hairy, sustaining spikes three inches long, of many pale yellow flowers of great fragrantcy. Legumes an inch long, very thick, three-sided, mucronate, two-celled; with two or three seeds in each cell, having the shape of the sesamoid bones^{ab}. Native of Barbary, and Russia. Ray observed it in the botanic garden at Montpellier, when he made some stay there in the year 1665.

39. Root long, woody. Stem five or six inches high, destitute of leaves, soft and downy. Leaves all radical^{ac}, consisting of ten or twelve pairs of oval or ovate-lanceolate, acute leaflets, covered with a very shining silky pile. Bractes awl-shaped, shorter than the calyx. Flowers pale violet colour, stiff, growing eight or ten together in a short thick spike, at the end of a scape or long peduncle covered with a very soft pile. Calyx has the same sort of pile. Banner longer than the other petals, oval; wings narrow, with a short blunt hook; keel shorter, blunt, scarcely reflex, cut at the end and terminating in an awn. Legume villose, not black or bladdery, but hard and turgid, marked with a groove, whence proceeds a perfect *septum* or partition; it is short, thick, and contains several seeds^{ad}.

Haller doubts whether the Siberian be the same with the Swiss plant. Gouan affirms that the specimens sent from Dauphiné under the name of *A. vesicarius* are the same with this. Villars says that it resembles *A. campestris*, but that they are really different. Native of Dauphiné, Carinthia, the Pyrenees, and Siberia; also of mountainous pastures in Scotland.

^a Linn.

^r Hort. kew.

^s Haller.

^t Hort. kew.

^u Linn. suppl.

^v Jacquin.

^w Hort. kew.

^x Linn.

^y Scopoli.

^z Allioni.

^{aa} Lightf.

^{ab} Linn.

^{ac} Morison & Magnol.

^{ad} Haller.

40. Root very large, woody, sweet, producing a vast tuft of procumbent scapes and leaves, the former near twice as long as the latter. Leaflets ovate, acute, pubescent, in pairs from ten to twenty. Scape simple, bearing a raceme of flowers amounting sometimes to thirty. Bractes loose, coloured, lanceolate. Calyx smooth, green mixed with rose-colour. Corolla an inch long, stiff: banner very long, purple; wings hooked, pale; keel shorter, blunt, scarcely bending, deep purple. Legumes long, slender, really two-celled. Seeds in each cell five or six, kidney-shaped^z. Native of the south of France, the Government of Aigle, the Lower Valais, and the Grisons.—It was introduced in 1776, by Dr. Pitcairn^b.

Scopoli has a plant with this title, n. 921. which he figures in t. 45. with the *montanus*. He thinks that n. 407. of Haller is the same plant; and describes it to be stemless, the petioles winged at the base with a two-horned stipule, leaflets ovate, as far as fifteen pairs, on very short petioles, directed one way, very blunt, thickish, rather villose, mucronate, scapes procumbent at the base, longer than the leaves, racemes an inch or more in length, peduncles only half the length of the bractes, calyxes almost upright, smooth, banner eight lines long, blueish red at the end, keel blunt.

41. Root perennial. Scapes rough, often with twenty flowers. The flowering calyx not swelling. Banner folded back, twice as long as the wings. Leaves hoary. Legumes a little bent, turgid. It differs from the foregoing, in having the leaves rounder and hoary, the legumes almost straight and more turgid¹. Native of the south of France.

Mr. Miller says, that he has received it from the hills near Verona, but his description by no means agrees with that of Linneus.

42. Root long, slender, perennial. Stem none, but procumbent runners half an inch long. Leaflets fourteen pairs, hairy, shining. Scape naked, radical, bearing ten or twelve flowers in a loose raceme. Bractes lanceolate, shorter than the calyx; which is oblong, not streaked, five-toothed, with brown tips. Corollas pale yellow, not streaked, the keel purple at the base, and acuminate^k.

Haller says, that the leaflets are from ten to fifteen pairs, the scapes six inches and more in length, the calyx very rough with blackish hairs, the corolla long and stiff, the banner plaited and notched, much longer than the other petals, the wings truncate, slightly notched, with large hooks, the keel blunt, but putting forth an awn, on the sides of it two spots, commonly violet-coloured, but sometimes green, the legumes rough with black hairs, upright, with an imperfect partition dividing them to the middle, the seeds are eight or ten. Native of Switzerland and Germany. Introduced in 1778, by Mons. Thouin¹.

43. Branches very short, pressed close to the ground. Scapes shortest of all, with many flowers, often seven. Calyxes with few brown pressed hairs. Corollas small white, keel purple at the tip. Legumes cylindric acuminate the length of the scape smooth two-celled reflex with very short stiffish pedicels: leaflets fifteen or seventeen oval, scarcely emarginate smooth, with white hoary hairs underneath^m. It was cultivated in the Oxford botanic garden in 1772ⁿ.

β. Villars describes this as having no scape, the leaflets hoary, cut at the top, the legumes of an oblong elliptic form and thickening.

44. Leaflets nineteen, obcordate with a bristle. No scapes. Flowers next the root, few, minute and white. Legumes strong, longer than the whole leaf, pointed. It is scarcely a different species from *A. trimestris*^o.]

This plant is annual, sending out a few branching stalks which trail upon the ground; the leaflets are broader at their end than at their base, and are

indented so as to become almost heart-shaped; the flowers are axillary in short loose spikes, they are almost white, and are succeeded by sickle-shaped pods, having two cells filled with square brown seeds. It flowers in July and August, and the seeds ripen in autumn. It grows naturally about Aleppo, whence the seeds were brought by Dr. Ruffel.

[45. Leaflets twenty-one to thirty-three, ovate, obtuse, sessile. Flowers numerous, radical, subsessile, first pale and afterwards full yellow. Calyx ovate, swelling, white with down, having white teeth. Native of Hungary^p. Introduced in 1787, by Jos. Nic. de Jacquin, M. D.^q

46. This has no stem or scape, but has branches from the root spreading close upon the ground, clothed with small villose pinnate leaves. Calyxes hirsute, with blackish teeth. Corollas yellow. Legumes roundish, smooth^r. Native of Switzerland, Siberia, and Armenia.

The Siberian plant agrees with Linneus's, except in the blackness of the teeth of the calyx. Haller's n. 415. is different from Linneus's, in the flowers being much larger, the leaves ovate, retuse, and villose only beneath. In the Siberian plant they are narrow-lanceolate, and very hirsute on both sides, as is the whole plant, except the corollas^s.

47. Root large, woody and branching. Stems a foot long leafy, branching, hard. Leaves subhirsute, with from seven to ten pairs of leaflets, and no odd one. Bractes large, yellow, ovate-lanceolate. Flowers upright, at the lower part of the stem, on peduncles, from five to eight, shorter than the leaves. Calyx soft and villose, cylindrical, with long, capillary teeth. Corollas long, stiff, of a pale violet colour: banner long, plaited, notched, with veins of deep purple; wings on a capillary peduncle, with a short blunt hook; keel shorter, with short hooks, and a bent pointed purple beak. Legume one-celled, with four seeds^t.

Native of the sea shore near Marseilles, of Switzerland, mount Etna, Olympus, &c. Cultivated here in 1640^u.

Mr. Miller treats of this species separately, under its old name of *Tragacantha*. He makes four sorts of it:]

1. *T. massiliensis*; with longer spinescent petioles, and oval obtuse leaflets.

2. *T. hispanica*; with lanceolate leaflets, solitary axillary flowers, and ovate inflated legumes.

3. *T. argentea*; with lanceolate acuminate tomentose leaflets, and flowers both axillary and terminating.

4. *T. glabra*; with linear smooth leaflets, and axillary flowers in clusters.

He thus describes them:

1. This has a thick, short, ligneous stalk, which branches out greatly on every side. The young branches are woolly; they are closely garnished with winged leaves, whose foot-stalks end in acute thorns. The leaflets are small, oval, obtuse, and silvery. The flowers are large, and white, they are produced in clusters at the end of the branches; these appear in June and July, and are succeeded by short pods having two longitudinal cells, containing two or three kidney-shaped seeds, which seldom ripen in England. It grows naturally on the sea-shore about Marseilles, and in Italy.

2. This has a thick woody stalk which rises about two feet high, sending out many ligneous branches, which are closely garnished with spear-shaped small leaves; they are hoary and are ranged by pairs along a very strong footstalk, ending with a sharp point. The flowers are produced singly from the sides of the branches; they are large and white, and are succeeded by oval bladder pods, containing four kidney-shaped seeds: it flowers in July, but the seeds do not ripen in England. It grows naturally in the islands of Majorca and Minorca.

^p Linn.

^q Hort. kew.

^r Linn.

^s Retz.

^t Haller.

^z Haller and Linn.

^b Hort. kew.

¹ Linn.

^k Ibid.

¹ Hort. kew.

^m Linn. amzn.

ⁿ Hort. kew.

^o Linn.

^u Park. theat.

3. This has a very low shrubby stalk, which divides into many downy branches, garnished with winged leaves, composed of nine or ten pairs of spear-shaped woolly leaflets, ending in acute points; these are extended to the end of the footstalk, so that there is not any part of it bare, as in the others. The flowers are produced from the side and at the top of the branches; they are white, and smaller than in the others, appear at the same time and are not succeeded by pods in England. It grows naturally in the islands of the Archipelago.

4. The last is a very low plant: the stalks are pretty thick and woody, but seldom rise to more than five or six inches high, dividing into several branches, closely garnished with small winged leaves, composed of several pairs of small, linear, smooth leaflets, of a bright green colour. The foot-stalks end in very sharp thorns, which stand out beyond the leaflets; the flowers grow in clusters from the side of the stalks; they are smaller than those of the others, and of a dirty white colour; they appear in July, but are not followed by seeds in England. It grows naturally in Spain.

[From the *A. Tragacantha* or Goat's Thorn is gathered the Gum called Gum Tragacanth, so much used in various preparations in different trades, as well as in the *Materia Medica*. It differs from all other known Gums in giving a thick consistence to a much larger quantity of water, and in being soluble with much more difficulty, or rather dissolving only imperfectly. When put into water it slowly imbibes a great quantity of the fluid, swells into a large volume, and forms a soft but not fluid mucilage. The demulcent qualities of this Gum are to be considered as similar to those of Gum Arabic. It is seldom given alone, but frequently in combination with more powerful medicines, especially in the form of troches, for which it is peculiarly well adapted. It gives name to an officinal powder.

48. The leaves have no silkiness about them, as in the *campestris* n. 42.; the leaflets are much less, greenish yellow, subhirsute and viscid, scarcely erect, twenty pairs and upwards. Flowers pale yellow, four or five, as in *campestris* but smaller. Legumes less straight, and more inflated; two or three only ripening. It agrees with n. 42. in root and habit, but the leaves are shorter, and have leaflets nearer to the base; the root also puts forth a greater number of heads. Native of Dauphiné; also of Mont Cenis and other high alps^a.

49. This also has the habit, flower and legume of the *campestris*, but the leaves have more pairs of leaflets, as far as twenty-one, they are less, pulpy and thickish, smooth, and the edges contracted; they are apt to turn of a brownish red, and are often imbricate. The scapes are much lower, being not six inches high, and there are scarcely ten flowers in a raceme. The bractes are coloured, and much longer than in the *campestris*. The calyx and corolla are larger; the latter is white and upright; the banner very long, plaited, and a little turned back; the wings long, slender, hooked, longer than the keel, which is very blunt. Legume rough with black hairs, furrowed, round, a little flattened on one side and convex on the other, divided half way by an imperfect partition, and containing ten seeds. It approaches to *campestris*, but differs in the bractes, in the smoothness of the leaves, in having a longer flower, white and the keel not violet-coloured. Native of the mountains of the Valais, and of Piedmont bordering on it^b.

50. This has the habit of *Anthyllis Vulneraria*. The corolla is but little extended beyond the calyx; the keel and wings are of a dusky colour, the banner is pale yellow, emarginate, scarcely turned back. Legumes short, two-celled, rather hispid, of a dusky colour, terminated by the crooked style. Native of Mont Cenis^c.

51. Stems shorter. Leaflets eleven to thirteen, linear, very narrow. Peduncles long, straight, ob-

tusely three-cornered. Flowers in spikes. It resembles *A. Onobrychis*, inasmuch that it has been supposed to be only a variety of it, but the leaflets are somewhat tomentose, the flowers larger, the stipule solitary.

This and the following are natives of Siberia. Introduced in 1780, by Peter Simon Pallas, M. D. The former flowers in July and August, the latter in June^a.

53. Stem shrubby, upright, a foot and half high, branched, covered with a very short whitish nap. Leaves alternate, unequally pinnate; leaflets about thirty-one, ovate-oblong, one-nerved, submentose. Stipule stem-clasping, cowed, bifid at the tip. Flowers in spikes, with one bracte to each, on an elongated, naked, axillary common peduncle. Calyx tubulose, with five, nearly equal, acute segments. Corolla pale violet-coloured: banner ovate, emarginate, concave, with a reflex border and channelled claw; wings shorter than the banner, and covered with it, ovate, sickle-shaped at the base and near the claw; keel shorter, bifid at the base. Anthers sulphur-coloured, ovate. Germ short, ovate, tomentose; style straight, reflex at the tip; stigma simple. Native of Peru. It flowered in the royal garden at Madrid, before 1791, in October and November. It is reported to be very injurious to cattle^b.

54. Root perennial, simple. Stem herbaceous, procumbent, hairy, scarcely half a foot high. Leaves pinnate, with entire, ovate-oblong, hispid stipules: leaflets nine to eleven, ovate-oblong, hispid with appressed, rigid hairs, tubercled at the base. Flowers in spikes, yellow, with lanceolate, hispid bractes. Calyx hispid, five-parted beyond the middle, with long, filiform, unequal segments. Banner of the corolla a little longer than the wings and keel, straight, flattened a little at the sides; wings semicordate, with an oblong subfiliform claw; keel shorter than the other parts, with a two-parted claw, and a compressed, sharp body. Filaments curved in a little; anthers roundish. Germ ovate-oblong, hispid; style the length of the stamens, ascending; stigma globose. Legume half-two-celled, ovate-oblong, compressed a little, hispid. Seeds very few, kidney-shaped.

55. Stem scarcely any, herbaceous. Leaves unequally pinnate, a span long, petioled: leaflets forty-three to fifty-one, ovate-oblong, emarginate, tomentose. Stipules ovate-lanceolate, shrivelling. Scape very long, pubescent, slightly streaked. Flowers in a globose head, purplish, with lanceolate, hairy bractes. Calyx hairy, more deeply cloven at top, the upper toothlets smaller. Banner longer than the wings, subovate, oblong, emarginate, obtuse, reflex on the sides; wings longer than the keel, lanceolate, with a subfiliform claw; keel cloven towards the base, the body compressed, acute, emarginate on the sides. Filaments curved in a little; anthers ovate. Germ ovate-oblong, woolly; style subulate, curved inwards; stigma blunt. Legume half-two-celled, subovate, acute, depressed at top, wrapped in a subrufous wool. Seeds very few, nearly kidney-shaped.

56. Root simple, horizontal, somewhat woody, perennial. Leaves radical, two inches long, unequally pinnate; leaflets from eleven to twenty-three, ovate, tomentose, sessile. Stipules lanceolate, hairy on the outside. Scape ascending, round, hairy, the length of the leaves. Flowers in a close spike, with filiform, hairy bractes. Calyx hairy, with the upper toothlets smaller, in the ripe fruit swelling, cloven above. Corolla yellow: banner longer than the wings and keel, ovate-lanceolate, straight; wings scarcely longer than the keel, half-cordate, with a subfiliform oblong claw; body of the keel compressed, acute, claw cloven at the base. Filaments somewhat curved inwards; anthers roundish. Germ ovate-oblong, woolly; style subulate, ascending; stigma globose. Legume half-cordate, three-sided,

^a Allioni.^b Haller.^c Allioni.^a Hort kew.^b Cavanilles.

subulate, compressed above, woolly, half-two-celled, two-valved. Seeds few, kidney-shaped.

These three species are natives of mount Libanus^c.

57. Allied to *A. hamosus*, but differs in having rounder leaves, more flowers in a spike, and especially in having straight, not recurved pods, only half the length of those of *A. hamosus*. The native country is unknown. It appears to be an old inhabitant of Chelsea garden, and was marked with the name of *Astragalus pilosus* in Miller's herbarium. It has however no affinity to the *A. pilosus* of Linneus, nor does it even agree with the description of that plant in Miller's dictionary. Communicated by Mr. Fairbairn from Chelsea garden, in 1788^d.

58. Stems prostrate, branched near the ground, short, round: twigs villose. Leaves alternate, on long petioles, unequally pinnate, both radical and cauline, villose, six or seven inches long including the petiole. Leaflets fifteen to twenty pairs, opposite, sessile, the upper ones gradually smaller, lanceolate, acute, entire, one-nerved, the nerve scarcely visible, concave, villose, hirsute beneath, pale green on both sides, nine lines long and three broad. Petioles round, two or three inches long, with two linear, long, acute, hirsute, upright stipules at the base. Scapes radical and axillary, solitary, leafless, very long, twice as high as the plant, upright, round, villose. Spikes terminating, short, close, villose. Flowers crowded, sessile, spreading very much, afterwards nodding, purple, three lines in length. Bracte under each flower, linear, acute, shorter than the calyx; which is half-five-cleft and villose, the segments nearly equal, subulate, the two upper ones remote; it is permanent, and two lines long. Banner of the corolla oblong, emarginate with a minute point, and a broad channelled claw; wings linear-lanceolate, straight, lax, almost the length of the banner, with a capillary claw: keel two-petalled, ovate, subulate-acuminate, smaller than the other petals, with linear claws. Legume oblong, turgid, having one groove on each side, villose, one-celled, one-valved, five lines long and two broad. Seeds several, kidney-shaped, pedicelled, brownish. Native of Siberia, on the loftiest mountains; and sent thence to the Paris garden by Demidow^e.

59. The opposite-leaved stipule is not unusual in this genus, but in this species it is very large like a sheath. Native of Peru, where it was found by Dombey^f.

60. This is a hoary little shrub, about a cubit in height. Stem upright, round, branched from the base, ash-coloured at bottom, pubescent at top, whitish, retaining its stipules: branches alternate, stiffish, like the stem. Leaves alternate, spreading, unequally pinnate, eighteen lines in length. Leaflets six or seven pairs, opposite, sessile, linear or narrow-lanceolate, sharp at both ends, but sometimes bluntish, quite entire, nerveless above, scarcely one-nerved beneath, pubescent, whitish on both sides, spreading, from four to six lines in length, and twelve lines in breadth. Petioles round on one side, having one streak on the other. Stipule half-stem-clasping, two-parted, acute, spreading and rolled back, green above, brown beneath. Spikes axillary, solitary, on long peduncles, upright, round, pubescent, three inches long. Peduncles round, longer than the leaves. Flowers subsessile, purple, nine lines in length. Bractes linear, acute, villose, spreading, one under each flower. Calyx præmorse at top, hirsute, dusky purple; mouth oblique, five-toothed, acute, erect, nearly equal: the lower tooth scarcely more produced than the rest; it is permanent, and five lines in length. Banner of the corolla obovate, obtuse, sessile, attenuated at the base, half-reflex, larger than the other petals; wings oblong, straight; keel two-petalled, shorter than the wings, with the claw double towards the base. Legume linear, round, villose, two-celled with a double partition, six lines in length and one in

breadth; containing few (sometimes only one) oblong, kidney-shaped seeds. It flowers in summer and soon ripens the seeds: though shrubby, it continues not many years. Native of Siberia, whence the seeds were sent to the Paris garden by Demidow^e.

61. Manner of flowering as in *A. montanus*. It differs from *A. Tragacantha* in being smaller, with green not white leaves; the petioles scarcely spinescent and not very firm; the flowers purple not white; the calyxes very hirsute, not merely villose, as in that; and the calycine teeth not simple but having very long awns. Native of Switzerland and Provence^h.

62. This is remarkable for the largeness of the heads or balls of flowers, almost the size of the fist. Native of the Levantⁱ.

63. The leaves are minute. The flowers small, white with a purple line on the banner. Peduncles axillary, short, two-flowered. Native of Crete or Candia^k.]

PROPAGATION AND CULTURE.

All the species may be raised from seeds: these should be sown in april, on an open border of light earth; the annual sorts where they are to remain, the perennials to be transplanted to the places for which they are destined. They are in general hardy, and require no other care but to draw the plants out where they come up too thick, leaving them a foot and half, or two feet asunder, and to keep them clean from weeds. Observe only that some, (as n. 26, 35, 37.) require a shady situation and strong soil; others (as n. 6, 39.) an open situation and dry soil. N. 2 and 33. must be planted in a warm border. The second sort seldom flowers till the third year from seed, and will continue many years in a proper soil.

3, 7, 10, 12, 30. must be raised on a moderate hot-bed in the spring, and when the plants are fit to remove, they should be each put into a small pot filled with light earth, and plunged again into the hotbed, shading them from the sun till they have taken root; after which they should have free air admitted to them daily, in proportion to the warmth of the season; and should be frequently, but gently watered. In may they should be removed to a sheltered situation, where they may remain till october, when they should be placed under a common frame. In the spring they may be turned out of the pots, and planted in a warm border, where they will flower, and sometimes produce seeds. If the winter prove very severe, a little old tan should be laid over the roots, which will effectually preserve them.

47. The *Tragacanth* may be propagated by seeds, if they can be procured from abroad, in the same manner with the others. When they are large enough to transplant, they should be carefully taken up, and some of them planted in small pots filled with fresh earth, placing them in the shade until they have taken root; after which they may be removed into an open situation, where they may remain to the end of october, when they should be placed under a common frame, where they may be sheltered from severe frost, but have free air in mild weather. The remainder of the plants may be set on a warm dry border.

The plants in pots may be preserved a year or two under frames in winter, and then being shaken out of the pots may be planted in a lean dry soil, and warm situation: but as they are sometimes destroyed by hard winters, it will be proper to keep a few plants in pots, to be sheltered in winter, in order to preserve the species.

These plants may also be increased by slips, and as they rarely produce seeds in this country, the latter method is generally used here. The best time for this work is in april, just as the plants begin to shoot, at which time the tender branches should be slipped off, and their lower parts divested of the decayed leaves; then they should be planted on a very moderate hot-bed, which must be covered with

^c Billardiere. ^d Trans. Linn. soc. ^e L'Heritier. ^f Ibid.

^g L'Heritier. ^h Ibid. ⁱ Ibid. ^k Ibid.

mats, to screen them from the heat of the sun by day, and the cold by night. These slips should be frequently, but gently watered, until they have taken root; after which they may be exposed to the open air, and in very dry weather they must be refreshed with water. On this bed they may remain until the following spring, being covered with mats in very severe weather. In april they may be transplanted, either into pots filled with light sandy earth; or into warm borders, where, if the soil be dry, gravelly, and poor, they will endure almost the severest cold of our climate; but if they are planted in a very rich soil, they often decay in winter.

ASTRAGALUS. See *Anthyllis*, *Biserrula*, *Crotalaria*, *Glycine*, *Hedysarum*, *Indigofera*, *Orobis*, *Phaca*.

ASTRANTIA. (From ἀστρὸν *astrum* and ἀντίος *obvium*. Lin.)

Lin. gen. 327. Reich. 357. Schreb. 459. Tournef. 166. Gærtn. 20.

Class. 5. 2. Pentandria Digynia.

Nat. order of *Umbellatae*.

GENERIC CHARACTER.

CAL. Umbel universal with very few rays (often three); partial with very numerous ones. Involucre universal with leaflets doubled to the ray—partial with leaflets about twenty lanceolate, spreading, equal, coloured, longer than the umbellule. Perianth proper five-toothed, acute, erect, permanent.

COR. universal uniform: floscules of the ray abortive. Proper with petals five, erect, inflex, bifid.

STAM. Filaments five, simple, the length of the corollule. Anthers simple.

PIST. Germ oblong, inferior. Styles two, erect, filiform. Stigmas simple, spreading.

PER. Fruit ovate, obtuse, crowned, striated, bipartile.

SEEDS two, ovate-oblong, covered with the crust of the pericarp, wrinkled.

ESSENTIAL CHARACTER.

Partial Involucres lanceolate, spreading, equal, longer, coloured. Flowers very many, abortive.

SPECIES.

1. *Astrantia major*. Great Masterwort.

Lin. spec. 339. Reich. 653. hort. cliff. 88. Gærtn. fruct. 1. 78. Hall. herb. n. 790. Crantz. austr. 218. Rivin. t. 68. Plenck, ic. t. 225. Sabb. hort. 4. t. 87.

A. nigra. Scop. carn. n. 306. Blackw. t. 470. Mor. umb. t. 1. f. 85, 86. & R. r. hist. f. 9. t. 4. f. 1. Raii hist. 475. Ger. 828. emac. 978. Park. theat. 213. f. 2.

A. candida. Mill. dict. n. 2.—et major, n. 1.

[*β. A. nigra minor*. Mor. umb. n. 11. hist. 3. 279. f. 9. t. 4. f. 2. Raii hist. 475. n. 2.

A. alpina. Munt. phyt. t. 111. minor. Scheuch. alp. 4. 331.

Leaves five-lobed; lobes trifid.

2. *Astrantia carniolica*.

Lin. syst. 272. Jacqu. austr. 5. 31. app. t. 10.

A. minor. Scop. carn. 1. 187. t. 7. 2. n. 305. t. 7. Leaves five or seven-lobed, simple or bifid.]

3. *Astrantia minor*. Little or alpine Masterwort.

Lin. spec. 340. Reich. 654. Mill. dict. n. 3. Hall. herb. n. 791. Willch. illustr. n. 41. Scheuch. alp. 6. 453.

A. nigra alpina minima. Raii hist. 475. n. 3.

Helleborus. Bauh. pin. 186. n. 6. prodr. 97. 9. Bocc. sic. 10. t. 6.—var. t. 5. f. 3. 11.

Leaves digitate serrate.

[4. *Astrantia ciliaris*.

Lin. syst. 273. suppl. 177.

Jasione capensis. Berg. atl. nov. upf. 3. 187. t. 10. Leaves lanceolate serrate-ciliate.

5. *Astrantia Epipactis*.

Lin. syst. 273. suppl. 177. Scop. carn. n. 303. t. 6.

Jacqu. austr. 5. 32. app. t. 11. Bauh. pin. 186. n. 7. Lob. ic. p. 664. Elleborine.

Leaves five-parted obtuse serrate.

DESCRIPTIONS, &c.

1. Stem eighteen inches high, little branched. Leaves shining, petioled, very deeply five-cleft; the lobes trifid, and sharply serrate: sometimes they are

seven-cleft. There are sometimes as many leaves in the involucre, and they are veined. All the flowers are peduncled; and the peduncles are shorter than the involucre. The umbels are large, and the calyxes awned^a.

The involucre is either purple or white: hence Miller, following Tournefort, has made of this two species.]

The first, which he calls *Astrantia major*, has many spreading leaves rising from the root, composed of five large lobes, pretty deeply serrate; between these the stalks arise near two feet high, having at each joint one leaf deeply cut into three sharp-pointed lobes; at the top is produced the umbel of flowers, at the base of which is the general involucre, composed of two long trifid leaves, and two entire ones of the same length. The partial umbels stand upon long peduncles, under which is the involucre, composed of many, spear-shaped, pointed leaves, which extend beyond the rays, and are of a purplish colour.

The other (*A. candida*) has much the appearance of the foregoing, but differs in having five lobes to the stem-leaves, which are much shorter, and rounder at the point than those of the foregoing. The general involucre is composed of short narrow leaves, and those of the partial umbels are shorter and white.

[Great Masterwort is a native of the mountains of Switzerland, where I found it abundantly on mount Scheidegg, &c. flowering in august, 1779; Ray observed it on mount Jura, and mount Saleve in Savoy, near Geneva; native also of Tuscany, Bohemia, Bavaria, Austria, Carniola, the Pyrenees, &c. It was cultivated here in 1596, by Gerard^b.

β. Differs only in size, probably from its situation, being a native of the Alps^c.

2. Root nearly the thickness of the little finger, about an inch long, præmorse, dark brown, having an aromatic balsamic smell, with a taste at first slightly aromatic but nauseous, and afterwards acid. The whole plant is smooth. Stem round, erect, slender, from six inches to a foot in height, with only one leaf on it, resembling the bottom leaves, sometimes only three-lobed, or even simple: it is divided at top umbel-wise into striated branches, which are often subdivided: there is also frequently a middle branch which is undivided. The number of umbels varies from six to twenty-eight. Bractes small, ovate, concave, blunt, pale. Leaflets of the universal involucre from two to five, sessile, acute, with few serratures, entire or else divided half way into two or three lobes. Leaflets of the partial involucres from six to twelve, oblong-lanceolate, quite entire, acute, spreading very much, white with a green line running along the middle. Male florets several, on longer peduncles: females irregularly mixed with them, on shorter ones. Petals white, appearing heart-shaped on account of their being bent in very much at the tip, nearly upright, permanent and shrivelling. Leaflets of the perianth ovate, concave, whitish, almost as long as the corolla. Stamens of the same length with the corolla. Germ hirsute, pale with a tinge of green. Seeds oval, crowned with a part of the shrivelled calyx; smooth, flattish and ash-coloured on one side; convex, muricate, and white on the other.

Native of Carniola; flowering in july and august^d.]

3. This seldom rises a foot high. Petioles four inches long. Leaves divided into eight segments, deeply serrate. Universal involucre composed of several very narrow leaflets. Peduncles of the partial umbels very large and slender, towards the top often dividing into three, each having a small umbel. Involucres of these small umbels short and white.

[Haller says, that it is of much lower growth than the first species, with the leaves not confluent but distinct, six to nine from one petiole, long,

^a Scopoli. ^b Hort. kew. ^c Ray. ^d Jacquin.

narrow, more acutely ferrate, not three-lobed; the first are quinate, sometimes broader, always simple. Umbel much smaller, ever white, with the rays of the involucre entire, not three-toothed.

Native of the Alps and alpine vallies of Switzerland, but not of the lower mountains. I found it about Bex, flowering in august 1779. With us it flowers in may and june.—It was cultivated in 1759, by Mr. Miller^c.

Scopoli supposes his plant to be the same with Haller's, and if so the second and third species are one; but Willich is of a different opinion.

4. Stem simple, a foot high, rushy, erect, a little streaked, divided at the top into a few flowering branches. Radical leaves petioled: stem-leaves four to six, sessile, half-stem-clasping. Umbel elongated, three-rayed; umbellules many-rayed, very short. Involucre two or three-leaved, like the leaves but smaller. Involucels ten-leaved, broad-lanceolate acute, twice as long as the florets, coloured. Native of the Cape of Good Hope^f.

5. Root black on the outside, producing one leaf and one scape. Leaf shorter than the scape, three-parted, the middle lobe trifid, the side ones generally bifid, all ferrate, the ferratures ending in a little soft spine. Petiole triangular, smooth. Scape smooth, angular, naked, one-flowered. Involucre five-leaved; leaves ovate, ferrate above the middle, with short awns to the teeth. Flowers in a head, yellow^g.

Native of Idria and Gorizia, flowering in march; also of Hungary.]

PROPAGATION AND CULTURE.

These plants, except the fourth are very hardy; they may be propagated either by sowing their seeds, or by parting their roots. If from seeds, they should be sown in autumn, soon after they are ripe, on a shady border; and, when the plants are come up, they should be carefully weeded, and where they are too close, some of the plants should be drawn out, to allow room for others to grow, until michaelmas, when they should be transplanted where they are to remain; which should always be in a moist soil and a shady situation. The distance these plants should be placed, is three feet, for their roots will spread to a considerable width, if they are permitted to remain long in the same place. They require no other culture but to keep them clear from weeds, and every third or fourth year to be taken up at michaelmas, and their roots parted and planted again. These plants are seldom preserved but in botanic gardens, there being no great beauty in the flowers.

The fourth sort only, being a native of the Cape, will, whenever it is introduced, require the protection of a dry stove in winter.

[ASTRONIUM. (απο του αστρον, from a star, on account of the radiated form of the calyx.)

Jacqu. amer. 261. Lin. gen. 1111. Reich. 1214. Schreb. 1515. Juss. 427.

Class. 22. 5. Dioecia Pentandria.

GENERIC CHARACTER.

* Male.

CAL. Perianth five-leaved, coloured, small: leaflets ovate, concave, obtuse, spreading.

COR. Petals five, ovate, very obtuse, flat, spreading very much. Nectary five, roundish, very small glands in the disk of the flower.

STAM. Filaments five, subulate, spreading, the length of the corolla. Anthers oblong, incumbent.

* Female.

CAL. Perianth five-leaved, coloured: leaflets oblong, concave, obtuse, converging.

COR. Petals five, subovate, obtuse, concave, erect, less than the calyx, permanent.

PIST. Germ ovate, obtuse. Styles three, short, reflex. Stigmas subcapitate.

PER. none. Calyx increased, coloured; its leaflets at

first expanded into a pendulous star, at length dropping the seed.

SEED one, oval, the length of the calyx, lactescent.

ESSENTIAL CHARACTER.

MALE. Cal. five-leaved. Cor. five-petalled.

FEM. Cal. five-leaved: Cor. five-petalled. Styles three. Seed one.

SPECIES.

1. Astronium graveolens.

Lin. spec. 1456. Syst. 885. Reich. 4. 248. Jacq. amer. 261. t. 181. f. 96. pict. 127. t. 262. f. 65. (calyx and leaf.)

DESCRIPTION, &c.

This is an upright tree, from twelve to thirty feet in height, abounding every where in a slightly glutinous terebinthine juice, which has a disagreeable smell. After the fruits in the female, and the flowers in the male plant have fallen off, new branches are put forth, having unequally pinnate leaves on them, with three pairs of leaflets, which are oblong-ovate, acuminate, quite entire or ferrulate, smooth, veined, three inches in length. Panicles lax, half a foot long in the males, but a foot and half long in the females, scattered on the outmost twigs. Flowers small, red. The calyxes are expanded into stars nine lines in diameter. Native of the woods about Carthagenia in New Spain; flowering in may and june, and fruiting in july.]

ATAMARAM. See *Annona*.

ATAMASCO LILY. See *Amaryllis*.

ATHAMANTA. (From *Athamas*, a city or mountain of *Thessaly*.)

Lin. gen. 338. Reich. 369. Schreb. 471. Juss. 223. Oreoselinum. Tournef. 169.

Class. 5. 2. Pentandria Digynia.

Nat. order of *Umbellatæ*, or *Umbelliferæ*.

GENERIC CHARACTER.

CAL. Umbel universal manifold, spreading; Partial has fewer rays.—Involucre universal many-leaved, linear, a little shorter than the rays: Partial linear, equal with the rays. Perianth proper obscure.

COR. universal uniform: floscules all fertile. Proper with five petals, inflex-emarginate, a little unequal.

STAM. Filaments five, capillary, the length of the corolla: anthers roundish.

PIST. Germ inferior. Styles two distant. Stigmas obtuse.

PER. none. Fruit ovate-oblong, striated, bipartile.

SEEDS two, ovate, convex on one side, striated; on the other flat.

ESSENTIAL CHARACTER.

Fruit ovate-oblong, striated. Pet. inflex emarginate.

SPECIES.

[1. Athamanta Libanotis. Mountain Spignel or Stone-Parsley.

Lin. spec. 351. Syst. 279. Juss. 240. With. 283. Relb. cantabr. 113. fig. Sowerby engl. bot. 138. Gouan. illustr. 12. Jacq. austr. 4. 48. t. 392. Fl. dan. t. 754. Krock. files. n. 412. Villars dauph. 2. 649.

A. Oreoselinum. Hudf. angl. 115.

Libanotis. Hall. belv. n. 744.

L. riviniana. Scop. carn. n. 316.

Apium petræum, &c. Baub. hist. 3. 105. fig. Raii hist. 463. syn. 218.

Daucus montanus, apii folio, minor. Baub. pin. 150. prodr. 77. fig.

D. mont. pimp. faxifr. hirc. folio. Pluk. alpn. t. 173. f. 1.

α. Libanotis minor, apii folio. Baub. pin. 157.

β. Athamanta pyrenaica. Jacq. hort. 2. 93. t. 197. Leaves bipinnate flat, umbel hemispherical, seeds birsute.]

2. Athamanta Cervaria. Broad-leaved Spignel, or Black Hart-root.

Lin. spec. 352. Reich. 676. hort. cliff. 92. 1. upf. 59. Krock. files. n. 413. Jacq. austr. 1. t. 69. Pollich pal. n. 278. Plenck. ic. t. 185.

Selinum. Hall. belv. n. 804.—Cervaria. Scop. carn. n. 331. Crantz. austr. 167. t. 3. f. 1.

Cervaria. Riv. pent. t. 12.

Libanotis.

^c Hort. kew.

^f Linn. suppl.

^g Scopoli.

- Libanotis*. *Baub. hist.* 3. 165. f. 3. *Raii hist.* 413. 2. *Tabern.* 108. *Ger.* 858. f. 2. *emac.* 1010. f. 2. *Leaves pinnate decussated gasb-angled, seeds naked.*
- [3. *Athamanta sibirica*. *Siberian Spiguel*. *Lin. syst.* 279. *Reich.* 676. *mant.* 56, 353. *hort. upf.* 60. (*Cervaria*.) *Gouan. illustr.* 12. *Gmel. fib.* 1. 186. n. 3. t. 40. f. 1, 2. *Libanotis*. *Riv. pent.* 1. 37.—*montana*. *Crantz. austr.* 222.—*daucoides*. *Scop. carn.* n. 317. *Leaves pinnate, gasb-angled.*
4. *Athamanta condensata*. *Close-headed Spiguel*. *Lin. spec.* 351. *syst.* 279. *Reich.* 676. *Leaves subbipinnate; leaflets imbricate downwards: umbel lens-form.*
5. *Athamanta Oreofelinum*. *Divaricated Spiguel, or Mountain Parsley*. *Lin. spec.* 352. *Reich.* 677. *succ.* 241. *Jacqu. austr.* 1. t. 68. *Pollich pal.* n. 279. *Plenck, ic.* t. 186. *Krock. filef.* n. 414. *Selinum*. *Lin. hort. cliff.* 92. 2. *Hall. helv.* n. 803. *S. Oreofelinum*. *Scop. carn.* n. 330. *Crantz. austr.* 169. *Oreofelinum*. *Clus. hist.* 2. 195. *Riv. pent.* 8. *Ger. emac.* 1015. *Apium montanum, &c.* *Baub. pin.* 153. n. 6 & 8. & *Daucus* n. 6. p. 150. according to *Baub. hist.* 3. 104. *Raii hist.* 413. *Park. theat.* 927. n. 3. *Leaflets divaricate.*
6. *Athamanta ficula*. *Flix-weed-leaved Spiguel*. *Lin. spec.* 352. *Reich.* 677. *hort. upf.* 60. *cliff.* 93. 3. *Gouan. illustr.* 12. *Daucus* 2. *ficulus, sophia folio*. *Zan. ist.* 70. *hist.* 80. t. 48. *Raii hist.* 464. *Lower leaves shining, primordial umbels subsessile, seeds hairy.*
7. *Athamanta cretensis*. *Cretan Spiguel, or Candy Carrot*. *Lin. spec.* 352. *syst.* 279. *Reich.* 678. *mat. med.* 78. *hort. cliff.* 93. 2. *Jacqu. vind.* 218. *austr.* 1. t. 62. *Plenck, ic.* t. 184. *Krock. filef.* n. 416. *Villars dauph.* 2. 648. *Libanotis*. *Hall. helv.* n. 745. *Scop. carn.* n. 314. *Allion. pedem.* n. 1379. *Daucus*. *Baub. pin.* 150. n. 1, 2. *Scheuch. alp.* 1. 34. *D. creticus*. *Camer. epit.* 536. *Baub. hist.* 3. 56. *Raii hist.* 463. *Blackw. t.* 471. *Ger.* 874. *emac.* 1029. *Park. theat.* 896. 1. *Leaflets linear flat hirsute, petals two-parted, seeds oblong, hirsute.*
- [8. *Athamanta annua*. *Annual Spiguel*. *Lin. spec.* 353. *Reich.* 678. *Myrrhis*. *Mor. umb.* 67. *ult. hist.* 3. 302. n. 9. *Leaves many-parted, divisions linear roundish acuminate.*
9. *Athamanta chinensis*. *Lin. spec.* 353. *Reich.* 678. *Lour. cochinch.* 178. *Seeds membranaceous-striated; leaves superdecompound, polished, multiseid.*
10. *Athamanta rupestris*. *Villars dauph.* 2. 648. *Libanotis rupestris*. *Scop. carn.* n. 315. t. 9. *Leaflets bristle-shaped, recurved, smooth; all the flowers fertile.*

DESCRIPTIONS, &c.

1. Root perennial, descending, bearded at the top with the fibrous remains of old leaf-stalks. Stem from one to two feet in height, erect, a little flexuose towards the top, unequally grooved, not much branched^a. Leaves bipinnate: leaflets sessile, pinnatifid, with pointed, entire lobes, firm, veiny, paler beneath, smooth except a little hairiness on the veins and margin^b. The first pair of pinnae, in the lower leaves, next the petiole, placed crosswise. The lower leaves subtripinnate, the pinnae being deeply pinnatifid^c. Petioles somewhat compressed, channelled between the leaflets, dilated at the base with a membranous border. Umbel terminating, sitting on a grooved peduncle, erect, all white, as is the involucre also: this is many-leaved,

subulate, half the length of the umbel, and the edges of the leaflets are membranous. The involucels also are many-leaved, the length of the umbellule. Umbels lateral, the upper ones opposite, shorter, springing from the membrane of the petiole, which swells out, as in the other petioles, at the base, but here without a leaf^d. The terminating umbel is sometimes proliferous; the umbellules on peduncles two inches long^e. The flower-stalks, calyx, germ and fruit are all hairy^f.

This species bears much resemblance to the *Cervaria* and *sibirica*. The first of these differs in having the receptacles of the florets, and the anthers white, not purple; the germs hirsute, not villose; the leaflets remote, not imbricate. The *sibirica* is twice as big as the *Libanotis*, and the germs are not villose^g.

Native of Sweden, Denmark, Germany, Switzerland, Austria, Carniola, and the south of France. Observed by Mr. Ray on the banks of the Danube, and on mount Jura abroad, also on Gogmagog hills near Cambridge, at home. In this latter situation it was not remarked by succeeding botanists, till Mr. Relhan found it in 1783. It flowers with us in august and september.

2. Root perennial, thick, very long, annulated, full of resinous juice, sweet-smelling, with a bristle-shaped crown. Stem rising to five feet in height, firm, branching. Leaves glaucous, smooth, with black veins underneath, very large, with six pairs of pinnae; pinnules broad, simple, two or three-lobed^h. Most of the leaves are sessile, elliptic, acuminate, toothed; the terminal ones three-lobed, and decurrent; they are firm and hard like those of the pearⁱ. Each involucre consists of about ten reflex leaflets. Corolla white, with a purplish outside^k.

This plant is recommended in the gout: and in Stiria they use it in intermittent fevers.

Native of the mountains of France, Switzerland, Germany, Austria, and Carniola. Ray observed it on the banks of the Rhine, in vineyards, and on the hills near Geneva. It flowers in july and august. Gerard had it growing in his garden, in 1597^l.

3. Linneus, in his *species plantarum*, had made this a variety of *A. Cervaria*, which it much resembles; but on a more scrupulous examination he discerned that they were different species. He describes the stem as two feet high, round and scarcely streaked; the universal involucre as consisting of one or two narrow leaflets only; and the corollas red underneath. Reichard thinks, that perhaps the *Libanotis* of Rivinus and Crantz may be the first species.

Gouan says, that the stem is from two cubits to the height of a man nearly, very much grooved so as to be angular. Stem-leaves towards the top two, three, or four together, with as many branches from their axils. The universal involucre consists of about twelve hoary, very slender leaflets. The fruits are not ovate or suborbiculate as in *A. libanotis*, *Cervaria*, and *condensata*, but almost cylindric, hoary, and very small in proportion to the size of the plant.

Scopoli describes his *Libanotis daucoides* to be only eighteen inches high: the leaves three or four inches long, with pinnatifid pinnae scarcely more than an inch in length, the segments mostly trifid; the first pinnae of the first branches sit close to the rib, are cruciform and in whorls: umbels very close, with rays up to forty in number, somewhat villose. Involucres linear; involucels longer than the peduncles and erect. Petals white, almost equal: styles white, not bent down: germs a little hirsute.

These plants, thus differently described, cannot possibly be the same.

It was introduced in 1771, by Monf. Richard^m.

4. Root perennial. Stem simple, a foot high,

^a Linn. ^b Engl. bot. ^c Woodw. in With.

^d Linn. ^e Relhan. ^f Engl. bot. ^g Linn. ^h Haller. ⁱ Scopoli. ^k Haller. ^l Hort. kew. ^m Ibid.

smooth, angular near the bottom, furrowed towards the top, especially the peduncle. There are two or three flowering-branches from the upper axils. Petioles channelled, membranous at the base, angular underneath. Leaves subbipinnate, the leaflets alternately pinnatifid, the lower lobe largest; whence they are as it were cross-shaped at the base, and the lower division extends itself above the lower leaf; the under surface is shining. Umbel very close, convex on both sides, reddish before it flowers; the flowers however are white, except that the anthers are brown. There are frequently only rudiments of the universal involucre; the partial involucre is of the same length with the partial umbel. Germs villose, not rough with hairs. Anthers and receptacles of the florets purple. Native of Siberia^a. Introduced in 1773, by John earl of Bute^o.

5. Root perennial, thick, aromatic, resinous, crowned with bristles. Leaves firm, smooth, veined underneath, very large, triply pinnate, divided at right and even obtuse angles, whereas in most umbellate plants they are acute: divisions broadish, not toothed, but two or three-lobed, the lobes broad, ovate-lanceolate, awned. Stem firm, branching, two feet and upwards in height. The universal involucre has from six to twenty leaves; the partial involucre up to sixteen. Petals white with a blush of rose colour. It is gratefully aromatic, and deserves to be better known^p.

Native of Sweden, Germany, France, Switzerland, Carniola, Austria, but not of England.

Linneus observes, that the partial petioles are divaricated, as in *Pbellandrium*, and arched.]

6. This is a perennial plant, sending up from the root several upright stems, near three feet high. The umbels at their first appearance are very close and compact, but afterwards spread open, and divide into several smaller umbels; the rays are short and hairy. The flowers are white, and are succeeded by oblong, woolly fruit.

[Linneus observes, that the stem is pubescent; that the lower leaves are shining, and the upper ones subvillose.

Native of Sicily. Cultivated in England in 1713^q.

7. The whole plant is villose, in a wild state; when cultivated in a garden, the leaves become succulent, brittle and very shining. Stem streaked. Leaves tripinnate, the pinnas very narrow, the pinnales very deeply two-parted, or three-parted. Involucres very large; the universal consists of five leaflets, with a membranous edge, the partial has from four to seven leaflets, the length of the peduncles: sometimes the universal involucre has only one or two short leaflets, or even none. Petals white. Seeds oblong, hirsute^r.

Native of the south of Europe. Ray gathered it on the higher parts of Jura. It flowers in June.

The seeds have been occasionally employed as carminatives, and were supposed likewise to be diuretic and emmenagogue: lately they have been little used except as ingredients in Theriaca and Mithridate^s. Now that these ancient compounds are in a manner discarded, the plant no longer appears in the London pharmacopœia. Haller however judges it to be much superior to the common *Daucus* or wild Carrot in medicinal efficacy. It was celebrated anciently as a specific in the stone: and it will scarcely be believed that Van Helmont affirms seriously, that it has even cured the water in a well of this disorder.

8. This is an annual plant, whereas the other species are perennial. It is supposed however by some authors to be only a variety of the foregoing. It is a native of Candia or Crete, and was introduced in 1770, by Mons. Richard^t.

9. Stem angular, smooth, erect, a little flexuose. Leaves like those of *Chærophyllum* and smooth. Umbel not much expanded, white. Bartram, who

sent the seeds from Virginia, said that it came originally from China^u.

10. Stem eighteen inches high, branching, subvillose, finely streaked. Sheaths an inch long, producing three grooved petioles. Leaves bipinnate; leaflets pedicelled, marked with a line above, and convex underneath. Universal involucre two-leaved; partial many-leaved. Rays sixteen or more, two inches long and villose; in the umbellule as far as thirty. Petals white, equal. Seeds pubescent with a white pile^v. Native of Carniola and Dauphiné.

Villars supposes this to be no more than a variety of the seventh species; and says that the root is very long and deep; the leaves smooth, the leaflets much longer and more distinct, and the stems somewhat higher.]

PROPAGATION AND CULTURE.

These plants are propagated by seeds, which should be sown in autumn, on an open bed of light dry ground; and when the plants come up in the spring, they should be kept clean from weeds, and thinned where they are too close, so that they may have room to grow till the following autumn, when they should be carefully taken up, and planted at about a foot distance, in a bed of light sandy earth, where the roots will continue several years; except the eighth species, which is annual, and the ninth, which probably requires some shelter, but has not yet been cultivated with us.

ATHAMANTA MEUM. See *Æthusa Meum*.

ATHANASIA. (Gr. *Ἀθανασία*, immortality.)

Lin. gen. n. 943. Reich. 1023. Schreb. 1279.

Baccharis Vaill. æt. gall. 1719. Juss. 185.

Gærtn. t. 165.

Class. 19. 1. Syngenesia Polygamia Æqualis.

Nat. order of compound flowers; in the division of *Discoideæ*.

GENERIC CHARACTER.

CAL. Common imbricate, ovate: scales lanceolate, pressed close.

COR. Compound uniform, longer than the calyx. Corollules hermaphrodite equal, numerous. Proper funnel-form; border five-cleft, acute, erectish.

STAM. Filaments five, capillary, short. Anther cylindrical, tubular.

PIST. Germ oblongish. Style filiform, a little longer than the stamen. Stigma bifid, obtuse.

PER. none. Calyx unchanged.

SEEDS solitary, oblong. Down chaffy, of very short bristles.

REC. chaffy; chaffs lanceolate, longer than the seed.

ESSENTIAL CHARACTER.

Cal. imbricate. Down chaffy, very short. Recept. chaffy.

SPECIES.

[1. *Athanasia squarrosa*. Cross-leaved *Albanasia*.

Lin. spec. 1180. Reich. 3. 730. amæn. 4. 329.

& 6. 98. afr. 52.

Relhania squarrosa. L'Herit. fert. angl. n. 1. t. 29.

Peduncles one-flowered lateral, leaves ovate recurved.

2. *Athanasia sessiliflora*. Sessile-flowered *Athanasia*.

Lin. syst. 741. suppl. 362.

Relhania lateriflora. L'Herit. fert. angl. n. 8.

Peduncles one-flowered shorter than the leaf, leaves linear hairy.

3. *Athanasia pumila*. Dwarf *Athanasia*.

Lin. syst. 741. suppl. 362.

Relhania pedunculata. L'Herit. fert. angl. n. 7.

Peduncles one-flowered, longer than the leaf, leaves linear hairy.

4. *Athanasia crenata*. Notch-leaved *Athanasia*.

Lin. spec. 1180. Reich. 3. 730. hort. cliff. 398.

(*Santolina*).—spec. edit. 1. 840. (*Stæhelina*.)

Flowers solitary terminal, leaves linear.

5. *Athanasia uniflora*. One-flowered *Athanasia*.

Lin. syst. 741. suppl. 362.

Relhania cuneata. L'Herit. fert. angl. n. 9.

Flowers solitary terminal sessile, leaves obovate imbricate smooth.

^a Linneus. ^o Hort. kew. ^p Haller. ^q Hort. kew.

^r Linn. Hall. Scop. ^s Lewis. ^t Hort. kew.

^u Linn.

^v Scopoli.

6. *Athanasia capitata*. Hairy *Athanasia*.
Lin. spec. 1181. *syft.* 741. *Reich.* 3. 731. *Amæn.* 6. afr. 50. *Berg. cap.* 237.
A. lanuginosa. *Cavan. hisp.* 2. t. 3.
Chrysanthemum. *Breyn. cent.* t. 78. *Mor. hist.* 3. 21. n. 49. f. 6. t. 3. f. 48.
Tanacetum. *Pet. gaz.* 442. t. 81. f. 6.
Flowers terminal subsessile, leaves lanceolate hirsute.]
7. *Athanasia maritima*. Sea *Athanasia* Cudweed or Cottonweed.
Lin. spec. 1182. *syft.* 741. *Reich.* 3. 731. *mant.* 464. *hort. cliff.* 398. (*Santolina*.)
Filago maritima. *Lin. spec. edit.* 1. 927. *Mill. fig.* t. 135.
Santolina maritima. *Huds. angl.* 356. *With.* 886. *Sowerby engl. bot.* 141.
Gnaphalium maritimum. *Baub. pin.* 263. *Baub. hist.* 3. 157. 2. *Raii hist.* 294. *syn.* 180. *Ger.* 516. *emac.* 640. 3. *Park.* 687.
Chrysanthemum. *Mor.* 3. 81. f. 6. t. 4. f. 47.
Peduncles two-flowered, leaves lanceolate crenate obtuse tomentose.
- [8. *Athanasia genistifolia*. Broom-leaved *Athanasia*.
Lin. syft. 741. *Reich.* 3. 732. *mant.* 464.
Relbania genistifolia. *L'Herit. fert. angl.* n. 2.
Corymbs simple, leaves lanceolate undivided naked crowded.]
9. *Athanasia pubescens*. Villose-leaved *Athanasia*.
Lin. spec. 1182. *Reich.* 3. 732. *amæn.* 4. 329.
Coma aurea afr. &c. *Comm. hort.* 2. 93. t. 47.
Corymbs simple, leaves lanceolate undivided villose.
10. *Athanasia annua*. Annual *Athanasia*.
Lin. spec. 1182. *syft.* 741. *Reich.* 3. 732. *Willich illustr.* n. 67.
Elichrysum inodorum, &c. *Magn. monsp.* 307. *Herm. lugdb.* 228. t. 227.
Chrysanthemum corymbiferum. *Triumph. obs.* 85. t. 86.
Bellis polyclonos, &c. *Mor. hist.* 3. 30.
β. Achillea inodora. *Lin. spec.* 1265. *Murr. prod.* 182.
Ageratum, &c. *Herm. flor.* 55. *Boerb. lugdb.* 1. 125.
Corymbs simple contracted, leaves pinnatifid toothed.
11. *Athanasia trifurcata*. Trifid-leaved *Athanasia*.
Lin. spec. 1181. *Reich.* 3. 733. *hort. cliff.* 397.
Coma aurea afr. &c. *Comm. hort.* 2. 97. t. 49.
Corymbs simple, leaves three-lobed cuneiform.
12. *Athanasia crithmifolia*. Sampire-leaved *Athanasia*.
Lin. spec. 1181. *syft.* 741. *Reich.* 3. 733. *Gärtn. fruct.* 2. 398.
Santolina. *hort. upf.* 252. *Mill. fig.* t. 227. f. 2.
Coma aurea. *Burm. afr.* 186. t. 69. f. 1. *Comm. hort.* 2. 99. t. 50. (good.)
Jacobæa. *Pluk. alm.* 194. t. 302. f. 7.
Corymbs simple, leaves semitrid linear.
- [13. *Athanasia linifolia*. Flax-leaved *Athanasia*.
Lin. syft. 741. *suppl.* 361.
Corymb simple, leaves linear.]
14. *Athanasia dentata*. Tooth-leaved *Athanasia*.
Lin. spec. 1181. *syft.* 742. *Reich.* 3. 732.
Santolina. *Lin. hort. cliff.* 398.
Coma aurea. *Comm. var.* t. 41.
β. A. lævigata. *Lin. spec.* 1181. *amæn.* 6. afr. 51.
Corymbs compound; leaves recurved, the lower linear toothed, the upper ovate serrate.
15. *Athanasia parviflora*. Small-flowered *Athanasia*.
Lin. syft. 742. *Reich.* 3. 734. *mant.* 464.
Tanacetum crithmifolium. *Lin. spec.* 1182. *Mill. dict.* n. 6. *Berg. cap.* 239.
Santolina. *Lin. hort. cliff.* 397.
Coma aurea. *Burm. afr.* 185. t. 68. f. 4.
Elichrysum. *Comm. hort.* 2. 113. t. 57. *Pluk. alm.* 134. t. 325. f. 3.
Ageratum. *Pet. gaz.* t. 34. f. 1.
Corymbs compound, leaves pinnate linear.
- [16. *Athanasia pinnata*.
Lin. syft. 742. *suppl.* 361.
Corymbs dense compound, leaves pinnate linear tomentose.
17. *Athanasia pectinata*.
Lin. syft. 742. *suppl.* 361.
Corymb compound, leaves pinnate smooth;

18. *Athanasia dentata*.
Lin. syft. 742. *suppl.* 361.
Corymb compound, leaves lanceolate toothed serrate.
19. *Athanasia filiformis*. Fine-leaved *Athanasia*.
Lin. syft. 742. *suppl.* 361.
Corymb compound, leaves linear smooth spreading.
20. *Athanasia cinerea*. Lavender-leaved *Athanasia*.
Lin. syft. 742. *suppl.* 361.
Corymb compound, leaves linear tomentose entire.

DESCRIPTIONS, &c.

1. This is an undershrub, branching determinately but unequally. Leaves alternate, sessile, pointed, smooth. Peduncles axillary, longer than the leaves. Calyxes oblong, imbricate, smooth, with the inner scales linear, membranous and spreading. Florets equal hermaphrodite. Chaffs linear, the length of the florets. There is a very short down to the seeds^a. Introduced in 1774, by Mr. Francis Masson^b.

2. A very small plant, found at the Cape by Thunberg^c.

3. Another small plant, very much like the foregoing, found also at the Cape by Thunberg^d.

4. Stem shrubby. Leaves alternate, linear, obscurely three-cornered. There is one terminating flower. Calyx ovate, imbricate with ovate-oblong scales, rounded at the tip, the inner ones large, membranous at the edge, crenate and forming a little spreading border. Florets equal, the length of the calyx, scarcely any crown to the seed^e.

5. Native of the Cape, where it was discovered by Thunberg^f.

6. This has the air of *Bupthalmum capense*, but the leaves are alternate: the flowers are discoid and flosculose^g. It is a native of the Cape; and was introduced in 1774, by Masson^h.]

7. Root perennial, woody, putting out many fibres, which spread near the surface. Stems several, hard, trailing, and sending out on every side many small branches, the whole seldom growing more than seven or eight inches in length: they are closely set with sessile leaves, extremely white with a cottony down. The flowers are produced toward the end of the branches, upon short peduncles, of a bright yellow colour. The seeds are oval, smooth, and compressed, without any down, but covered with a kind of hood. The whiteness of the leaves and branches makes a pretty appearance.

[Linneus observes, that the seeds being ancipital, and without any down, this may possibly be a species of *Santolina*, or rather a connecting link between the two genera. The whole plant is tomentose, and the chaffs are of the same length with the calyx.

The long perennial roots run very deep into the sand, and throw up several branched bushy stems about a foot high, extremely brittle, round, covered with numerous, alternate, oblong, almost spatulate, crenate leaves. A corymb of bright yellow flowers terminates the stem and side branches. Scales of the calyx numerous, concave, somewhat membranous: the hemispherical receptacle is set with similar scales, woolly at their tip. Florets numerous, regular, fertile. Seeds curved, sharp and membranous at the edge. Every part, especially the flower, has a strong aromatic scentⁱ.

Native of the south of Europe, on the sea coast. With us in Anglesea, Cornwall, Pool in Dorsetshire, isle of Shepey, near Landguard fort, &c.

8. Stem undershrubby, branching determinately, round, rough with the scars of fallen leaves. Leaves sessile, marked with very short lines, smooth, somewhat keeled, bluntish. Corymbs small, with three or four subsessile flowers. Calyx obovate, smooth, imbricate, scarcely larger than a grain of wheat, many-flowered^k.]

9. This rises with a shrubby stem six or seven feet high; the flowers are yellow, and the seeds do not ripen in England.

^a Burman.^b Hort. kew.^c Linn. suppl.^d Ibid.^e Linn. cliff.^f Linn. suppl.^g Linn.^h Hort. kew.ⁱ Engl. bot.^k Linn.

10. Root annual. Stem herbaceous, about nine inches high, dividing toward the top into three or four branches, having smooth leaves on them, divided into segments resembling those of Buck's-horn Plantain. Flowers large, bright yellow: they appear in July and August, but are rarely succeeded by ripe seeds in this country.

[According to the observation of Linneus, the leaves are dilated towards the base so as to be almost palmate, with bristle-shaped tips. Chaffs yellow at the top, the length of the florets. It varies with solitary flowers, double the size of the others. This was cultivated in 1768, by Mr. Miller¹.

β. The variety, which is the *Achillea inodora* of Linneus's *species plantarum*, is a tender plant, with a single grooved stem. Leaves alternate, sessile, laciniate, three-parted at top; the divisions subulate. Flowers terminating in cylindric aggregate peduncled fastigate heads^m.]

11. Stem shrubby, five or six feet high, dividing into many irregular branches, with flat glaucous leaves, cut at their extremity into three segments, and having an agreeable odour when bruised. The flowers are of a bright yellow colour, and appear in August, but are seldom succeeded by ripe seeds in England.

[It was cultivated here in 1714ⁿ.]

12. Stem shrubby, branching like the foregoing. Leaves linear, divided more than half their length, some into three, others into five narrow segments. The flowers are like those of the former in shape and colour, and there is a succession on the same plant great part of the summer; but unless the season is warm, they are rarely succeeded by ripe seeds in England.

[Linneus observes, that the young leaves are as it were glued together; and that the florets are many. The receptacle is flat, and the chaffs shorter than the calyx. Seeds small, columnar, angular, streaked, ferruginous. Down shorter than the seed, many-leaved; leaflets linear, membranous and chaffy, white^o. It was cultivated in 1726, by Mr. Miller^p.

13. Stem simple, round, smooth, like that of flax. Leaves alternate, quite simple; linear or subulate. Flowers in a terminating corymb, ovate and smooth. It varies in the length of the leaves^q.

Found at the Cape by Masson, and introduced in 1774.^r]

14. Stem low, shrubby, branching, seldom rising three feet high. Flowers pale yellow, they appear early in summer, and if the season prove favourable, will be succeeded by ripe seeds in autumn. [It was introduced in 1780, by the Countess of Strathmore^s.

β. The variety, which is the *A. levigata* of the *species plantarum*, resembles the first sort; but the corymbs are compound and terminating; the flowers larger, and the leaves broader at the base.]

15. This has a thick shrubby stem, covered with a gray bark, and rises seven or eight feet high, sending out many branches on every side; the leaves sit close to them, and they are terminated by close, large, roundish bunches of bright yellow flowers: some of the peduncles sustain but one, others two, three or four flowers upon each; they appear the beginning of July, and continue in succession till late in autumn; those which come early in the season will ripen their seeds in winter.

[Linneus observes, that the calyxes are generally three-flowered, the size of a grain of rye: in which it differs from the twelfth sort, wherein the calyxes are many-flowered, and the size of a pea. The seeds are crowned with chaffy scales, and the receptacle has minute chaffs on it.

It was introduced in 1774, by Mr. Masson^t.

16. Stem proliferous, shrubby, tomentose. Leaves crowded, with five or seven pinnae. Calyxes villose^u.

17, 18, 19. Found at the Cape by Thunberg.

The second of these is different from n. 14, though it has the same name. The last was introduced by Masson, in 1787^v.

20. Found at the Cape by Thunberg and Masson, and introduced in 1774^w.

All the species are natives of the Cape of Good Hope except the seventh, which is an European. They are all perennial, except the tenth, which is annual.

Monf. L'Heritier has separated many of the species from this genus, and has given them the name of *Relbania*, from the Rev. Richard Relhan, author of *Flora Cantabrigiensis*. He allows that these may be associated with *Athanasia*, in a distinct section, in the same manner as in the genus *Senecio* and others. They all appertain to the same natural genus; but these having a radiate corolla, belong to a different section of the class *Syngenesia*, namely the order *Polygamia Superflua*. Monf. L'Heritier farther observes, that his genus *Relbania* is distinguished from *Leysera* by its membranaceous down, not plumose: from *Osmites* by its fertile female flowers, and scarious calyx.]

PROPAGATION AND CULTURE.

The perennial Cape sorts of *Athanasia* are easily propagated by cuttings during the summer months. If these are planted either in pots or upon an old hot-bed, and closely covered with glasses, shading them in the heat of the day, and refreshing them with water when they require it, they will put out roots in five or six weeks; and in two months they may be taken up and planted in pots filled with light earth, and placed in a shady situation until they have taken new root; after which they should be removed to a sheltered situation, mixing them with other exotic plants, where they may remain till the middle or end of October, according as the season proves favourable; then they should be removed into a dry stove or glass-case, where they may enjoy as much free air as possible, but secured from frost, with which management they will thrive and produce plenty of flowers; but where they are drawn weak in winter, they will not appear lightly.

The annual Cape sort is propagated by seeds when they can be obtained good: they should be sown on a moderate hot-bed the latter end of March; when the plants are come up they should have air, in proportion to the warmth of the season, admitted to them, to prevent their drawing up weak; and so soon as they are big enough to remove, they should be transplanted on another gentle hot-bed, at three inches distance, observing to shade them until they have got fresh root; after which they must have air and water, and by the end of May, the plants will have acquired strength enough to be transplanted into the open air; when some may be planted in pots to place among other exotic plants in summer, and the others into warm borders, where they will flower all the autumn, but unless the season is very warm, they will not ripen seeds.

The European species may be propagated by planting slips or cuttings during the summer months, in the same way as the African sorts; some of the plants should be put into pots to be placed under a hot-bed frame in winter, the others may be planted in a warm border, where if the winter proves favourable they will live, but they rarely survive cold winters.

[ATHENÆA. (Probably so named from Athenæus the deipnosophist.)

Lin. gen. Schreb. n. 661. Iroucana. Aubl. guian. 127.

Class. 8. 1. Octandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth one-leaved, coloured, five-parted; parts oblong, acute, erect; spreading at top.

COR. none.

STAM. Filaments eight, filiform, erect; of which five are of the length of the calyx, the three alternate ones a little shorter. Anthers sagittate: eight plu-

¹ Hort. kew. ^m Murray. ⁿ Hort. kew. ^o Gærtner.
^p Hort. kew. ^q Linn. suppl. ^r Hort. kew. ^s Ibid.
^t Ibid. ^u Linn.

^v Hort. kew.

^w Ibid.

moste *Bristles*, shorter than the filaments, growing together with the filaments, to a gland surrounding the germ.

Pist. Germ superior, ovate, surrounded at the base by an annular gland. *Style* setaceous, longer than the stamens. *Stigma* depressed, five-parted.

PER. Capsule globose, one-celled, three-valved: valves somewhat fleshy.

SEEDS three to five, rounded, covered with a pulpy coloured membrane, affixed to the receptacle in the bottom of the capsule.

ESSENTIAL CHARACTER.

Cal. coloured, five-parted. *Cor.* none. *Bristles* eight, feathered, between the filaments. *Stigma* five-parted. *Caps.* globose, one-celled, three-valved. *Seeds* three to five.

SPECIES.

1. *Athenæa guianensis*.

Iroucana guianensis. Aubl. *guian.* 329. t. 12

DESCRIPTION, &c.

This is a branching shrub. Stem four or five inches in diameter, covered with a wrinkled, gray bark. Leaves alternate, ovate, smooth, toothed, deciduous, four inches long, and about two broad. Petioles very short, having a small, sharp stipule on each side of the base. The flowers come out in bundles from the axils, and upon the tubercles of the stem and branches, each on a small peduncle: their calyx is white, and there is no corolla. Capsule green with a tinge of violet. The seeds are covered with a pulpy viscid membrane, of a scarlet colour.

The bark, leaves and fruits are sharp and aromatic. The last are called *Caffè diable* by the Creoles.

Native of the island of Cayenne and the neighbouring continent of Guiana, a quarter of a league from the sea shore, in a sandy soil, flowering and bearing fruit in September^a.]

ATRACTYLIS. (From *ἀκράτος*, fusus, a spindle.) *Distaff-thistle*.

Lin. gen. n. 930. *Reich.* 1009. *Schreb.* 1259.

Crocodiloides. *Vaill. att. gall.* 1718. f. 9.

Class. 19. 1. *Syngenesia Polygamia Æqualis*.

Natural order of compound flowers.

GENERIC CHARACTER.

CAL. outer many-leaved, linear, larger, roughened, permanent, imprisoning the common one. *Common* ovate, imbricate; the scales oblong, very many, lanceolate, converging, unarmed.

COR. Compound radiate: *corollules* hermaphrodite numerous, tubular in the disk: herm. ligulate in the ray. *Proper*—of the disk funnel-form, five-cleft—of the ray ligulate, flat, five-toothed.

STAM. Filaments five, capillary, very short. *Anther* cylindric, tubular.

Pist. of the Disk. Germ very short. *Style* filiform, the length of the stamens. *Stigma* bifid:—of the Ray very like that of the disk, but obscure and withered.

PER. none. *Calyx* converging.

SEEDS turbinate, compressed. *Down* plumose.

REC. villose, flat.

ESSENTIAL CHARACTER.

Cor. radiated. *Corollules* of the ray five-toothed.

SPECIES.

1. *Atractylis gummifera*. Gummy-rooted *Atractylis*.

Lin. spec. 1161. *Reich.* 3. 696.

Cnicus. *Tourn. cor.* 33.—*Carlina*. *Bauh. pin.* 380.

n. 3.—*Carduus*. *Alp. exot.* 126. t. 124, 125.—

Chameleon. *Col. ecphr.* 1. t. 12. *Raii hist.* 301.

n. 6, 7.

Flower stemless.

2. *Atractylis humilis*. Dwarf *Atractylis*.

Lin. spec. 1162. *Reich.* 3. 696. *Cavan. hisp.* 40.

t. 54.

β. Barr. rar. 1127. t. 592.

Leaves tooth-sinuated; *flower* radiated, fenced with an expanding involucre, stem herbaceous.

^a Aublet.

3. *Atractylis cancellata*. Netted *Atractylis*.

Lin. spec. 1162. *syft.* 729. *Reich.* 3. 696. *bort. cliff.* 395. 1.

Acarna capitulis globosis. *Bauh. pin.* 379.

Eryngium. *Mor.* 3. 166. n. 16. f. 7. t. 36. f. 16.

Carduus parvus. *Bauh. hist.* 3. 93. *Raii hist.* 316.

Park. theat. 965. n. 4.

— *minimus*. *Alp. exot.* 254.

Involucres latticed, bellying, linear, toothed; *calyxes* ovate; *flowers* flosculous.

[4. *Atractylis lancea*. Lance-leaved *Atractylis*.

Lin. syft. 729. *Thunb. jap.* 306.

Involucres pinnate; *leaves* lanceolate, ciliate, smooth.

5. *Atractylis ovata*. Ovate-leaved *Atractylis*.

Lin. syft. 730. *Thunb. jap.* 306.

Involucres pinnate; *leaves* ovate ciliate smooth.

6. *Atractylis oppositifolia*. Opposite-leaved *Atractylis*.

Lin. syft. 730. *Reich.* 3. 696. *mant.* 477. *bort. cliff.* 395. 2.

Carthamus afr. *frutescens*, fol. ilicis, fl. aureo.

Walth. hort. 13. t. 7.

Carlina? afr. &c. *Pluk. alm.* 86. t. 273. f. 5.

Leaves opposite.

7. *Atractylis purpurata*. Purple-flowered *Atractylis*.

Lin. syft. 730. *suppl.* 349. *Smith ic. ined.* 3. 65.

Leaves hastate, runcinate.

8. *Atractylis mexicana*. Mexican *Atractylis*.

Lin. syft. 730. *suppl.* 350. *Smith ic. ined.* 66.

Leaves oblong, quite entire.]

DESCRIPTIONS, &c.

1. Root perennial, sending out many narrow leaves which are deeply sinuated, and armed with spines on their edges. These lie close on the ground, and between them the flower is situated. The florets on the border are white, but those which compose the disk are of a yellowish colour. It is a native of Italy, and the islands of the Archipelago. It flowers in July, but never perfects seeds in England.

[The roots, if wounded when fresh, yield a viscid milky juice, which concretes into tenacious masses, whitish and resembling wax. It was formerly chewed for the same purposes as mastich^a.]

2. Stem near a foot high, with indented leaves, having small spines on their edges; the upper part is divided into two or three slender branches, each supporting a head of purple flowers. The roots will live two or three years; it flowers in June, but unless the summer be warm and dry, it will not perfect seeds in England.

[According to the description of Cavanilles the root is woody, branching and descending. Stems several, annual, half a foot or more in height, smooth, white, streaked, one-flowered. Leaves scattered, sessile, linear-lanceolate, one-nerved, tooth-spiny, spinules unequal, very sharp: the uppermost disposed in an involucre whorl, spreading, and fencing the flower. Flowers solitary, terminating, large. Receptacle flat, with long chaffs, trifid at the tip, the segments unequal, capillary. Seeds ovate, crowned with a plumose, reflex down, brown at the base, but afterwards white.

Linneus observes, that it has the air of the third species, but that the leaves are sinuated, the flowers radiate, and the scales of the calyx pointed: the involucre is composed of genuine spreading leaves.

Native of France and Spain.] Mr. Miller says, that he received the seeds from the neighbourhood of Madrid.

[*β.* The variety differs, in the scales of the calyx being ovate, not retuse, and the scales terminating in a little spine^b.]

3. This is an annual plant, which seldom rises more than eight or nine inches high, with a slender stem, at the top of which are two or three slender branches, each terminated by a head of flowers, like those of the thistle; with an involucre composed of several narrow leaves, armed with spines on their sides, and longer than the head of

^a Lewis.

^b Linn.

flowers:

flowers: it is curiously netted over, and is narrow at the top, but swelling below, containing many florets of a purplish colour.

[Linneus describes the stem as simple, and webbed with white; the branches as proceeding from the two upper axils only; the leaves linear-lanceolate, ciliate, webbed; the flower terminating, surrounded by three spreading bractes; and inclosed in eight converging ones, forming a round inflated periphery; three of them disposed alternately are bent back at the top: all the bractes are linear, pinnate-toothed with the teeth forked; corolla small and blue; seldom having a ray: involucre netted, by a surprising artifice of nature, keeping off the flies.]

It grows naturally in Spain, Sicily, and other warm parts of Europe; flowers with us in July, and if the season be warm and dry, will ripen its seeds in September. [It appears from Parkinson, that it was cultivated among us in 1640.]

4. Stem smooth, round, flexuose, erect, branching, a foot high. Branches alternate, leafy, erect, virgate like the stem. Leaves alternate, sessile, acute, erect. Flowers on the branches, terminating, solitary, subsessile. It differs from the foregoing species in having smooth leaves and a leafy stem.

5. Stem simple, streaked, flexuose, erect, scarcely a foot high. Leaves alternate, petioled, acute, nerved, pale underneath, the upper ones gradually lessening: petioles edged, ciliate. Flower terminating, solitary. It differs from the foregoing in having a simple stem, and ovate, petioled leaves.

These are both natives of Japan^c.

6. The leaves and even the calyx tomentose underneath. The ray of the corolla ligulate, with stamens as in the class Syngenesia, but with effete anthers, and without either style or stigma. Receptacle with hair-like chaffs. It approaches therefore nearer to *Atractylis* than to *Gorteria*. Native of the Cape of Good Hope^d.

7. Stem round, closely woolly, seeming to be shrubby. Leaves crowded, a long span in length, acute, irregularly toothed, veined, when they first break forth covered with white wool, but afterwards becoming very smooth, and green, they are however always white and closely tomentose underneath; the terminating lobe is very large. Stipules none. Peduncles longer than the leaves, branched, angular, rugged, woolly, covered at top with linear, acute scales. Flowers large, erect, specious, purple. Leaflets of the calyx linear-lanceolate, acuminate, membranaceous at the edge, rugged on the outside, the outer ones smaller. Florets in the ray about twenty, two-lipped; outer lip reflex at the tip, three-toothed, closely woolly on the outside; inner very narrow, twisted spirally; in the disk smooth, equal, with acute, reflex segments. Germ hairy. Style somewhat club-shaped, shorter in the florets of the disk. Stigma blunt, scarcely bifid. Seed oblong, gibbous on one side: down the length of the calyx, appearing rugged with a magnifier. Receptacle naked. Found by Mutis in New Granada.

8. Stem shrubby. Branches quite simple, slender, leafy, somewhat flexuose, round, streaked, covered with a white cottony substance, without spines. Leaves alternate, lanceolate, acuminate, with netted veins; above naked, bright green, shining; beneath snow-white, tomentose, with scattered dots seeming to be glandular. Stipules none. Petioles thickish, keeled, tomentose. Flower terminating, nodding, supported by two or three bracte-shaped leaflets. Calyx involved in very white cotton: leaflets lanceolate, acute, somewhat prickly, the outer ones smaller. Corolla purple. Florets in the ray numerous, without any inner lip, three-toothed, smooth, seeming to be female; style club-shaped, shorter than the corolla, purple: in the disk equal, with sharp, spreading segments; style as in the florets of the ray, shorter than the anthers. Down shorter than the calyx, white, appearing rugged with a

magnifier. The receptacle has very short chaffs on it.

Found by Mutis in Mexico^e.]

PROPAGATION AND CULTURE.

1, 2, 3. Are propagated by seeds, which must be obtained from the countries where they grow naturally: these should be sown upon a border of light earth, in a warm situation, early in April, and when the plants come up, and are fit to transplant, they should be thinned, and those which are drawn out may be transplanted, leaving the others two feet asunder; after which the only culture they require is, to keep them clean from weeds in summer, and in winter to cover the roots with some old tanners bark, to prevent the frost from penetrating the ground.

[The other sorts are yet strangers to the European gardens; and whenever they are introduced will require the protection of a greenhouse or stove.

ATRACYLIS. See *Carthamus*.]

[ATRAGENE.

Lin. gen. n. 695. Reich. 753. Schreb. 949.

Gertn. 74. Juss. 232.

Class. 13. 7. Polyandria Polygynia.

Nat. order of *Multifloræ*. *Ranunculaceæ* Juss.

GENERIC CHARACTER.

CAL. Perianth four-leaved: leaflets oval, spreading, obtuse, deciduous.

COR. Petals twelve (in *A. capensis* about twenty) linear, very narrow at the base, obtuse, spreading.

STAM. Filaments very many, very short, (outer petal-like, two-anthered. G.) Anthers oblong, acuminate, shorter than the calyx.

PIST. Germs very many, oblong. Styles villose, permanent. Stigma simple, the length of the anthers.

PER. none.

SEEDS very many, ending in a hairy tail. (Capsules several, feather-tailed. G.)

ESSENTIAL CHARACTER.

Cal. four-leaved. Pet. twelve. Seeds tailed.

SPECIES.

1. *Atragene japonica*. *Japoneſe Atragene*.

Lin. syst. 511. Thunb. jap. 239.

Erect, leaves opposite triternate, leaflets ovate gashed.

2. *Atragene alpina*. *Alpine Atragene*.

Lin. spec. 764. syst. 511. Reich. 2. 640. Gertn.

fruct. 1. 356. Hall. belv. n. 1145. Gmel.

fib. 4. 194. Jacq. austr. 3. t. 241. Scop.

carn. n. 666? Villars dauph. 710.]

Clematis fibrica. Mill. dict. n. 12. fig. t. 284.—

[*alpina geraniifolia*. Bauh. pin. 300. prodr. 135.

Pluk. phyt. t. 84. f. 7. Mor. hist. 3. f. 15. t. 2.

f. ult.—*cærulea ferrato foliö*. Bauh. hist. 2. 129.

f. 2.—*cruciata alpina*. Clus. hist. 335. Park. 383.

f. 3. Ger. emac. 890. Raii hist. 622.

Leaves doubly-ternate ferrate, outer petals four-fold.

3. *Atragene capensis*. *Cape Atragene*.

Lin. spec. 764. Reich. 2. 640. mant. 406. Berg.

cap. 148.

Pulsatilla. Burm. afr. 148. t. 52. Herm. afr. 18.

Leaves ternate, leaflets gashed toothed, outer petals

five-fold.

4. *Atragene tenuifolia*. *Fine-leaved Atragene*.

Lin. syst. 511. suppl. 270.

Leaves doubly-pinnate, pinnules linear entire.

5. *Atragene zeylanica*. *Ceyloneſe Atragene*.

Lin. spec. 764. syst. 511. Reich. 2. 641. fl. zeyl.

226. amæn. 1. 105.

Clematis. Herm. zeyl. 35.

Tendrils two-leaved.

DESCRIPTIONS, &c.

This genus is allied to *Ranunculus*, but has a double row of petals, in the outer row four large ones, in the inner many smaller ones, which are properly nectaries. *Clematis* differs from *Atragene* only in the want of a nectary, as *Adonis* from *Helleborus*^a.

The species are either sarmentose shrubs or creeping herbs. Leaves conjugate cirrhone, or else ternate or biternate. Flowers terminating on the twigs

^c Thunberg.

^d Linn.

^e Smith.

^a Linn. prælect. in ord. nat.

of the shrubs, or on the involucred scape, as in the Anemone, of the herbaceous sorts^c.

Thunberg thus distinguishes the five species:

1. Erect, with opposite triternate leaves, leaflets ovate cut.
2. Scandent, with triternate leaves.
3. Erect, with alternate leaves ternate-superdecompound.
4. Erect, with ternate superdecompound leaves, leaflets linear-filiform.
5. Scandent, leaves conjugate undivided.

1. Stem angular and streaked, subdichotomous, villose, two feet high. Leaves petioled, spreading: leaflets acute, toothed, very thinly villose, pale underneath; the petiole flat at the base and stem-clasping. Flowers from the divisions of the stem, few, peduncled. Peduncles filiform, elongated, one-flowered. Petals more than twenty, nearly equal, or the inner ones a little shorter, ovate, bluntish, purple within, white-tomentose without. It has all the appearance of Anemone, but it is referred to this genus on account of the number of petals. Native of Japan.]

2. Stems slender, weak, the lower part woody; the bark brown and thin. Leaflets two inches long, and near one broad in the middle, of a deep green colour. Peduncles naked, three or four inches long, one-flowered. Leaflets of the calyx yellowish white within.

[Haller describes the stem as very short, two-leaved and one-flowered. Leaves as in umbellate plants, triangular, petioled; leaflets acute, sharply serrate, all at right angles. One flower on a long scape springs from between the leaves. Calyx converging, very large, blue and white.

Linneus observes, that the leaves are radical and cut. Scares one-flowered. The four outer petals large, the inner obovate and small.

Jacquin (vind. 249.) affirms, that the Austrian plant is of a different species from the Alpine. He thus describes it:

Stems many, branching, diffused long, angular, smooth, brown, prostrate on the rocks or scandent. Leaves opposite subternate. Petioles hirsute, an inch and half long; leaflets lanceolate acute smooth unequal sessile, obtusely serrate-gashed; the side ones ternate, sometimes confluent at the base; the old petioles change into strong tendrils, trifid at the end, from the axillas come out buds, being future branches or leaves, which from their sinus produce a peduncle sustaining one very spreading round flower, a little hairy, longer than the petiole. Stipules four, obtuse, and a little villose. Flower elegant, nodding, without smell. Leaflets of the calyx twice the length of the petals, blue on both sides. Petals dirty white, usually twelve.

Native of the high alps of Switzerland. Remarkd on monte Baldo by Pona, on mont Cenis, &c. by Allioni, on the mountains of Austria by Jacquin, and in Siberia by Gmelin. According to Jacquin, it flowers in June, and the seeds ripen in August. Mr. Miller says, that the flowers appear in March and April with us. He informs us that Gmelin sent the seeds to Petersburg, and that in 1753 he was favoured with some of them from thence; that they succeeded at Chelsea, and that the plants flowered many years there, but without perfecting their seeds.

[3. Scape simple, six or seven inches long. Involucre in the middle of the scape, composed of swelling, ovate, villose foliaceous stipules. Leaves wedge-shaped, trifid, acute, naked; the middle one on a long petiole. Petals about twenty, white; the six lower ones broader, villose underneath, purplish. Head of seeds ovate, hirsute. Native of the Cape of Good Hope^f.

4. Found at the Cape, by Thunberg^g.

5. This is caulescent and scandent. Leaves opposite, compound, petioled, conjugate as in *Lathyrus*: leaflets ovate, on very short petiolules, quite entire, or very seldom marked with a single tooth,

three-nerved. Panicle terminating, composed of a twice-trifid peduncle, bearing commonly nine peduncled, distinct flowers. Leaflets of the calyx ovate, spreading, subtomentose underneath. Petals narrower, twice as long as the calyx, purplish. Stamens half the length of the calyx. Seeds oblong, ending in a long, feathered thread. Native of the island of Ceylon^h.

PROPAGATION AND CULTURE.

The second sort may be increased by cuttings or layers, in the same manner as *Clematis*.] In a strong soil, and trained against a wall, it will rise to the height of six or eight feet. The flowers appear early, and if the season prove favourable, they make a handsome figure: but as this plant is apt to put out leaves very early in the spring, it is frequently nipped by the frosts, as are many plants and trees of Siberia and Tartary.

The others have not yet been cultivated in England.

ATRAPHAXIS. (*Ἀτράφαξις* or *ἀτράφαξις*, sometimes written *ἀδράφαξις* and *ἀνδράφαξις*. The name of an herb in Dioscorides and Theophrastus. *παρὰ τὸ ἀδρόως ἀνέγειν*, from its coming up quickly from seed, viz. on the 8th day.)

Lin. gen. n. 449. *Reich.* 484. *Schreb.* 612.

Juss. 82. *Gertn. t.* 119.

Class. 6. 2. Hexandria Digynia.

Nat. order of Holoraceæ.—Polygonææ Juss.

GENERIC CHARACTER.

CAL. *Perianth* two-leaved: leaflets opposite, lanceolate, coloured, permanent.

COR. *Petals* two, roundish, sinuate, larger than the calyx, permanent.

STAM. *Filaments* six, capillary, the length of the calyx. *Anthers* roundish.

PIST. *Germ* compressed. *Style* none. *Stigmas* two capitate.

PER. none. *Calyx* closed, including the seed.

SEED one, roundish, compressed.

OBS. *A. undulata* has a four-parted calyx, the divisions ovate and concave; no corolla; lanceolate filaments; a bifid style; and a roundish seed.

ESSENTIAL CHARACTER.

Cal. two-leaved. *Pet.* two sinuate. *Stigmas* capitate. *Seed* one.

SPECIES.

1. *Atraphaxis spinosa.* *Prickly-branched Atraphaxis.*

Lin. spec. 475. *Juss.* 345. *Reich.* 2. 113. *hort.*

cliff. 138. 3. *Gertn. fruct.* 2. 181. *Gmel.*

fib. 3. 28. *L'Herit. stirp. nov.* 27. *t.* 14.

Atriplex orientalis, &c. *Tourn. cor.* 38. *Dill.*

elib. 47. *t.* 40. *f.* 47. *Buxb. cent.* 1. 19. *t.* 30?

Branches spiny.

2. *Atraphaxis undulata.* *Waved-leaved Atraphaxis.*

Lin. spec. 475. *Juss.* 345. *Reich.* 2. 114. *hort.*

cliff. 137. 1.

Polygonum undulatum. *Berg. cap.* 135.

Arbuscula africana, &c. *Boerb. ind.* 2. 263. *Dill.*

elib. 36. *t.* 32. *f.* 36.

Without spines.

DESCRIPTIONS, &c.

1. This shrub rises four or five feet high, sending out many weak lateral branches, armed with spines, and garnished with small, spear-shaped, smooth leaves, of an ash-colour. The flowers come out at the ends of the shoots in clusters, each consisting of two white petals tinged with purple, included in a two-leaved calyx, of a white herbaceous colour. They appear in August.

[It is thus described more particularly by Mons. L'Heritier,—an elegant, flowering undershrub, with a woody, branching, rufous root, depositing its outer skin in irregular pieces. Stem woody, diffused, branching, round, two feet high, ash-coloured, the outer skin coming off longitudinally in threads: branches alternate, erect, flexuose: suckers or shoots spreading, smooth, whitish, jointed as it were with the sheaths of the leaves, subulate or ending in a harmless spine. Leaves alternate, ovate or lanceo-

^c Jussieu.

^f Linn. mant.

^g Linn. suppl.

^h Linn.

late, acute, almost entire or scarcely crenulate, curved inwards, reflex on the sides, revolute waved and curled about the edge, one-nerved, veinless, of the same colour on both sides, glaucous, gradually smaller to the top: petioles very short, flattish, widening at the base, where it is pressed close, and has a membranaceous two-awned sheath resembling stipules. Racemes terminating, erect, consisting of very short, axillary racemules having in each from four to six flowers, which are close, pedicelled, nodding, whitish, three lines long and two wide: pedicels capillary, double or three times the length of the bracte, from the bosom of which they spring: bractes linear, acute, deciduous, green, with very minute membranaceous bracteoles, terminating the racemule. Leaflets of the calyx ovate, obtuse, concave, green with a whitish edge, spreading and afterwards hanging down. Petals connate, waved, spreading very much, white, when far advanced absolutely reflex, and lastly erect, converging, pressed to each other, purplish. This flower may fairly be said to have a four-leaved or four-parted calyx, and no corolla, as in the other species; from which it is easily distinguished by its irregular flowers on longer peduncles. It is known with more difficulty from *Polygonum frutescens*, though of a different genus, their habit being perfectly the same: but to say nothing of the generic character, this has waved leaves, the upper half of which rises, and at the same time the sides are bent down; whereas in *Polygonum frutescens* the leaves are flat and spreading. That these two plants are really distinct, appears also from a long continued culture of them, so that the opinion of Pallas, Willich, and others, that they are the same plant, is not well founded.

Native of Armenia, Siberia, and Persia. Cultivated by Mr. Miller, in 1759^a.]

2. The second sort sends out many slender branches, trailing on the ground; leaves small, oval, about the size of those of Knot-grass, waved and curled on their edges, embracing the stalk half round at their base, and placed alternate.

[Stems several, shrubby, scarcely a foot high, round, streaked and angular, simple, rugged at bottom, then leafy, having short, simple, alternate branches at top. Leaves ovate, obtuse, petioled, smooth, with a waved edge, scattered, frequent, a little longer than the internodes, the lower ones smallest, and gradually larger higher up. Stipules ovate-oblong, acute, membranaceous, tender, almost the length of the internodes. Flowers in oblong spikes, somewhat leafy, at the ends of the stem and branches; having ovate, sharpish, membranaceous, tender bractes between them, which are shorter than the flowers. Calyx yellow, involving the fruit. Seed very dark purple, shining. The flowers are commonly quadrifid, but sometimes they are sexfid with eight stamens^b.

Several authors make this to be a species of *Polygonum*, whilst others would unite the two genera.

This is a native of the Cape of Good Hope, and was cultivated in 1732, by James Sherard, M.D. at Eltham^c.]

PROPAGATION AND CULTURE.

The seeds of these plants not ripening in England, they are propagated by cuttings, during any of the summer months. In winter they must be screened from hard frost, which commonly destroys such as are planted in the open air.

ATRIPLEX. (Formed from *Atraphaxis*, or as others will have it, *ab atro colore*, from a livid colour which it occasions to those who eat it.)

Engl. *Orach* or *Arach*. Fr. *Arroche*.

Lin. gen. n. 1153. Reich. 1260. Schreb. 1577.

Tournef. 286. Gertn. 75. Juss. 85.

Class. 23. 1. Polygamia Monoecia,

Nat. order of *Holoraceæ*. *Atriplices* Juss.

GENERIC CHARACTER.

* *Hermaphrodite flower*.

CAL. Perianth five-leaved, concave, permanent:

^a Hort. Kew.

^b Bergius.

^c Hort. kew.

divisions ovate, concave, membranaceous at the edge.

COR. none.

STAM. Filaments five, subulate, opposite to the leaves of the calyx, and longer than them. Anthers roundish, twin.

PIST. Germ orbiculate. Style two-parted, short. Stigmas reflex.

PER. none. Calyx closed, pentagon, with the angles compressed; deciduous.

SEED one, orbicular, depressed.

* *Female flower on the same plant*.

CAL. Perianth two-leaved; leaflets flat, erect, ovate, acute, large, compressed.

COR. none.

PIST. Germ compressed. Style two-parted. Stigmas reflex, acute.

PER. none. Valves of the calyx very large, cordate, including the seed between them.

SEED one, orbiculate compressed.

OBS. *Atriplex* without a female flower would be *Chenopodium*, and *Chenopodium* with a female flower would be *Atriplex*: there is therefore a very great affinity between the two genera.

ESSENTIAL CHARACTER.

HERMAPHR. Cal. five-leaved. Cor. none. Stam. five. Style two-parted. Seed one, depressed.

FEMALE. Cal. two-leaved. Cor. none. Stam. none. Style two-parted. Seed one, compressed.

SPECIES.

1. *Atriplex Halimus*. Tall shrubby Orache, or Spanish Sea Purslane.

Lin. spec. 1492. Reich. 4. 322. hort. cliff. 469. 4.

Mill. dict. n. 2. Raii hist. 194. n. 1.

Halimus latifolius. Baub. pin. 120. Baub. hist. 1. 227.

f. 1. Ger. emac. 523. 1. Park. 724. f. 2. Clus. hist. 1. 53.

Stem shrubby; leaves deltoid entire.

2. *Atriplex portulacoides*. Dwarf shrubby Orache, or Common Sea-Purslane.

Lin. spec. 1493. Reich. 4. 323. suec. 919. Hudf.

angl. 442. With. 1143. Light. scot. 635.

Mill. dict. n. 3. Scop. carn. n. 1243.

Halimus f. *Portulaca marina*. Baub. pin. 120. Raii

hist. 195. syn. 153. 11. Ger. emac. 523. 3.

Park. 724. f. 1. Pet. herb. t. 7. f. 7.

Stem shrubby; leaves obovate.

[3. *Atriplex glauca*.

Lin. spec. 1493. Reich. 4. 323. amæn. 4. 296.

Dill. elth. 46. t. 40. f. 46.

Polygonum. Barr. ic. t. 733.

Stem undershrubby procumbent; leaves ovate sessile quite entire; the lower ones subdentate.

4. *Atriplex rosea*.

Lin. spec. 1493. Reich. 4. 323. Hall. gott. 19.

Villars dauph. 2. 565. Pollich pal. n. 941.

Baub. pin. 119. n. 5. prodr. 58. n. 1. Raii hist. 192.

n. 5. Park. theat. 747. n. 3.

Stem herbaceous; leaves hoary serrated; fruits quadrangular toothed.

5. *Atriplex sibirica*. Siberian Orache.

Lin. spec. 1493. Reich. 4. 323.

Stem herbaceous; leaves deltoid angular; the calyxes of the fruit muricated on the outside.

6. *Atriplex tatarica*. Tartarian Orache.

Lin. spec. 1493. syst. 909. Reich. 4. 324. hort.

upsf. 303. Gmel. it. 2. p. 2. Pluk. alm. 60. 2.

Hudf. angl. 443. n. 2. β.

Stem herbaceous; leaves deltoid sinuate-toothed waved alternate.]

7. *Atriplex hortensis*. Garden Orache.

Lin. spec. 1493. Reich. 4. 324. hort. cliff. 469. 1.

upsf. 303. mat. med. 220. Mill. dict. n. 1.

Gmel. fib. 3. 71. Blackw. t. 99. & 552. Gertn.

fruct. 1. 362.

α. *A. hort. alba*. Baub. pin. 119. n. 1. Baub.

hist. 2. 970. Raii hist. 191. Ger. emac. 325. n. 1.

324. f. 1. Park. parad. 488. t. 487. f. 2.

β. *A. hort. rubra*. Baub. pin. 119. n. 2. Baub.

hist. 2. 970. Raii hist. 191. Ger. emac. 325.

n. 2. 324. f. 2.

Stem erect herbaceous: leaves triangular.

[8. *Atriplex*

- [8. *Atriplex laciniata*. *Jagged Sea-Orache*.
Lin. spec. 1494. *Reich.* 4. 324. *succ.* 920. *hort.*
cliff. 469. 3. *Huds. angl.* 442. *With.* 1143.
Lightf. scot. 636. *Gron. virg.* 120. *Gmel.*
fib. 3. 68. *Neck. gallob.* 416.
A. maritima laciniata. *Baub. pin.* 120. *Baub.*
hist. 2. 974. 1. *Raii hist.* 193. n. 8. *syn.* 152. 8.
Mor. hist. 2. 607. f. 5. t. 32. f. 17. *Ger.*
emac. 325. n. 4. 324. f. 4. *Park.* 748. f. 4.
Stem herbaceous; leaves deltoid, toothed, silvered un-
derneath.
9. *Atriplex hastata*. *Broad-leaved wild Orache*. *vulg.*
Fat-hen.
Lin. spec. 1494. *Reich.* 4. 324. *succ.* n. 921.
Huds. angl. 443. *With.* 1144. *Curtis lond.* 2. 66.
Lightf. scot. 636. *Hall. belv.* n. 1617. *Villars*
dauph. 2. 566. *Neck. gallob.* 417. *Pollich pal.*
n. 942. *Leers herb.* n. 776. *Raii hist.* 192.
n. 3. *syn.* 151. 1. *Mor. hist.* 2. 607. f. 5. t. 32.
f. 14. *Pet. herb. t.* 7. f. 1, 2.
Stem herbaceous; valves of the calyx in the female
flowers large, deltoid, sinuated.
10. *Atriplex patula*. *Narrow-leaved wild or spreading*
Orache.
Lin. spec. 1494. *Reich.* 4. 325. *succ.* 922. *hort.*
cliff. 469. 2. *Gartn. fruct.* 1. 361. *Huds.*
angl. 443. *With.* 1145. *Lightf. scot.* 637.
Hall. belv. n. 1616. *Villars dauph.* 2. 566.
Scop. carn. n. 1245. *Pollich pal.* n. 943. *Gmel.*
fib. 3. 67.
A. sylvestris angustifolia. *Ger. emac.* 326. 7.
Park. 748. f. 7. *Mor. hist.* f. 5. t. 32. f. 15.
Pet. herb. t. 7. f. 5. *Raii hist.* 192. *syn.* 151. 2.
Baub. hist. 2. 973. 3, 4.
Stem herbaceous expanding; leaves subdeltoid-lanceo-
late; calyxes of the seeds toothed in the disk.
11. *Atriplex littoralis*. *Grass-leaved Sea Orache*.
Lin. spec. 1494. *Reich.* 4. 325. *succ.* n. 923.
Huds. angl. 444. *With.* 1145. *Lightf. scot.* 638.
Neck. gallob. 416.
A. angustifolium & longifolium. *Herm. lugdb.* 79.
Raii syn. 153. 12, 13.
Stem herbaceous erect; all the leaves linear, quite
entire.
12. *Atriplex pedunculata*. *Peduncled Orache*.
Lin. spec. 1675. *syn.* 910. *Reich.* 4. 326.
amen. 4. 296. *Huds. angl.* 444. *With.* 1146.
Fl. dan. t. 304. *Pluk. phyt. t.* 36. f. 1. *Pet.*
herb. t. 7. f. 8.
A. marina femine lato. *Raii syn.* 153. 9, 10.
Stem herbaceous divaricated; leaves lanceolate, obtuse
entire; calyxes of the female flowers peduncled.
13. *Atriplex marina*. *Serrated Sea Orache*.
Lin. mant. 300. *Reich.* 4. 326. *Lightf. scot.* 637.
A. ferrata. *Huds. angl.* 444.
A. angustifolia maritima dentata. *Raii hist.* 193.
syn. 152. 3. *Pet. herb. t.* 7. f. 4. *Baub. pin.* 120.
prodr. 58.
Stem herbaceous, erect; leaves linear, serrate.
14. *Atriplex albicans*. *White Orache*.
Ait. hort. kew. 3. 430.
Stem shrubby erect, leaves basate quite entire acute,
spikes terminating.

DESCRIPTIONS, &c.

Some of these Oraches are inclining to be shrubby; the leaves are sometimes almost opposite; the flowers are glomerate or in little balls, and these disposed in panicles.

1. Root perennial, woody, dividing into many branches. The whole shrub white. Stems from four to six feet high or more, with many thick, woody, brittle branches. Leaves irregularly disposed on the branches on long petioles, thick, succulent, somewhat shining, having a subacid flavour. Flowers small, purplish, at the ends of the branches. Seeds small, brown.

It grows in hedges near the sea about Nice; in Spain, Portugal, Sicily, &c. Ray says that he found it in great plenty about Messina.

It was cultivated here in 1640, according to Parkinson^a,] as a shrub, and by some was formed

^a Hort. kew.

into hedges, and constantly sheared; but this plant is by no means fit for this purpose, for it grows too vigorously; the shoots, in one month, at the growing season of the year, will be two feet long, in a good soil; so that a hedge of this plant cannot be kept in tolerable order, nor will it ever form a thick hedge. But a worse inconvenience attends it; for in very hard winters it is often destroyed, and in very dry summers, many of the plants will decay.

But although this shrub be not proper for hedges, yet it may have a place in wilderness quarters, where it will serve to thicken, and the silver-coloured leaves will add to the variety, among other shrubs of the same growth. It will grow eight or ten feet high, and if suffered to grow wild, without pruning, will spread several feet in compass, and sometimes produce flowers.

2. This is a low undershrub, seldom rising above two feet and a half, or at most three feet high, but becoming very bushy. The leaves are narrow, and of a whitish colour, but not so white as those of the former. [In its wild state, it varies in height from six inches to a yard. The branches generally recline, are angular, and of a whitish green. The leaves are glaucous, opposite, petioled, generally elliptic, some obtuse, others lanceolate. The flowers are yellow, and terminate the branches in clustered spikes^b.

Scopoli observes, that the whole shrub is glaucous, and, when adult, is covered with a very short pile and a fine meal; that the leaves are lanceolate, not ovate, entire, pubescent underneath; and that the flowers are small and crowded in their racemes. It is wild on the shores of the European ocean, and in salt marshes, flowering in July and August.]

In plantations it may have a place among other low shrubs; and, if planted on a poor gravelly soil, will abide several years, and make a pretty diversity.

[3. Stem the thickness of a finger, covered with an ash-coloured bark, and divided into declining branches, three or four feet long, subdividing into other shorter ones. The leaves are thickish, from silver inclining to glaucous. At each axil of the upper branchlets come out three or four hermaphrodite flowers, with a few females among them, of a yellowish colour^c.

Native of France, about Tholouse, and of Spain, about Toledo.

4. Stem erect, a foot and half or two feet high, somewhat angular, white and smooth, very branching, the branches alternate, subdividing, all diffused. Leaves alternate, subsessile, one at the origin of each branch and bunch of flowers, all rhomb-heart-shaped, above an inch in length and breadth, sinuate-toothed, covered with a fine white meal, and smooth. Flowers in close sessile balls at the axils. Valves of the fruit roundish-ovate, sharpish, compressed, toothletted on the sides, finely notched about the edge, hoary like the leaves^d. It is an annual plant, native of the southern countries of Europe.

5. This sort is of the same size with the *A. bortenensis*. The fruit is tomentose at the base, and mucicate on the outside^e. The leaves are silvery beneath, and the flowers white^f. Native of Siberia, and annual.

6. This grows to the height of a man, according to Linneus, and the leaves are ash-coloured beneath. Gmelin affirms, that the leaves are green on both sides.

Mr. Hudson makes this a variety of the *laciniata*, which he asserts to be changed into this by cultivation in a garden. He says that the stem is from three to five feet high, erect and branching; the branches also erect.

7. Root annual. Stem three feet high and more, thick, shining. Leaves thick, pale green and glau-

^b Lightfoot.^c Dillenius.^d Pollich.^e Linneus.^f Reichard from Gmelin.

cous, with few veins, of a slightly acid flavour; they differ in shape, some stretch out into a long point from a broad base, being entire about the edge, some are deltoid, others are ferrate or sinuate, and others again are triangular^z. The valves of the calyx are ovate, cordate, streaked, and quite entire. Seeds orbiculate, a little flattened on both sides, of a ferruginous red colour, deep coloured about the edge so as to appear as if surrounded with a black ring. The seeds of the hermaphrodite flower are lens-shaped, under a dark ash-coloured, very smooth, shining pellicle^b.

It is a native of Tartary; and was cultivated in 1596, by Gerard¹.

It is of many used, says Parkinson, boiled and buttered, to make the stomach and belly soluble; and is put among other herbs into the pot to make pottage. There are many dishes of meat made with it while it is young, for being almost without favour, it is more convertible into what relish any one will make it, with sugar, spice, &c.

The red Orache is found to dye wool of a good olive colour.]

There are three or four varieties of this, differing only in the colour of the plants; one is of a deep green, another of a dark purple, and a third with green leaves and purple borders. These are supposed to be only accidental varieties which have come from the same seeds, but in forty years which I have cultivated these sorts, I have never yet observed them to vary.

It was formerly cultivated in the kitchen-gardens as a culinary herb, being used as Spinage, and is now, by some persons, preferred to it; though, in general, it is not esteemed amongst the English; but the French cultivate this plant for use.

[8. The whole plant is covered with a skin that peels off, and is of a gray, hoary colour. Stem two feet high, smooth, with many spreading branches. The leaves, except the lowest alternate, and silvered with little plates; the lower ones are deltoid, the upper deltoid-lanceolate, below very entire at the edge, above variously jagged, on very short petioles, with the base extended downwards along them. The hermaphrodite flowers grow at the summits of the stalks, in sessile clusters, intermixed with leaves: the females are axillary and twin. Leaflets of the calyx very large, nearly triangular or deltoid, commonly five-toothed, the middle tooth largest, generally beset with prominent tubercles on the sides near the base^k.

It is an annual plant, flowering in July and August, and is a native of the sea shore of Europe.

9. Root annual. Stem generally upright, from one to three feet in height, four-cornered, the angles obtuse, the sides somewhat grooved, a little swelling at the joints, smooth, of a purplish colour, and branched quite to the bottom: the branches opposite; the lowermost very long, sometimes almost equal with the stalk itself, and for the most part procumbent. Lower leaves triangular, with the edge more or less indented, sprinkled on the under side with meal; sometimes quite smooth, opposite, petioled: the upper ones oval, pointed, entire, alternate. Flowers on the tops of the stalks and branches in narrow reddish spikes¹. The valves of the calyx in the female flowers are frequently toothed in the disk^m.

It varies with an erect and decumbent stem, with leaves sinuate-toothed, toothed and entireⁿ.

It varies indeed much according to age and situation: on dunghills it is very strong and luxuriant; by road sides it is weaker, and its branches are long and procumbent; in wet places it becomes more upright, and the leaves are very mealy on the under side, particularly when it grows on the sea shore; at other times they are altogether smooth.

In its young state this plant is frequently eaten instead of Spinach. Birds are very fond of the

feeds; but cattle do not seem much to like the plant. In gardens and other cultivated grounds it is a very troublesome weed, it should not therefore be suffered to grow and seed on dunghills^o.

10. Root annual. Stem furrowed; the branches long and widely divaricated, almost at right angles with the stem, and often weighing it down to the ground. Leaves succulent, green, slightly sprinkled with a mealy powder underneath; the lower ones hastate, but one of the auricles often wanting; the upper ones entire, and linear-lanceolate. The flowers in erect, slender spikes^p; according to Scopoli in long, spreading racemes. He adds, that the male flowers are four-stamened, with the calyx four-cleft; the valves of the seeds toothed; the germ compressed, one-styled; and that it has all the appearance of a *Chenopodium*.

This species resembles the *hastata* so much, that Haller seems to doubt whether it be a distinct species.—They have both angular stems, somewhat furrowed; leaves triangular and hastate, the appendages longer or shorter, toothed or entire; the upper usually lanceolate and entire. The valves of the seeds are larger and flatter in the *hastata*, and toothed only at the edges: in this they are more convex, and are toothed and tubercled on the sides^q.

Native of Europe, in waste places, on ditch banks, and in cultivated grounds; flowering in August.

11. Root annual. Stems numerous, at first trailing, afterwards declining or upright, much branched^r. Leaves both linear and lanceolate^s, sometimes toothed, with the end recurved, colour glaucous^t. Valves of the seeds triangular, toothed at the edges^u.

Native of Europe, on the sea coast, flowering in August: at Ramsgate in Kent, Yarmouth, Blakeney and Wells in Norfolk.

12. Stem much branched. Leaves glaucous, some inversely ovate. Fertile flowers on long peduncles. Valves of the fruit ovate, the middle lobe triangular and short^v.

Native of the sea shores of Denmark and England; as near Boston; in the isle of Thanet; near Yarmouth, Lynn, &c. It flowers from July to September.

13. It may be questioned whether this be different from the *littoralis*; the *ferrata* of Hudson is probably the same species. Linneus describes his plant to be dwarfish, a hand's breadth high, with thickish leaves. Hudson says, that his is almost upright, with linear, ferrate leaves. Mr. Woodward has found some stems with the very narrow entire leaves of the *littoralis*; and others, which were the largest and strongest, entirely clothed with broader, narrow, elliptical leaves, toothed or jagged throughout, and ferrate leaves, both from the same root^w.

It is an annual plant, native of Sweden and England, on sea shores and in waste places, flowering in August.

14. Native of the Cape of Good Hope, where it was found by Mr. Francis Masson. It was introduced here in 1774, and flowers in June and July^x.]

PROPAGATION AND CULTURE.

1, 2, 3. May be increased by cuttings, planted in any of the summer months on a shady border; where, if they be duly watered, they will soon take root, and be fit to transplant the Michaelmas following; when they should be planted where they are to remain, for they do not succeed well in transplanting, especially when they are grown large and woody.

7. This must be sown for use early in the spring, or at Michaelmas, soon after the seeds are ripe; at which time it generally succeeds better than when it is sown in the spring, and will be fit for use at least a month earlier. These plants require no other

^z Gmelin. ^b Gartner. ¹ Hort. kew.
^k Linn. Hudf. Lightf. Woodw. M. S.
¹ Curtis. ^m Leers. ⁿ Hudson.

^o Curtis. ^p Lightfoot. ^q Woodw. M. S. ^r Withering.
^s Gmelin. ^t Willich. ^u Withering. ^x Woodw. M. S.
^v Withering. ^w Hort. kew.

culture, but to hoe them when they are about an inch high: to cut them down where they are too thick, leaving them about four inches asunder, and to cut down all the weeds. This must be done in dry weather, otherwise the weeds will take root again, and render the work of little or no use. When the plants are grown about four inches high, it will be proper to hoe them a second time, in order to clear them from weeds; and, if you observe the plants are left too close in any part, they should then be cut out. If this be well performed, and in dry weather, the ground will remain clean until the plant is fit for use. Where it is sown on a rich soil, and the plants are allowed a proper distance, the leaves will be very large, and in that the excellence of the herb consists. It must be eaten when young, for when the stalks become tough, it is good for nothing. The seeds will ripen in August, when the plants may be cut or pulled up, and laid on a cloth to dry: after which the seeds may be beaten out, and laid up in bags for use.

[Most of the other sorts, so far from being cultivated in gardens, are to be rooted out of them with care, as rank weeds.]

ATRIPLEX. See *Atraphaxis*, *Axyris*, *Blitum*, *Chenopodium*, and *Galenia*.]

ATROPA. From *Atropos*, the third Fate, she who was supposed to cut the thread of life.)

Engl. *Deadly Nightshade*. Fr. *Belle-donc*.

Lin. gen. n. 249. Reich. 266. Schreb. 335.

Juss. 125. Gært. t. 131. Belladonna. Tournef.

13. Mandragora. Tournef. 12.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Luridæ*. *Solanæ* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leafed, five-parted, gibbous: divisions acute: permanent.

COR. one-petalled, bell-shaped: tube very short: border ventricose, ovate, longer than the calyx: mouth small, five-cleft, spreading: divisions subequal.

STAM. Filaments five, subulate, from the base of the corolla, and of the same length with it, converging at the base, above diverging outwards, bowed. Anthers thickish, rising.

PIST. Germ semi-ovate. Style filiform, the length of the stamens, inclined. Stigma headed, rising, transversely oblong.

PER. Berry globular, sitting on a large calyx, two-celled. Receptacle fleshy, convex on both sides, reniform.

SEEDS very many, reniform.

ESSENTIAL CHARACTER.

Cor. bell-shaped. Stam. distant. Berry globular, two-celled.

SPECIES.

1. *Atropa Mandragora*. *Mandrakē*.

Lin. spec. 259. Reich. 504. mat. med. 65. Allion. pedem. n. 460.

Mandragora. Lin. hort. cliff. 51. Hall. helv. n. 578.

Plenck, ic. t. 126. Blackw. t. 364. Sabb. hort. 1.

t. 1. Lobel. ic. 267. Ger. 281. emac 352. Park. theat. 344.

M. officinalis. Mill. dict. n. 1. fig. t. 173.

M. fructu rotundo. Bauh. pin. 169. Raii hist. 668.

Stemless, scapes one-flowered.

2. *Atropa Belladonna*. *Deadly Nightshade*, or *Dwale*.

Lin. spec. 260. Reich. 504. mat. med. 65. hort.

cliff. 57. ups. 45. Gært. fruct. 2. 240. Hudsf.

angl. 93. With. 233. Curt. lond. 5. 66. Lightf.

scot. 144. Hall. helv. n. 579. Scop. carn.

n. 255. Jacqu. austr. 4. t. 309. Pollich pal.

n. 226. Allion. pedem. n. 459. Krock. flesf.

n. 343. Villars dauph. 2. 497. Blackw. t. 564.

Sabb. hort. 1. t. 3. Fl. dan. t. 758. Mill. fig.

t. 62. Berg. phyt. t. 19. Plenck. ic. t. 125.

Pultn. in philos. transf. vol. 50. p. 62.

Solanum lethale. Clus. hist. 2. 86. Ger. 269.

emac. 340. Park. 346. 6. Mor. hist. f. 13. t. 3.

f. 4. Bauh. hist. 3. 611. Raii hist. 679. Camer.

epit. 817. Fuchf. 689.

Stem herbaceous, leaves ovate entire, peduncles one-flowered.

3. *Atropa physaloides*. *Peruvian Deadly Nightshade*, or *blue-flowered Atropa*.

Lin. spec. 260. Reich. 505. mant. 339.

Alkekengi. Nov. comm. petrop. 5. p. 319. t. 4. Fen. peruv. 724. t. 16.

Physalis peruviana. Mill. dict. n. 16.

Stem herbaceous, leaves sinuate-angular, calyxes closed acutangular.

[4. *Atropa folanacea*.

Lin. syst. 221. Reich. 505. mant. 205. Trew. rar. 2. p. 9. t. 16.

Solanum guineense. Lin. spec. 263. Comm. hort. 2. 191. t. 96.

Stem shrubby, peduncles solitary, corollas bell-shaped, leaves subovate.

5. *Atropa arborescens*. *Tree Atropa*.

Lin. spec. 260. Reich. 506. amæn. 4. 307. Swartz obs. 81.

Belladonna frutescens, &c. Plum. spec. 1. ic. 46. f. 1.

Stem shrubby, peduncles crowded, corollas revolute, leaves oblong.]

6. *Atropa frutescens*. *Shrubby Atropa*.

Lin. spec. 260. Reich. 506.

Belladonna frutescens. &c. Tourn. inst. 77. Barr. ic. 1173.

Stem shrubby, peduncles crowded, leaves cordate-ovate, obtuse.

7. *Atropa herbacea*. *Herbaceous Atropa*.

Mill. dict. n. 3.

Stem herbaceous, leaves ovate nerved, with waved edges.

[8. *Atropa procumbens*. *Wheel-flowered Atropa*.

Cavan. hisp. n. 80. t. 72.

Stem procumbent, herbaceous: leaves twin, unequal, ovate, smooth: flowers in umbels.]

DESCRIPTIONS, &c.

1. Mandrake has a long taper root shaped like a Parsnep, which runs three or four feet deep in the ground; it is sometimes single, and at others divided into two or three branches, almost of the colour of the Parsnep, but a little darker: immediately from the crown of the root, arises a circle of leaves, which at first stand erect, but when grown to their full size, spread open, and lie upon the ground; they are more than a foot in length, and are four or five inches broad in the middle, growing narrow toward both ends, of a dark green colour, and a fetid scent. Among these come out the flowers, each on a scape about three inches long: they are five-cornered, of an herbaceous white colour, spreading open at top like a Primrose, having five hairy stamens, and a globular germ supporting an awl-shaped style, which becomes a globular soft berry, when full grown as large as a nutmeg, of a yellowish green colour when ripe, full of pulp. [Haller adds, that the leaves are ovate-lanceolate, and waved about the edges; that the flowers have a tinge of violet; and that a circular gland surrounds the germ, produced into two horns.]

Native of Spain, Portugal, Italy and the Levant. It flowers here in march, and the seeds are ripe in July: and it appears from Turner's herbal to have been cultivated in 1562.*]

The roots have been supposed to bear a resemblance to the human form, [and are figured as such in the old herbals, being distinguished into the male with a long beard, and the female with a prolix head of hair.] Mountebanks carry about fictitious images, shaped from roots of Bryony and other plants, cut into form or forced to grow, through moulds of earthen ware, as Mandrake roots. [It was fabled to grow under a gallows, where the matter falling from the dead body gave it the shape of a man; to utter a great shriek, or terrible groans at the digging up; and it was asserted, that he who would take up a plant of Mandrake should in common prudence tie a dog to it for that purpose, for if a man should do it himself, he would surely die

* Hort. kew.

soon after^d. The bare mention of such fables are a sufficient confutation of them, nor would they have been mentioned here had it not been for the allusions to them which occur in ancient authors. The whole plant is fetid, and reputed to be poisonous, though in small doses it was used medicinally, and particularly as an opiate.

2. Deadly Nightshade has a perennial, thick, long, branching root, sending out strong, herbaceous, upright, round, trichotomous, branching stems, from three to five feet, and sometimes six feet in height, frequently tinged with purple. The branches are dichotomous. The root-leaves are often a foot long and five inches broad: the stem-leaves are petioled, acute, soft, dusky green above and paler green beneath, a little hairy on both sides, and fattish to the touch, changing to a purple colour in the autumn: there are generally two leaves at each branch, one smaller than the other, running down along the short petiole. Peduncles axillary, one-flowered. Flowers large, nodding, void of scent, Calyx dirty green. Corolla lurid, within dusky purple and streaked, with a yellow variegated base, without greenish red, or dusky brown. Berry large, at first green, but when ripe of a beautiful shining black colour, full of purple juice, with roundish, dotted channelled seeds immersed in the pulp; and a glandular ring surrounding it^e. Scopoli observes, that there are two tubercles between the cells of the anthers; that the stigma is two-lobed; that the berry sits on the stellate calyx, is very succulent, obtuse, marked with small dots, and has two heart-shaped receptacles to which the seeds adhere.

It is a native of Europe, particularly of Austria and England, in church-yards and on dunghills, skulking in gloomy lanes and uncultivated places: in other countries it is said to be common in woods and hedges. With us it is not so common in a wild state, but that the places where it has been found may be set down. About Fulborn in Cambridgeshire, near Wisbech in the isle of Ely, Holland in Lincolnshire, between Tensford-mills and Welwyn in Herts, Charley forest and Grace Dieu in Leicestershire, North Luffenham in Rutland, Sutton-Cosfield in Warwickshire, Clifton-hill near Nottingham and Mansfield in the same county; and in Westmoreland. Mr. Miller observed it in Woodstock-park in Oxfordshire, and in Uppark in Hampshire. In the counties round London it is not very common, it has however been remarked about Rochester, between that and Maidstone, and near Faversham in Kent, about Harefield and More-park near Rickmansworth, at Dorking in Surry, and by old Gerarde near Highgate.

When this plant was found to differ from the *Solanums* or Nightshades, it assumed the Italian name of *Belladonna*, which was given it, according to some, because it was used as a wash among the ladies, to take off pimples and other excrescencies from the skin; or, according to others, from its quality of representing phantasms of beautiful women to the disturbed imagination.

The qualities of this plant are malignant, and it is extremely poisonous in all its parts. Numerous instances have occurred of the berries proving fatal, after causing convulsions, delirium, &c. Buchanan relates the destruction of the army of Sweno the Dane, when he invaded Scotland, by the berries of this plant which were mixed with the drink which the Scots, according to truce, were to supply the Danes with. The Danes became so inebriated that the Scottish army fell on them in their sleep, and slew such numbers that there were scarcely men enough left to carry off their king.

The case related by Mr. Ray is remarkable, viz. the dilatation of the pupil of the eye, caused by a part of a leaf of this plant applied outwardly, and which took place successively on the repetition of the experiment. With respect to the berries they have been frequently known to have been fatal to children,

^d Gerarde's herbal.

^e Haller. Pollich, Jacqu. Pultn.

and if a considerable number are eaten, to grown persons likewise. The symptoms are said to occur in less than half an hour after taking them, and consist of Vertigo, great thirst, delirium, swelling and redness of the face, &c. The general sensibility of the system is said to be weakened to a great degree, so that the stomach will bear a far larger dose of emetic medicines than it would otherwise have done. Vinegar liberally drank has been found efficacious in obviating the effects of the poison.

Dr. Hill relates a very remarkable case which occurred under his own observation. A labourer found some of the plant in the park of a nobleman where he was repairing the pales. He eat heartily of the berries, and gave some to his children. After two hours he grew giddy and unable to stand; was extremely thirsty, complained of dreadful pain in his breast, and difficulty of breathing. He afterwards fell into violent ravings which continued, with slight intervals, during great part of the night. All this time he was also afflicted with a very painful strangury. He recovered however sometime afterwards, without the assistance of medicine, but both the children died in the course of the night.

A remarkable instance of the malignant powers of this plant occurred a few years since under my own eye in the botanic garden at Cambridge, which fully proved, that the young shoots, early in the year, are not less deleterious than the berries.

The leaves are said to have been sometimes successfully applied in cancerous tumours.

The ingenious Dr. Milne, in his *Indigenous Botany*, has very properly remarked that nature has been more parsimonious in her warnings with respect to this plant, than to others of the same natural family. Neither the smell nor the taste is offensive; and if the colour of the flowers proves in some degree a repellent, that of the fruit, on the other hand, is in an equal degree, at least, attractive and inviting. Accordingly Belladonna, notwithstanding its deleterious nature is not totally excluded the precincts of physic: nay some diseases, and those of the most malignant kind, have been known to yield to the anodyne and antispasmodic virtues of this plant when administered with caution, after resisting the force of medicines, more innocent indeed, but of less powerful efficacy. Bergius relates that he has often given relief in epilepsy and convulsions, by the internal use of the powder of the leaves, taken in doses of from one to four grains twice a day; and Gesner, in his *Medical Epistles*, recommends the expressed juice of the berries, boiled with sugar into a syrup, and given a tea-spoonful at a time, as excellent in every case requiring an opiate, and as peculiarly efficacious in the cure of the dysentery. The reader however who is desirous of further information respecting the natural and medical history of this plant, will find his curiosity satisfactorily gratified by perusing the following works.

FABRI *Strychnomania*, &c. Aug. Vindel. 1677.

SICELII *Diatrise de Belladonna*. Jenæ, 1713.

TIMMERMAN *Periculum Medicum Belladonnæ*. Rintelii. 1765.

3. Root fibrous, annual. Stem two feet high, spreading, erect; branches angular. Leaves alternate, smooth, oblong, running down the petiole. Peduncles by the side of the petioles, solitary, naked, one-flowered. Calyx ovate, cut at the base, with five compressed angles, deeply five-parted; the leaflets sagittate-ovate. Corolla bell-shaped, slightly five-lobed, obtuse; border upright, a little plaited; colour blue with a white eye radiated with five blue spots. It has a nectary like that of *Campanula*, consisting of five valves, inclosing the germ, and supporting the filaments. Fruit nodding, covered with the pentangular calyx, the angles compressed and close shut, pointed at the base. Berry juiceless, with three, four or five cells. Seeds roundish compressed. It forms the connecting link between *Atropa* and *Physalis*; differing from the latter in the form of the corolla, in the divergence of the

the stamens, in having a five-parted calyx, and a capsule with several cells^d.]

The stem though herbaceous is very strong, in our gardens four or five feet high, and of a purplish colour, dividing into several branches, spreading out wide on every side. Leaves oblong, deeply sinuate, deep green. Peduncles short. Calyx large, bell-shaped. Corolla large, of the open bell-shape, of a light blue colour. Berries about the size of common cherries, inclosed in a large swelling bladder, having five sharp angles. It flowers in july, and the seeds ripen in the autumn.

Father Feuillée, who first discovered this plant in Peru; recommends it greatly for its virtues, and says, the Indians make great use of its berries to bring away gravel, and to relieve persons who have a stoppage of urine, and gives the manner of using them; which is, to bruise four or five of them either in common water or white wine. The younger Jussieu sent the seeds to Mr. Miller, [who cultivated this plant in 1759^e.

4. Stem six feet high, shrubby, somewhat branching and angular. Leaves alternate, usually many from the buds, petioled, quite entire, naked. Peduncles axillary, one-flowered, filiform, the length of the leaves; the flowers pendulous. Calyx bell-shaped, five-cleft. Corolla three times larger than the calyx, with lanceolate erect divisions. Stamens and pistils twice the length of the calyx. Native of the Cape of Good Hope^f.

5. This is a small tree, or rather a shrub. Stem smooth, branched; branches subdivided, round, scarred, rugged. Leaves petioled, alternate, in tufts towards the ends of the branches, lanceolate-ovate, acute, entire, nerved, wrinkled beneath, soft and hoary, of a dark colour. Flowers peduncled, heaped, scattered on the branches below the leaves, white, sweet-scented, nodding. Peduncles numerous (thirty to forty), long, filiform, one-flowered, whitish, smooth. Calyx short, tubular, four or five-cleft, whitish. Corolla somewhat bell-shaped: tube narrower at the base, swelling at top; border four or five-cleft, with equal, ovate, blunt, reflex segments. Filaments four or five, equal, twice as long as the corolla: anthers ovate, upright, two-valved. Germ roundish, superior. Berry roundish, soft, black, containing many seeds.

Native of South America and Jamaica, on the temperate mountains; flowering in autumn. The berries are commonly full of some worm^g.]

6. This rises with a shrubby stem to the height of six or eight feet, and divides into many branches. Leaves alternate, round, in shape like those of the Storax tree. The flowers come out between the leaves upon short peduncles, and are shaped like those of Deadly Nightshade, but are much smaller, of a dirty yellowish colour, with a few brown stripes: they are never succeeded by berries in England.

[Linneus remarks, that this agrees with *Physalis somnifera* in the habit, as well as in other respects; inasmuch that the limit of the two genera consists only in the five-parted calyx.

It is a native of Spain; and was cultivated by Mr. Miller in 1739^h.]

7. Root perennial, putting out several channelled herbaceous stems, about two feet high, dividing toward the top into two or three small branches. Leaves four inches long and three broad, having several transverse prominent ribs on their under side. The flowers come out from between the leaves on short peduncles; they are white, and shaped like those of Deadly Nightshade, but smaller. It flowers in july and august, but seldom ripens its fruit in England. The seeds were sent to Mr. Miller from Campeachy.

[8. Root annual. Stem grooved, much branched, three feet high; branches tender, somewhat villose. Leaves sharp-ovate, running down the pe-

tiote, smooth, quite entire, one-nerved, glaucous beneath. Common peduncle solitary, between two petioles, scarcely an inch in length; rays of the umbel few (two to five). Calyx half-five-cleft, shorter than the corolla, in the fruiting state augmented, always spreading. Corolla herbaceous yellow, wheel-shaped, spreading very much, the border five-cornered, rolled back a little, with sharp angles. Filaments erect, distant, each set into a small tubercle or prominence of the corolla round the germ; anthers ovate and upright. Germ globular, half standing out, superior. Berry smooth, two-celled; with a fungose, spherical receptacle, to which the seeds are fixed; these are numerous, red, smooth, orbicular, compressed. It differs somewhat from its congeners in having a wheel-shaped corolla. Native of Mexico. Cultivated in the royal garden at Madrid, where it flowers and fruits in octoberⁱ.]

PROPAGATION AND CULTURE.

1. Mandrake is propagated by seeds, which should be sown upon a bed of light earth soon after they are ripe, for if they are kept until the spring, they seldom succeed well; but those which are sown in autumn will come up in the spring, when they should be carefully cleared from weeds; and in very dry weather they must be refreshed with water, which will greatly promote their growth. In this bed they should remain to the end of august; when they must be taken up very carefully and transplanted into the places where they are to remain: the soil should be light and deep, for their roots run far down; but if the soil be wet, they are often rotted in winter, and if it be too near gravel or chalk, they will make little progress; but if the soil be good and they are not disturbed, the plants will grow to a large size in a few years, and will produce great quantities of flowers and fruit.

I have been informed by persons of credit that a root of Mandrake will remain sound above fifty years, and be as vigorous as a young plant. I know some plants myself near that age, which are now in great vigour, and may continue so many years longer, as there are no signs of their decay; but they should never be removed after their roots have arrived to any considerable size, for it breaks their lower fibres, and so stints the plants, as that, if they live, they will not recover their former strength in two or three years. These plants should have a warm situation, otherwise in severe winters they will be destroyed.

2. [Deadly Nightshade may be propagated both by its roots and by seeds. It loves a shady situation;] but on account of its deadly poison is rarely admitted into gardens. It should by no means be suffered to grow where children or common people resort, because they are likely to be attracted by the splendid black colour of the berries

3. If the seeds be permitted to scatter, the plants will come up the following spring; or if the seeds be sown on a bed of rich earth in the spring, the plants will rise easily, and may be afterward transplanted to the borders of the pleasure-garden, where they must be allowed room, for if the ground be good, the plants will grow very large.

4. &c. may be propagated by seeds, which should be sown in the spring on a hot-bed; when they are fit to remove, they should be each put into a separate small pot, filled with loamy earth, and shaded until they take root. The 4th and 6th may be placed with other hardy exotic plants in a sheltered situation, and in october they must be removed into the greenhouse. The 5th, 7th, and 8th, must be kept in the bark stove, to have them thrive well in this country.

The 7th may be increased by parting the roots in the spring.

[AUBLETIA. [So named in honour of M. Fusée Aublet, author of the history of plants in Guyana, 1775.)

^d Linnæus.

^e Hort. kew.

^f Linn. mant.

^g Swartz.

^h Hort. kew.

ⁱ Cavanilles.

A U B

Lin. gen. Schreb. n. 889. Apeiba. Aubl. t. 213.

Swartz prodr. 82. Sloanea. Læfl. 311.

Class. 13. 1. Polyandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth five-leaved, rigid, spreading, coloured within, pubescent without, deciduous, five-parted: parts linear-lanceolate, acute, with thick margins, which, before flowering, are contiguous.

COR. Petals five, roundish-oblong, smaller than the calyx: with very short claws.

STAM. Filaments very many, very short. Anthers ovate-oblong, outwardly gibbous, gaping on the inner side, foliaceous at the tip, acute: the exterior ones sterile, lanceolate, ending in a foliaceous point; shorter than the corolla.

PIST. Germ roundish, depressed. Style long, striated, gradually thickening, slightly incurved. Stigma spreading, perforated, ten-toothed.

PER. Capsule large, orbiculate, depressed, coriaceous, echinate, ten-celled, gaping at the base.

SEEDS very many, small, roundish, somewhat compressed. Receptacle of the seeds fleshy.

ESSENTIAL CHARACTER.

Cal. five-leaved. Cor. five-petalled. Caps. many-celled, echinate, with many seeds in each cell.

SPECIES.

1. Aubletia Tibourbou.

Apeiba Tibourbou. Aubl. guian. 538. t. 213. Swartz, prodr. 82.

Apeiba. Marogr. bras. 123. f. 124. Raii hist. 1643. Sloanea. Læfl. it. 311.

Leaves acutely serrate hirsute.

2. Aubletia Petoumo.

Apeiba Potoumo. Aubl. guian. 543. t. 215. Swartz, prodr. 82.

Leaves elliptic acute serrulate hoary beneath.

3. Aubletia aspera,

Apeiba aspera. Aubl. guian. 545. t. 216. Swartz, prodr. 82.

Leaves quite entire pubescent beneath, fruit compressed.

4. Aubletia lævis.

Apeiba glabra. Aubl. guian. 541. t. 214.

A. lævis. Swartz, prodr. 83.

Leaves quite entire, smooth on both sides: fruit rough depressed.

DESCRIPTIONS, &c.

1. This is a middling sized tree, with a trunk seven or eight feet high, about a foot in diameter, and an irregular, chopped, soft, thick bark, fibrous and fit for making ropes. The wood is white and light. Branches spreading in all directions, and bent down; twigs villose. Leaves alternate, ovate-oblong, cordate at the base, green above and wrinkled, having russet hairs underneath; they are set on short petioles. Stipules in pairs, opposite, oblong, acute, not deciduous. Flowers in racemes opposite to the leaves, consisting of alternate twigs with three or four peduncled flowers from the top of them. A pair of opposite bractes is placed at the origin of each twig, and there are three or four others at the peduncles. The raceme and peduncle are covered with russet-coloured hairs^a. Native of Brasil, Guiana, the islands of Cayenne, and Tobago. Apeiba is the Brazilian name, and it is called Tibourbou by the Caribbes. Aublet found it in flower and fruit from august to october.

2. This is a large tree, being often forty feet high, and a foot and half or more in diameter, with a brown thick filamentose bark fit for making cordage: the wood is light and of a white colour. The branches arise from the top of the trunk, and spread wide every way. Leaves alternate, nine inches long and four wide, entire, smooth, ending in a point, and rounded at the base, set on a petiole an inch and half in length; on each side of this is a large stipule, which soon falls. Flowers in racemes opposite to the leaves, with two bractes at their origin: they are divided into alternate branchlets, with a double bracte to each, and three flowers at the top, on long peduncles, surrounded by four large scales at the base. Corolla yellow.

^a Aublet.

A U C

Native of Guiana, in the vast forests of Sincemari; bearing flowers and fruit in october. It is called Petoumo by the Caribbes^b.

3. This is also a large tree, from thirty to forty feet in height, and a foot and half or more in diameter, with a grayish irregular thick filamentose bark proper for making cordage: the wood is light and white. The boughs are large, and divide into branches spreading in every direction. Leaves alternate, ovate, smooth, ending in a point, rounded at the base, five inches long and more, set on a short petiole, on each side of which at its base is a stipule, which soon falls. Flowers in racemes opposite to a leaf and at the extremity of the branches; there are two bractes at the base of the raceme, and three or four scales at each division of it; at the end are three scales, from which spring three flowers; the peduncles and pedicels are hirsute. Calyx four or five-parted, the segments yellow above, hirsute and russet-coloured beneath. Corolla yellow, four or five-petalled.

Native of Guiana, and the island of Cayenne, flowering and bearing fruit in the month of may. This is also called Petoumo by the Caribbes^c.

4. This is a tree of a middling size, its trunk being from ten to twelve feet in height, and eight or ten inches in diameter, with a smooth, thin, greenish bark: the wood is white, tender, and so light that the trunk may easily be carried in one hand: the branches spring from the top; both they and the twigs are smooth, spreading every way, and pendulous. Leaves ovate, acuminate, green on both sides, on short petioles. Stipules in pairs, short, deciduous. Flowers in racemes opposite to a leaf. Corolla greenish.

Native of Guiana; flowering and bearing fruit in the month of may. The inhabitants call it Ivouyra, and use pieces of the wood rounded and pointed to procure fire; whence the Creoles call it Bois de mèche^d.

Gærtner has given the name of Aubletia to the Rhizophora caseolaris of Linneus; and Loureiro, to a Chinese tree.]

[AUCUBA.

Thunb. jap. 4. nov. gen. 61. Lin. gen. Schreb. n. 1414. Juss. 382.

Class. 21. Monocœcia Tetrandria.

GENERIC CHARACTER.

* Male flowers.

CAL. Perianth one-leaved, truncate, obscurely four-toothed, villose, very short, permanent.

COR. four-petalled. Petals ovate, acute, spreading; underneath concave, hairy; above convex; deciduous.

STAM. Filaments four, inserted into the receptacle among the petals, thick, erect, very short. Anthers ovate, twin, with four furrows.

Recept. plano-convex, smooth, with a square hole impressed upon the middle.

* Female flowers on the same tree.

CAL. and COR. as in the Male.

PIST. Germ inferior. Style thick, short. Stigma simple, capitate.

PER. Nut ovate, one-celled.

ESSENTIAL CHARACTER.

MALE. Cal. four-toothed. Cor. four-petalled. Berry one-seeded.

FEM. Neet. none. Nut one-celled.

SPECIES.

1. Aucuba japonica.

Lin. syst. 848. Thunb. jap. 64. t. 12, 13. Kæmpf. amæn. fasc. 5. 775. ic. select. t. 6.

DESCRIPTION, &c.

A large tree. Branches and subdivisions dichotomous smooth rather fleshy divaricate erect angular scarred from the falling of the leaves. Leaves aggregate at the tops of the branches, petiolate opposite oblong sharp, remotely serrate smooth, pale underneath, a hand's breadth long, nerved. Flowers terminal paniced; panicle trichotomous, super-decompound. Peduncles and pedicels villose. Bractes lanceolate. It varies with brown-green, unspotted

^b Ibid.

^c Ibid.

^d Ibid.

leaves; and bright-green leaves variegated with white.—It is allied to the *Serpicula*, but distinguished from it by the receptacle of the male being smooth, not torulose, but perforated in the middle^a.

Native of Japan. Introduced 1783, by Mr. John Græfer^b.

AVELLANA. See *Corylus*.

AVENA. (From *aveo*, to desire or covet; cattle being fond of it.)

Engl. Oat and Oat-grafs. Fr. *Avoine*.

Lin. gen. 91. Reich. 97. Schreb. 122. Tournef. 297.

Class. 3. 2. Triandria Digynia.

Nat. order of Gramina or Grasses.

GENERIC CHARACTER.

CAL. Glume generally many-flowered, two-valved, loosely collecting the flowers: valves lanceolate, acute, ventricose, loose, large, awnless.

COR. two-valved: lower valve harder than the calyx, the size of the calyx, roundish, ventricose, acuminate at both ends, emitting from the back an awn spirally twisted; reflex as at the knee-joint. Nectary two-leaved; leaflets lanceolate, gibbous at the base.

STAM. Filaments three, capillary. Anthers oblong, forked.

PIST. Germ obtuse. Styles two, reflex, hairy. Stigmas simple.

PER. none. Corolla most firmly closed grows to the seed, and does not gape.

SEED one, slender-oblong, acuminate at both ends, marked with a longitudinal furrow.

ESSENTIAL CHARACTER.

Cal. two-valved, many-flowered. Awn from the back of the corolla, jointed, twisted.

SPECIES.

[1. *Avena fibrica*. Siberian Oat-grafs.

Lin. spec. 117. Reich. 220.

Festuca glumis villosis, aristis calyce triplo longioribus. Gmel. fib. 1. 113. t. 22.

Panicled; calyxes one-flowered; seeds hirsute; awns thrice the length of the calyx.

2. *Avena elatior*. Tall Oat-grafs.

Lin. spec. 117. Reich. 221. suec. 102. Hudf.

angl. 53. With. 112. Curtis lond. 3. 6. Hall.

belv. n. 1492. Pollich pal. n. 122. Leers

herborn. n. 88. t. 10. f. 4. Krock. filef. n. 177.

Oed. dan. t. 165. Schreb. gram. 25. t. 1. Fl.

rust. t. 7.

Holcus avenaceus. Scop. carn. n. 1239.

Gramen avenaceum elatius, juba longa splendente.

Raii meth. 179. syn. 406. Mor. bist. 3. 214. f. 8.

t. 7. f. 38. Scheuch. gram. 239. Ger. emac. 23. 1.

Park. 1176. 1.

β. *Gr. nodosum avenacea panicula*, radice tuberibus

prædita. Baub. pin. 2. prodr. 3. theat. 18.

Scheuch. gram. 237. t. 4. f. 27, 28. Monti. t. 76.

Ger. emac. 23. 2.

Panicled; calyxes two-flowered; hermaphrodite flos-
cule almost awnless, male awned.

3. *Avena stipiformis*.

Lin. syst. 121. Reich. 221. mant. 34.

Panicled; calyxes two-flowered; awns twice the length
of the seed; culm branching.

4. *Avena pensylvanica*. Pennsylvanian Oat-grafs.

Lin. spec. 117. Reich. 222.

Panicle attenuated; calyxes two-flowered; seeds vil-
lose; awns twice the length of the calyx.

5. *Avena loeflingiana*. Spanish Oat-grafs.

Lin. spec. 118. syst. 121. Reich. 222. suppl. 112.

Cavan. hisp. t. 45. f. 1.

Panicle contracted; floscules in pairs, hirsute; one
peduncled, with two awns at the top, the middle
awn longest.]

6. *Avena fativa*. Cultivated Oat.

Lin. spec. 118. Reich. 222. hort. cliff. 25. upf. 20.

mat. med. 47. Hall. belv. n. 1494. Krock.

filef. n. 178. Villars dauph. 2. 147. Blackw.

t. 422. Mill. illustr. fig. Plenck, ic. t. 43.

Fl. rust. t. 79.

A. disperma. Mill. dict.

^a Thunberg.

^b Hort, kew.

VARIETIES.

1. *A. alba*. Baub. pin. 23. Baub. bist. 2. 432.
Raii bist. 1253. White Oat.

2. *A. nigra*. Baub. pin. 23. Raii bist. 1253. Black Oat.

3. *A. fusca* f. *rubra*. Mor. bist. 3. 209. n. 2. Plot.
staff. 204. Brown or red Oat.

4. *A. cærulea*. Merr. pin. Raii syn. 389. Blue Oat.
Panicled; calyxes two-seeded; seeds very smooth, one
awned.

[7. *Avena nuda*. Naked Oat, Pilcorn, or Pillis.

Lin. spec. 118. Reich. 222. amæn. 3. 401. Hudf.

angl. 52. With. 113. Baub. pin. 23. Baub.

bist. 2. 433. Raii syn. 389. bist. 1254. Lob.

ic. 32. Mor. bist. 3. f. 8. t. 7. f. 4. Ger. 68. 2.

emac. 75. 2. Park. 1134. 2. Fl. rust. t. 80.

Panicled; calyxes three-flowered; receptacle exceeding
the calyx; petals awned at the back; the third
floscule awnless.

8. *Avena fatua*. Bearded wild Oat, or Haver.

Lin. spec. 118. Reich. 223. lapp. 30. suec. 101.

Hudf. angl. 52. With. 113. Light. scot. 105.

Hall. belv. n. 1495. Pollich pal. n. 123. Neck.

gallob. 67. Leers herborn. n. 90. t. 9. f. 4.

Krock. filef. n. 182. Villars dauph. 2. 147. Schreb.

gram. 109. t. 15. Mor. bist. 3. 209. f. 8. t. 7.

f. 5. Fl. rust. t. 81. Mill. illustr.

Festuca. Baub. pin. 10. n. 13.

Ægilops. Raii syn. 389. 7. bist. 1254. 4.

Panicled; calyxes three-flowered; all the floscules

awned and hairy at the base.

9. *Avena fefquiteria*.

Lin. syst. 122. Reich. 223. mant. 34. Allion.

pedem. n. 1260.

Gr. pratense villosum, &c. Scheuch. gram. 220.

t. 4. f. 17.

Panicled; calyxes subtriflorous; all the floscules awned;
receptacles bearded.

10. *Avena pubescens*. Soft Oat-grafs.

Lin. spec. 1165. syst. 122. Reich. 223. mant. 327.

Hudf. angl. 52. With. 114. Hall. belv. n. 1498.

Gmel. fib. 1. 129. Pollich pal. n. 126. Leers

herborn. n. 91. t. 9. f. 2.

A. pratensis. Gort. ingr. 15.—prat. β. Lin.

spec. 119. Neck. gallob. 67.

Gr. avenaceum hirsutum, panic. purpuro-argentea

splendente. Raii syn. 406. t. 21. f. 2. Scheuch.

gram. 226. t. 4. f. 20. Monti, 65.

Festuca dumetorum. Baub. pin. 10. prodr. 19.

Subspiked; calyxes subtriflorous, upper florets hairy at
the base; leaves flat, pubescent.

11. *Avena sterilis*. Great wild Oat, or bearded Oat-
grafs.

Lin. spec. 118. syst. 122. Reich. 244. Jacqu.

collect. 1. 90.

Gr. avenac. Scheuch. t. 5. f. 1. Barrel. ic. 75. 2.—

maximum, &c. Magn. monsp.

Ægilops. Baub. bist. 2. 443. Ger. emac. 77. Park.

theat. 1148. 4.—mauritanica, &c. Pet. gaz. t. 38.

f. 7.

Panicled; calyxes five-flowered; the outer floscules and
awns hairy at the base, the inner ones awnless.]

12. *Avena flavesens*. Yellow Oat-grafs.

Lin. spec. 118. syst. 122. Reich. 224. mant. 326.

suec. n. 103. Hudf. angl. 53. With. 114.

Curtis lond. 3. 5. Lightf. scot. 106. Relh.

cantabr. n. 97. Hall. belv. n. 1467. Gmel.

fib. 1. 129. n. 67. Pollich pal. n. 124. Neck.

gallob. 68. Leers herborn. 93. t. 10. f. 5.

Schreb. gram. 76. t. 9.

Gr. avenac. &c. Scheuch. gram. 225. t. 4. f. 19.

& 220. t. 4. f. 17.

β. *Gr. aven. pratense elatius*, panic. flavescente, lo-

custis parvis. Raii syn. 407. bist. 1284. Scheuch.

gram. 223. t. 4. f. 18. Monti, 55. t. 79. Mor.

bist. 3. 215. f. 8. t. 7. f. 42. Mill. dict. n. 5.

Panicle loose; calyxes three-flowered short; all the
florets awned.

[13 *Avena hispida*.

Lin. syst. 122. suppl. 111.

A. capensis. Burm. prodr. 3.

Panicled; calyxes three-flowered, hairy.

14. *Avena*

14. *Avena capensis*.
Lin. syst. 122. *suppl.* 112.
Panicle contracted; calyxes three-flowered subulate; corolla pubescent; middle awn twisted curved.
15. *Avena purpurea*.
Lin. syst. 122. *suppl.* 112.
Panicle contracted; calyxes two-flowered, ovate; corollas villose; outer glume bifid; awn terminal bent in.
16. *Avena lutea*.
Lin. syst. 122. *suppl.* 112.
Panicle spreading; calyxes two-flowered, subulate; corollas naked three-awned, middle awn flexuose.
17. *Avena lupulina*.
Lin. syst. 122. *suppl.* 113.
Panicle contracted, ovate; calyxes three-flowered, lanceolate; corollas villose; outer glume bisubulate; middle awn reflex.
18. *Avena fragilis*. *Brittle Oat-grass*.
Lin. spec. 119. *syst.* 122. *Reich.* 225. *mant.* 326.
Schreb. gram. t. 24. f. 3.
Spiked; calyxes four-flowered, longer than the floret.
19. *Avena pratensis*. *Meadow Oat-grass*.
Lin. spec. 119. *Reich.* 225. *mant.* 327. *lapp.* 31.
succ. n. 104. *Huds. angl.* 52. *With.* 115. *Lightf.*
scot. 105. *Relb. cantabr. n.* 96. *Hall. belv.*
n. 1499. *Gmel. fib.* 1. 127. *Pollich pal. n.* 125.
Leers herb. n. 92. t. 9. f. 1. *D'Affo ara-*
gon. 91.
Gr. avenac. montanum, spica simplici, aristis recurvis. Raii syn. 405. t. 21. f. 1. *hist.* 1290.
Scheuch. gram. 230. *Mor. hist.* 3. 217. f. 8. t. 7.
f. 21. *Vaill. par. t.* 18. f. 1. *Monti,* 66.
Subspiked; calyxes five-flowered, florets smooth, leaves channelled smooth.
20. *Avena spicata*.
Lin. spec. 119. *Reich.* 225.
Spiked; calyxes six-flowered, longer than the outer petal, which is awned and forked at top.
21. *Avena bromoides*.
Lin. spec. 1661. *Reich.* 226. *Gouan. hort. monsp.* 52.
Gr. alpinum avenac. glabrum, &c. Scheuch. gram.
228. t. 4. f. 21, 22.
Subspiked; spicules binate; one peduncled; awns divaricate; calyxes eight-flowered.
22. *Avena strigosa*.
Retz. obs. 1. n. 13. *With.* 115. *Schreb. spic.* 52.
Panicked; calyxes two-flowered; corolla smooth at the base; outer valve ending in two awns shorter than the valve, and with a bent awn from the back.
23. *Avena aurata*. *Golden Oat-grass*.
Allion. pedem. n. 2254. *Hall. belv.* 1488.
Calyxes two-flowered; panicle sparse, erect; corollas golden, villose at the base.
24. *Avena Scheuchzeri*.
Allion. pedem. n. 2259. *Hall. belv. n.* 1500.
Scheuch. itin. 6. 455. t. 19. *gram.* 23. t. 3.
Locustas round, five-flowered, pubescent at the base; peduncles branching.
25. *Avena filiformis*.
Forst. florul. n. 46.
Panicle erect very slender, calyxes one-flowered, awns twice the length of the calyx.

DESCRIPTIONS, &c.

1. Culms from two to three feet in height, very slender. Leaves rolled up, so as to appear like rushes, from six inches to a foot in length. Panicle frequently directed entirely to one side, resembling a spike, from three to nine inches long, green purple or variegated. Glumes of the calyx almost equal, remarkably dagger-pointed, membranaceous towards the point, about four lines in length. Glumes of the corolla of the same length or a little shorter, extremely villose^a.

Native of Siberia. Introduced in 1777, by Mess. Kennedy and Lee. It flowers in July and August^b.

2. Root perennial. Stems from two to three feet high or more, upright, round, smooth, having four or five purplish joints. Leaves six or seven inches, or even a foot in length, from two to three lines in breadth, together with the sheath striated

and smooth. Panicle from a span to a foot in length, upright, shining, consisting of numerous branches, unequal in length, directed mostly to one side, when young contracted, spreading when in full flower, afterwards contracting again, and bending a little at top. Spikelets two-flowered, one male the other hermaphrodite. Valves of the calyx unequal, membranous, pointed, whitish; the largest marked with three, the smallest with one green nerve: valves of the male corolla equal in length, the largest hollow, six-ribbed, generally purple at top, pointed, and awned from below the middle, awn longer than the spikelet and jointed, the bottom part spirally twisted, the upper bristle-shaped; the least valve flattish and terminating in two points: in the hermaphrodite flower, the midrib of the outer valve runs out into a short awn, and the bottom is covered with numerous hairs. Nectary, two small glumes, lanceolate, somewhat globular at bottom. Germ villous^c.

Linneus remarks, that the fertile florets have a very short awn, almost at the end of the glume; whereas the male florets have a longer awn inserted towards the base. But Mr. Curtis observes, that this grass varies in its awns, and that in general there is only one awn to each spikelet. Sometimes each floret has an awn, one usually longer than the other: but no character is more inconstant than this of the awn or beard.

Tall Oat-grass is common on banks, in hedges, on the borders of fields, and sometimes of meadows, especially wet ones; flowering in June and July.

It is an early grass, very productive, and yields a plentiful aftermath^d. The stem and leaves are by no means coarse, but soft, tender, and of a pleasant taste; and it may be propagated with facility. Some foreign writers seem to have mistaken this for our Ray-grass, from which it differs most widely. It is cultivated in some places abroad, and may perhaps be no bad substitute for Meadow Fox-tail grass^e.

β. In particular situations, the upper part of the root, or rather the base of the stem becomes knobby, and it then forms the *Gramen caninum nodosum* of Gerard. This in some arable land is very troublesome, and is one of several grasses confounded under the name of Quich or Couch^f.

3. Culms a foot high, often reclining, smooth, with brown joints. Branches short, from each axil. Panicle like that of oats, but small, one glume of the calyx lanceolate, the other ovate. Florets two, sessile. Corolla smooth, except that the outer glume is rough with hairs at the base. Awn terminating, rough, half as long again as the glume. Native of the Cape of Good Hope^g.

4. Observed in Pennsylvania, by Kalm. Introduced here in 1785, by William Pitcairn, M. D.^h

5. Root annual, capillary. Culms several, slender, from two to four inches high. Leaves short, flattish; the sheath of the upper one ventricose. Flowers in a contracted panicle, half an inch in length. Calyx two-flowered, about the same length with the florets, or according to Linneus longer. One of the florets is sessile, the other on a villose pedicel. Valves of the corolla bristle-shaped at the tip, with a twisted awn on the back twice the length of the valve. In dry soil near Madridⁱ, and at the Cape of Good Hope^k. Introduced here in 1770, by Mons. Richard^l.

6. Root annual, fibrous. Culm or straw two feet high and upwards. Panicle various in the different varieties, but always loose with the subdivisions of it on long peduncles and pendulous. The two glumes or chaffs of the calyx are marked with lines, pointed at the end, longer than the flower and unequal. There are usually two flowers and seeds in each calyx: they are alternate, conical, the smaller one is awnless, the larger puts forth a strong, two-

^a Curtis.^b Ibid.^c Curtis pract. obs.^d Curtis lond.^e Linneus.^f Hort. kew.^g Cavanilles.^h Linn.ⁱ Hort. kew.^j Gmelin.^k Hort. kew.

coloured,

coloured, bent awn from the middle of the back; both are cartilaginous and fertile^m.

No botanist has been able to ascertain satisfactorily the native place of growth of this or any other sort of grain now commonly cultivated in Europe.]

There are three sorts of Oats cultivated in England, viz. the white, the black, and the brown or red Oat; [to which we may add the blue, the Poland, the Friezland or Dutch, and the Siberian or Tartarian Oat.]

The White sort is the most common about London, makes the whitest meal, and is chiefly cultivated where the inhabitants live much upon oat-cakes. The Black is more cultivated in the northern parts of England, and is esteemed a hearty food for horses. The Red Oat is much cultivated in Derbyshire, Staffordshire, and Cheshire, but is rarely seen in any of the counties near London; though, as it is a very hardy sort, and gives a good increase, it would be well worth propagating, especially in strong land: the straw is of a brownish red colour, as is also the grain, which is very full and heavy, and esteemed better food for horses than either of the former sorts.

[The Blue Oat is said, in Merrett's pinax, and Ray's synopsis, to have been sown about Kighley in Yorkshire. It is probably the same with what is cultivated in Lincolnshire, &c. under the name of Scotch Greys.

The Poland Oat has a short plump grain, but the thickness of the skin seems to have brought it into disrepute among farmers. The grains are mostly single, it has no awn, and the straw is shortⁿ. This was sown by Mr. Lisle in 1709.

Friezland or Dutch Oat affords more straw, and is thinner skinned. The grains are mostly double, the larger one sometimes awned, with the awn placed high.

Siberian or Tartarian Oat, is according to Mr. Marshall, a distinct species, unnoticed by Linneus. Each flower frequently contains three perfect florets, never less than two, with a pedicelled rudiment of a third. The panicle differs essentially from all the varieties of *Avena sativa*, the grains are thin and small, the largest awned, the small ones awnless; the straw being tall and reedy. *Avena arundinacea* would be a proper name for it^o.]

The Oat is a very profitable grain, and esteemed the most wholesome food for horses, being sweet, and of an opening nature: other sorts of grain are apt to bind, which is injurious to labouring horses; but if they be fed with this grain soon after it is housed, before it has had a sweat in the mow, or has been otherwise dried, it is as bad on the other hand, for it is then too laxative.

This grain is a great improvement to many estates in the north of England, Scotland, and Wales; for it will thrive on cold barren soils, which will produce no other sort of grain; it will also thrive on the hottest land: in short, there is no soil too rich or too poor, too hot or too cold for it; and in wet harvests, when other grain is spoiled, this will receive little or no damage; the straw and husks being of so dry a nature, that if they are housed wet, they will not heat in the mow, or become mouldy, as other grain usually do; it is therefore of great advantage in the northern parts of England, and in Scotland, where their harvest is generally late, and the autumns wet.

The meal of this grain makes tolerably good bread, and is the common food of the country people in the north. In the south it is esteemed for pottage, and other messes, and in some places they make beer with it.

7. [Naked Oat, as Linneus observes, is very nearly allied to the foregoing, differing in little else, except that the grains quit the husks, and fall naked when they are ripe. Haller remarks, that although the calyxes are said to be three-flowered,

yet there are sometimes only two flowers in a calyx: he adds, that the awn is neither twisted nor jointed. Ray says, that it has not a hard husk, like the common Oat, but several thin chaffy coats; that the grain also is smaller, but fuller bodied, and inclining to tawny, like the Red Oat.

Gerard relates (1597) that in Norfolk and Suffolk these are called unhulled or naked Oats: it does not appear that they are now cultivated in those counties. Worlidge (1687) affirms, that the Naked Oat has been yearly sown about Durham above these thirty years. Dr. Plot (1686) reports, that it was sown at Burton upon Trent; and Mr. Ray informs us, that in his time it was cultivated abundantly in the farther part of Cornwall, where it fetched no less a price than Wheat.

It is still sown there in the poorest croft-land that has been tilled two or three seasons before with potatoes, and for the uses of the poor answers all the purposes of oatmeal. It is a small yellow grain, and for fattening calves, accounted superior to any other nourishment^p.]

Mr. Miller says, that the Naked Oat is less common than the others, especially in the southern parts of England; but in the north of England, Scotland, and Wales, it is cultivated in plenty. This sort is esteemed, because the grain threshes clean out of the husk, and need not be carried to the mill to be made into oatmeal or grist. An acre of ground doth not yield so many bushels of these, as of the common Oats, by reason the grain is small and naked, and goes near in measure; but what is wanting in the measure, is supplied in value.

[It must be observed, that the above paragraph is copied from Worlidge, and that the Naked Oat is not sown now to the extent which he says it was in his time.

Naked Oat is called *Pillis*, or *Pilex*, according to the orthography in Borlase, or *Pilk-corn*, from its quality of depositing the husk or chaff. *Pill*, which we now write *peel*, being formerly put for the outer coat of any sort of fruit.

8. Our bearded wild Oat or Haver has an annual root. It is a taller plant than the cultivated Oat, the culm or straw being commonly three and frequently four feet in height; it is erect, firm, leafy; smooth, with four joints or knots. Sheaths streaked, smooth. Leaves smooth to appearance, but rough to the touch along the edge if stroked downwards. Panicle very large and thin, pyramidal, with spreading branches, some of them dividing towards the top, from one to six at a knot, when ripe pendulous. Peduncles compressed, scabrous. Valves of the calyx from nine to eleven lines long, with from nine to eleven ribs, whitish green, longer than the flowers, the outer valve generally a line shorter than the inner, containing two florets, both awned; the third is often wanting. The corolla has tufts of hair at the base: the outer valve is even, the ribs not being prominent, beset with whitish hairs about the insertion of the awn, and some few scattered ones between it and the base, slightly cloven at the end, but readily separable to the depth of two lines, fawn-coloured when ripe. A strong rough awn, twice as long as the corolla, springs from a third part of the length of the back; it is bent aside about a line above the point of the valve; the inner valve is much shorter. The seed has a hairy covering.

This is one of our most destructive annual weeds among corn, and is too frequently so prevalent among barley, as almost to choke it. The seed ripens and falls before harvest, thus filling the ground, in which it will lie several years without vegetating. It cannot easily be extirpated without repeated fallowing, or by laying down the land to grass.

The awns are sometimes used for hygrometers, and the seeds instead of artificial flies, in fishing for trout.

^m Haller.

ⁿ Marshall's Yorkshire.

^o Yorkshire.

^p Borlase's Cornwall, p. 37.

^q Haller, Leers, St. in With.

The *sterilis avena* of Virgil, or the wild Oat of southern Europe, is a species different from this. See n. 11.

9. Panicle oblong. The flowers appear to be hairy, but all the hairs sit on pedicels or receptacles within the calyx, among the flowers. The third flower is imperfect, and does not get beyond a rudiment, it has however a small awn^{*}.

In Haller's opinion, it is only a variety of the *flavescens*^{*}.

Native of Germany, Switzerland, Austria, and Piedmont.

10. The panicle is contracted or squeezed close, so as almost to put on the appearance of a spike; it is of a purplish shining silvery hue. Florets sometimes only two, sometimes four, and in more luxuriant plants five. Peduncles covered with a close white down, which is short towards the base, but at the point next the base of the floret long^{*}.

According to Linneus, it is very nearly allied to the *pratensis* (n. 19.), only the leaves are flat, not involute. Necker (gallob. 67.) makes this a mere variety of that.

It is a perennial grass; hardy, early, and productive. Native of Portugal, France, Germany, England, Siberia: with us it grows in dry and chalky soils.

11. Root annual. Culms three or four feet high, round, upright, smooth. Leaves smooth, flat, sharp, the longest a foot and half in length. The middle stem or rachis of the panicle is upright, round, and half a foot long or more; the side peduncles are one-flowered, spreading very much, filiform, angular, rugged if drawn backwards through the fingers; the lower ones are in whorls and of different lengths. Flowers pendulous. Calyxes four or five-flowered; valves lanceolate-acuminate, concave, equal, smooth, white with green streaks. In the two outer florets, the outer valve of the corolla resembles a valve of the calyx in form, but is a little shorter, rugged along the streaks, from the base to above the middle closely beset with white hairs, and from the back below the middle putting forth an awn, which is two inches in length, rugged backwards, brown and thick at bottom, bent at an angle, and above the joint green; in the flower upright, in the fruit reflex; in the other opposite floret a little longer: the other valve is flat and has no hairs; at each edge it rises into a rough green nerve. The other florets are awnless, successively small, and commonly without hairs. The uppermost is always barren. Anthers oblong, pale yellow, scarcely emerging from the corolla. Germ oblong, round, hirsute. Seeds whitish, silky especially towards the tip^{*}.

Native of Barbary; also of Spain according to Linneus; and supposed to be the *sterilis avena* of the southern countries of Europe. It flowers in June there; with us in July; and was introduced into Kew garden in 1777, by Mons. Thouin^{*}.

12. Yellow Oat-grass has a perennial creeping root. Culm eighteen inches, or from one to two feet high, slender, upright, round, with three or four purplish joints, about which are numerous short hairs. Leaves flat, two lines in breadth, the upper surface hairy, the under smooth: sheath streaked, hairy especially towards the base. Panicle three inches and more in length, when in flower spreading wide, yellowish green and upright, afterwards closing, with the spicules mostly one way, becoming yellowish brown and shining. Calyxes contain two or three, sometimes four florets, all awned, one of them sometimes abortive. Valves of the calyx unequal, membranous, pointed. Valves of the corolla also unequal, the least in a manner transparent, membranous, white and bifid, the largest marked with three or four green nerves, hollow, bifid and awned. Nectary two small glumes the length of the germ, jagged at top. Awn from the

middle of the back of the larger valve, straight, almost twice the length of the valve, when the plant is dry recurved.

This species is easily distinguished from the others by its being the least of the genus commonly known; by having its panicle finely divided, and of a yellowish hue; its spikelets small, delicate, generally containing two perfect flowers; and by having its leaves and stems constantly hairy. It becomes larger when cultivated, and the spikelets have then three or more flowers^y.

Leers has a variety which is viviparous; and Scopoli joins several of these species, under the name of *Avena pilosa*^z.

This grass is found in most pastures, especially high ones, in some meadows, and frequently on banks by road sides. In many of our counties it forms a principal part of the finest pasturage on the downs, and in some meadows contributes to the goodness as well as greatness of the crop. It is not so early as many of the Poas, nor is it so late as some of the *Agrostis* genus: it is by no means unproductive, and bids fair to make a good sheep pasture^z. This is one of the grasses which Mr. Miller recommends for cultivation, next to the Poas or Meadow-grasses, which he prefers to all others. Dr. Withering affirms that cattle are not fond of it, which must surely be a mistake.

13. Culms a foot high, upright, smooth. Sheaths hairy. Panicle or raceme with pedicels undivided, three or four. Glumes oblong, acuminate, hairy, upright. Corolla awl-shaped. Awns twisted, twice or three times the length of the flowers^b.

14. Root creeping. Leaves few, smooth with a rugged edge. Culms a foot high, smooth. Panicle with the appearance of a spike, ovate-oblong, purple; the last pedicels capillary. Calyx the length of the flower, the two valves equal, attenuated into an awn. Outer valve of the corolla subpubescent, bifid, terminated by two straight awns, and an intermediate one twisted, double the length of the others; inner valve short.

This and the foregoing are natives of the Cape^c.

15. This is a very smooth little jointed grass. Leaves bristle-shaped smooth tufted short, like those of *Festuca ovina*. Panicle small. Glumes of the calyx purple, valves lanceolate keeled smooth. All the florets are awned, and covered with white down.

16. In habit and colour this resembles *Aira flexuosa*. Both these are natives of Martinico^d.

17. This is distinguished with difficulty from *A. purpurea*, although it be quite a different species. It is larger, with the sheaths extremely tomentose, so as to be quite white. Panicle yellow, not purple, closely crowded into the form of a hop. Flowers longer, with the corollas bifid and more hirsute; the divisions subulate-awned, not obtuse as in the *purpurea*. Native of the Cape of Good Hope, where it was observed by Thunberg^e.

18. Root annual. Culms many smooth with three joints, six or seven inches high, when in flower ascending. Leaves flat, almost naked, ciliate about the edge; sheaths hairy. Spike the length of the culm, with a compressed rachis, and the florets in a double row, pressed close and alternate. Calyx two or four-flowered lateral oblong pubescent; one valve twice as long as the other. Outer valve of the corolla sharp, with an awn from the back. This grass bears a genuine spike, which is singular in the genus *Avena*^f.

Native of Spain and Portugal. Introduced in 1770, by Mons. Richard^g.

19. Root perennial. Culm a foot high, with about five knots. Sheaths streaked. Leaves smooth, channelled, narrow, stiff, frequently turning inwards. Panicle compact, almost erect, scarcely divided; the spikelets are sometimes all single, but generally the lowermost divide into two; they are oblong,

^{*} Linneus.

^{*} Helv. n. 1497.

^{*} Scheuch. & St. in With.

^u Jacquin.

^z Hort. kew.

^y Curtis.

^c Ibid.

^z Fl. carn. n. 124.

^d Ibid.

^e Ibid.

^a Curtis.

^f Ibid.

^b Linneus.

^g Hort. kew.

linear, gray above, green beneath, ten-flowered. Peduncles filiform, spreading a little, somewhat flexuose, divaricate, bare towards the base. Florets smooth, the upper one in each spikelet barren. Calyx rough downwards, the larger glume ovate. Awns bent back^h.

Native of Europe and Siberia, on dry pastures and heaths. It flowers in July.

20. Spike compounded of three or four remote, upright spikelets, on very short peduncles. Flowers six, sessile, upright. Calyx subulate, equal, longer than the spikelet; the outer petal has a bifid top, with a jointed awn between the divisions, the length of the spikelet. It has the habit of *Festuca decumbens*. Native of Pennsylvaniaⁱ.

21. Height two feet. Culm round, scarcely the thickness of a needle. Spikelets round, generally in pairs, one sessile the other peduncled, upright, silvery; sometimes solitary, alternate, sessile or peduncled. Calyxes four to eight-flowered, awns from the middle of the back, twisted, divaricate. It has the air of *Bromus squarrosus*.^k Native of Switzerland and the neighbourhood of Montpellier.

Haller regards it as a variety of *Avena pratensis*.

22. Root annual. Culm and leaves bare. Panicle slightly nodding. Peduncles from one to four, rough. Calyx the length of the florets; the valves have from seven to ten ribs, bordered on each side with a row of minute dots the upper valve eight lines long, the lower from six to seven. Outer valve of the corolla smooth below, about the insertion of the awn, in some specimens, beset with long white hairs, above the awn scored, rough, cloven at the end to within a line of the insertion of the awn; segments terminating in purple awns, whitish at the end. Seeds hairy. Native of Europe, among Oats, Barley, and sometimes Rie^l.

23. This is a handsome grass. Culms nine inches high. Leaves bristle-shaped, very slender. Panicle stiff, with the spikelets mucronate. Glumes of the calyx mucronate, longer than the floret, one shorter than the other. Corolla elliptic, pubescent at the base: top plaited, ferrate; at the base of the outer glume a jointed awn, longer than the flower. Seed oblong, acute. Whilst the plant is young the calyx is greenish, the corolla shining pale yellow; but when arrived at maturity, the whole culm, calyx and corolla are of a resplendent gold colour^m.

Native of the alps of Switzerland and Piedmont.

24. Culm from six to twelve inches in height. Leaves smooth, less rigid than in *Avena pratensis*, two lines broad and keeled. Panicle of the same length as in that, narrow, like a spike. Spikelets four or five-flowered, less by half than in *Avena pratensis*. Calyx shining, purple, curved at top; the glumes unequal, mucronate. Outer glume of the corolla green, bay and gold colour variegated, mucronate; inner membranaceous, gold and silver variegated. Awn long, brown, jointed, twistedⁿ.

Native of the alps of Switzerland, Savoy, and Piedmont.

25. Native of New Zealand and Easter island^o.]

PROPAGATION AND CULTURE.

For the Grasses, see GRASS.

O A T.

The best time for sowing Oats is in February or March, according as the season is early or late; and sometimes I have known them sown in April upon cold land, and they have been early ripe. The Black and Red Oats may be sown a month earlier than the White, because they are hardier.

[In the papers of the Bath agricultural society, there is an experiment made in order to ascertain the effect of early sowing. Black Oats were sown on the 27th and 28th of February, which is a month sooner than the common practice. The quantity sown was four Winchester bushels to the acre. The land was a mellow, deep, sandy loam, on which po-

tatoes had grown. The produce was ninety-eight bushels and a quarter to the acre. The success however is not imputed wholly to early sowing, but partly to good deep tillage^p.

White Oats sown the last week in May, have produced seven quarters to the acre. In Hertfordshire they do not put them in till they have done sowing Barley; in Suffolk, on the contrary, they are sown before Barley. The former practice is seemingly the best, this Oat being more tender^q.

Mr. Marshall gives the blowing of the Sallow as a direction for the time of sowing this grain.]

Oats are often sown on land which has the former year produced wheat, rye, or barley. The common method is to plough in the stubble about the beginning of February, and sow the Oats, and harrow them in; but they must be harrowed the same way as the furrows lie, for if it be done crosswise, the stubble will be raised on the surface; but this is not a good method of husbandry, for when there is time to plough the stubble in autumn, it will rot in winter, and then giving the land another ploughing and a good harrowing just before the Oats are sown, it will make the ground finer and better to receive the grain. Oats are also sown upon land when it is first broken up, before the ground is brought to a tilth for other grain, and are frequently put in upon the sward with one ploughing; but it is much better to give the sward time to rot before the seed is sown, for the roots of the grass will prevent those of the corn from striking downward.

Most people allow four bushels of Oats to an acre, but I am convinced that three bushels are more than enough; the usual produce is about twenty-five bushels to an acre, though I have sometimes known more than thirty bushels. [This is no very great crop, forty bushels and upwards being no very unusual produce; but not from sowing thin. With respect to the proper quantity of seed to be sown, practical men differ widely in opinion.]

It appears from Mr. Young's tour through the southern counties, that the quantity of Oats sown varies from five bushels two pecks to two bushels and an half; and that the produce from the several quantities sown is as follows:

	Q.	B.	P.
From 5 bushels and upwards	-	-	4 6 0
4 bushels	-	-	4 2 2
4 to 5 bushels	-	-	3 6 0
3 bushels and an half	-	-	2 2 0
2 bushels and an half	-	-	2 0 0

Mr. Young says, that he shall not venture to decide the most beneficial quantities of seed from this table, but that he thinks we may fairly venture to reject the undistinguishing recommendations which have been given, by several authors, in favour of using very small quantities of seed. Two bushels, and even one, have been named as seed enough for an acre, but this table proves the direct contrary. Four bushels are the most common quantity; if these gentlemen's opinions were founded on various practice, those farmers who use more than that would reap much less crops than their neighbours, instead of which they reap much greater. It is well known indeed that very small quantities of seed should be sown on land excessively rich. A gentleman farmer may make his field as rich as a garden, and then find that one or two bushels of Oats are sufficient to be sown on an acre; but he is not therefore to condemn his neighbours who sow more; the quantity of seed should be proportioned to the poverty of the ground; for in rich land corn tillers so much as apparently to cover the field, but in poor land it does not tiller at all, consequently the grains should be so much the nearer.

Mr. Young, in his Northern Tour, gives another table of the different quantities of seed sown, with their respective average produce, as follows.

^h Linn. Leers, Lightf. St. in With.

ⁱ Retz, Schreb. With.

^m Haller.

^k Linn.

ⁿ Ibid.

^o Gouan.

^p Forster.

^q Vol. 4. p. 281.

^r Young's annals, '9. 98.

A V E

	Q.	B.	P.
From 7 bushels sown, average produce	6	0	3
6 bushels - - - -	6	0	1
5 bushels - - - -	4	4	2
4 bushels and a half - -	4	5	1
4 bushels - - - -	4	0	0
3 bushels - - - -	4	1	0

Or thus :

From 6 and 7 bushels, average produce	6	0	2
4 bushels and a half and five -	4	4	3
3 and 4 bushels - - - -	4	0	2

Here he remarks, that although some circumstances remain doubtful from the above scale, yet the superiority of six or seven bushels is so great, that there is abundant reason to think the other quantities are not equal to these in advantage; and that the modern ideas of sowing small quantities of seed are not universally to be adopted. He recommends that experiments should be tried on all sorts of soils, and in every situation, on small pieces of land, to decide this important point.

Though Mr. Young is decidedly of opinion that the quantity of the seed should be proportioned to the poverty of the ground, yet there are not wanting others who say that poor soils ought not to be loaded with too much seed, and that six or seven bushels an acre would utterly destroy cold clay lands. On a rich soil Oats, if sown thin, are very apt to run to straw; and one capital advantage is certainly gained by sowing thick, which is, that the weeds are thereby effectually smothered.

AVENA. See *Agrostis*, *Aira*, *Anthoxanthum*, *Bromus*, *Elymus*, *Holcus*.]

AVENUES are walks of trees leading to a house, and are generally terminated by some distant object. These were formerly much more in request than at present, there being few old seats in the country but had one or more of these avenues; and some had as many of them as there were views from the house; but of late these are, with good reason disused; for nothing can be more absurd, than to have the sight contracted by two or more lines of trees, which shut out the view of the adjacent grounds, whereby the verdure and natural beauties of the country are lost; and where the avenues are of a considerable length (even where their breadth is proportionable) they appear at each end to be only narrow cuts through a wood, which never can please any person of real taste; and, when the road to the house is through the avenue, nothing can be more disagreeable; for in approaching to the house, it is like going through a narrow lane, where the objects on each side are shut out from the view; and when it is viewed from the house, it at best has only the appearance of a road, which being extended to a length in a straight line, is not near so beautiful as a common road, which is lost by the turnings, so as seldom to be seen to a great extent: but as these avenues must be made exactly straight, when the trees are grown to any size, they entirely break the view, whatever way the sight is directed through them; and if this is in a park, the lawn of grass through which the avenue is planted, is thereby entirely deprived of the beauty which it naturally would afford, if left open and well kept: therefore, whenever the situation of a house will admit of a large open lawn in front, the road to the house should be carried round at a proper distance; and, if it be carried sometimes through trees, and serpented in an easy natural way, it will be much more beautiful than any stiff formal avenue, how large soever made.

But as there may be some persons so much wedded to the old way of laying out and planting grounds, as to prefer avenues to the most beautiful disposition of lawns, woods, &c. I shall mention the usual methods of designing and planting them, that have been esteemed the best.

The usual width allowed to these avenues was generally as much as the whole breadth of the house and wings; but if they are planted twelve or four-

A V E

teen feet wider, they will be the better; because when the trees are grown to any considerable size, they will spread and overhang, so as to contract the view.

And as for such avenues to woods or prospects, &c. they ought not to be less than sixty feet in breadth; and because such walks are a long time before they are shady, it will be convenient to plant another row on each side, rather than to lose the stateliness that the main walk will afford in time by being broad, where any thing of a prospect is to be gained.

As to the distance, the trees should not be planted nearer one another than thirty-five or forty feet, especially if they are of a spreading kind; and the same distance, if they are for a regular grove.

As to the trees proper for planting avenues, they may be the English Elm, the Lime-tree, the Horse Chestnut, the common Chestnut, the Beech, and the Abele.

The English Elm is approved for all places where it will succeed, and that it will do in most places, except in very wet or cold shallow grounds. 1. Because it will bear cutting, heading, lopping in any manner whatsoever, and probably, with better success than any other tree.

Secondly, the Lime-tree: this is approved by others, because it will do well in any tolerable soil, if the bottom be not hot and gravelly; and because of the regular shape it has in growing, the agreeableness of its shade, and the beautiful colour of its leaves.

Thirdly, the Horse Chestnut is also to be used in such places as are very well defended from strong winds; because wherever it grows freely, if it be not skilfully managed now and then by cutting, the branches are subject to split down. This tree is valuable on account of its quick growth, the earliness of its coming out, the nobleness of its leaves, and the beauty of its flowers, being a fine plant both for shade and ornament. This delights in a strong hearty soil, but will do well in any tolerable ground, if good care be taken in the planting of it; but wherever these trees are planted in avenues, they should be placed thirty feet asunder, that their heads may have room to spread, otherwise they will not appear so beautiful.

Fourthly, the common Chestnut will do well in a proper soil, and will rise to a considerable height, if planted close together; but if it be planted singly, where the tree can take its own natural shape, it is rather inclined to spread and grow globous than tall.

Fifthly, the Beech is recommended by some; but this seldom succeeds well after transplanting, without extraordinary care; though it arrives to a very large tree in many places in England, where it grows naturally; and is the most tedious and troublesome to raise, to any tolerable size, in a nursery way.

Sixthly, the Abele: this, indeed, grows more dispersed and loose in its head than any of the former, and consequently, is worse for defence; but yet is not to be left out from the number of trees for avenues, because it is the quickest in growth of all the forest trees, and will thrive tolerably well in almost any soil, and particularly in wet ground, where few of the before-mentioned trees will thrive, and this seldom fails in transplanting.

Seventhly, the Oak; but this is seldom used in planting avenues, because it requires so long a time to raise it up to any tolerable stature in the nursery way; nor is it apt to thrive much after it has been transplanted, if at any bigness.

As for the Alder, Ash, Platanus, and Sycomore, they are but rarely used for planting avenues.

[AVERRHOA. (So named in honour of Ebu Elvelid Ebu Ruskad, commonly called Averrhoes, of Corduba in Spain, a famous commentator on Aristotle and Avicenna. He also published Colliget, or the plants used in food, &c. He died at the beginning of the 13th century.

Lin.

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Lin. gen. 576. *Reich.* 626. *Schreb.* 784. *Juss.* 375.
 Class. 10. 4. Decandria Pentagynia. (Pentandria.
Lour.)
 Nat. order of *Gruinales*.—*Terebintaceæ* *Juss.*

GENERIC CHARACTER.

CAL. *Perianth* five-leaved, erect, small: *leaflets* lanceolate, permanent.
COR. *Petals* five, lanceolate, the lower part erect, the upper spreading.
STAM. *Filaments* ten, setaceous; alternately the length of the corolla, and shorter. *Anthers* roundish.
PIST. *Germ* oblong, obscurely five-cornered. *Styles* five, setaceous, erect. *Stigmas* simple.
PER. *Pome* turbinate, five-cornered, five-celled.
SEEDS angular, separated by membranes.

ESSENTIAL CHARACTER.

Cal. five-leaved. *Pet.* five, expanding above. *Pome* five-cornered, five-celled.

SPECIES.

1. *Averrhoa Bilimbi.*

Lin. spec. 613. *Reich.* 2. 375. *fl. zeyl.* 177.
Rumph. amb. 1. 118. *t.* 36. *Rheed. mal.* 3. 55.
t. 45, 46. *Raii hist.* 1449. 7. *Burm. zeyl.* 147.
ind. 106. *Lour. cochinch.* 289.

Trunk naked, fruit-bearing, pomes oblong, obtuse-angled.

2. *Averrhoa Carambola.*

Lin. spec. 613. *Reich.* 2. 375. *fl. zeyl.* 178.
Baub. pin. 433. *n.* 2. *Rumph. amb.* 1. 115.
t. 35. *Rheed. mal.* 3. 51. *t.* 43, 44. *Raii hist.* 1449. *n.* 6. *Burm. zeyl.* 148. 2. *ind.* 106.
Lour. cochinch. 288. *Philos. transf.* vol. 75. 2. *p.* 336.

Axillas of the leaves fruit-bearing; pomes oblong, acute-angled.

DESCRIPTIONS, &c.

These are trees, natives only of India, and other warm parts of Asia. Singular for the fruit growing frequently on the trunk itself, below the leaves. The flower resembles that of *Geranium*; but the fruit is totally different. The leaves are alternate, unequally pinnate, with many pairs of leaflets. The flowers grow in racemes from the trunk or lower branches, but they are sometimes axillary; their colour is red; they are small, and the greater part is abortive. The fruit is a pome, five-celled, and containing many seeds.

1. This is only about eight feet in height, with few reclining branches. The leaves have ten pairs of leaflets and more: they are small, ovate-lanceolate, quite entire, smooth, and grow on short petioles. The flowers are red purple, on oblong small racemes adhering to the trunk. Calyx five-cleft. The fruit is an oblong pome, the thickness of a finger, smooth on the outside. Native of Goa, and many parts of India, both within and without the Ganges.

Burman describes it as a beautiful tree, with green fleshy fruit filled with a grateful acid juice; the substance and seeds not unlike those of *Cucumber*; it grows from top to bottom, at all the knots and branches. They make a syrup of the juice, and a conserve of the flowers, which are esteemed excellent in fevers and bilious disorders.

2. This is a tree above the middle size, with spreading branches, and a very close head. The leaves have only about four pairs of leaflets, which are ovate, acuminate, quite entire, smooth, petioled, opposite, the upper ones largest. Flowers lateral, scattered, on short racemes, usually from the smaller branches, sometimes from the larger ones, or the trunk itself. Calyx inferior, five-parted, upright, red. Corolla bell-shaped, petals oblong-ovate, variegated with purple and white. Stamens always five, shorter than the corolla, defended by the angles of the pentagon germ, sitting on the receptacle. Styles five, subulate, with obtuse stigmas. Pome

^a Loureiro.

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the size of a hen's egg; acutely five-cornered, five-celled, many-seeded; the rind is yellow, thin and smooth; the pulp clear, watery, in many sweet, in others acid, with scarcely any smell. Seeds small, oblong, angular, flattened and brown.

According to the observations of Dr. Bruce, the petals are connected by the lower part of the lamina, and in this way they fall off whilst the claws are quite distinct. The stamens are in five pairs, placed in the angles of the germ; of each pair only one stamen is fertile, or furnished with an anther; the filaments are curved, adapted to the shape of the germ; they may be pressed down gently, so as to remain, and then, when moved a little upwards, rise with a spring; the fertile filaments are twice the length of the barren ones. Dr. Bruce gives a curious detailed account of the sensitive quality of the petioles and even branches of this tree.

Rheede relates, that the *Carambola* is twelve or fourteen feet in height, scarcely a foot in girth, with a rough brown bark: that it bears fruit three times a year, from the age of three to fifty: that the root, leaves and fruits are used medicinally, either alone, or with *Areca* or *Betel* leaves; that the latter, when ripe, are esteemed delicious; unripe, are pickled; and that they are also used in dying and for other æconomical purposes.

Burman says, that the acid juice of this is not so pleasant as that of the foregoing; that the fruit is rather larger, and is used for the same purposes; and that it is a very beautiful tree.

In Bengal they call it *Camruc* or *Camrunga*: in Malabar *Tamara-tonga*; the Bramins and Portuguese call it *Carambola*; and the Dutch, *Vyfbocken*.

Both the species are now (1794) introduced into the royal botanic garden at Kew.

AVERRHOA *acida*. See *Cicca*.]

[*AVICENNIA*. (In honour of the famous oriental physician *Abu Ali Al Hossain Ebn Abdallah Ebn Sina*, commonly called *Avicenna*; born at Bokkara in 981. He lived at *Ispahan*, and died about 1051; or according to others in 1036.)

Lin. gen. n. 1237. *Reich.* 855. *Schreb.* 1063.
Jacqu. amer. 178. *t.* 112. *Juss.* 108.

Class. 14. 2. Didynamia Angiospermia.

Nat. order of *Personatæ*. *Vitices* *Juss.*

GENERIC CHARACTER.

CAL. *Perianth* five-parted, permanent: *leaflets* subovate, obtuse, concave, erect; increased by three scales.

COR. monopetalous: tube bell-shaped, short: border bilabiate; upper lip square, emarginate, flat; lower trifid, divisions ovate, equal, flat.

STAM. *Filaments* four, subulate, erect, the two front ones rather shorter, bent back to the upper lip. *Anthers* roundish, twin.

PIST. *Germ* ovate. *Style* subulate, erect, the length of the stamens. *Stigma* bifid, acute; the lower division bent down.

PER. *Capsule* coriaceous, rhomboidal, compressed, one-celled, two-valved.

SEED one; large, the form of the capsule, constructed of four fleshy folds, germinating.

ESSENTIAL CHARACTER.

Cal. five-parted. *Cor.* bilabiate; upper lip square. *Caps.* coriaceous, rhomboidal, one-seeded.

SPECIES.

1. *Avicennia tomentosa.*

Lin. syst. 579. *Reich.* 3. 200. *mat. med.* 158.
fl. zeyl. 57. *Jacqu. amer.* 178. *t.* 112. *f.* 2.
amer. pist. 88. *t.* 261. *f.* 46. *Loefl. hisp.* 193.
 (Donatia.)]

Bontia germinans. *Lin. spec.* 891. *Mill. dict. n.* 2.
Brown. jam. 263.

[*Mangle.* *Sloan. jim.* 2. 66. *Raii dendr.* 115. *n.* 1.
Anacardium. *Baub. pin.* 511. *Baub. hist.* 1. 334.—
orientale. *Pluk. alm.* 28.

Oepata. *Rheed. mal.* 4. 95. *t.* 45. *Raii hist.* 1566.
Leaves cordate-ovate, tomentose underneath.

^b Loureiro.

^c Philos. transf.

^d Hort. malab.

- [2. *Avicennia nitida*.
Lin. syst. 579. *Reich.* 3. 201. *Jacqu. amer.* 177.
t. 112. *f.* 1. *piet.* 88. *t.* 169.
Leaves lanceolate, shining on both sides.
3. *Avicennia resinifera*.
Forst. escul. 72. *florul. n.* 246.
Leaves ovate-lanceolate tomentose underneath.

DESCRIPTIONS, &c.

1. This tree agrees mostly with the Mangrove, rising not above fifteen or sixteen feet high; its trunk is not so large, having a smooth, whitish green bark; and from the stem are twigs propagating the tree, like that: the branches at top are jointed towards their ends here and there; where the leaves come out, opposite, on very small petioles, two inches and a half long, one inch broad in the middle, smooth, soft, having one large rib of a dark green colour: the flowers are many at the top of the branches, white and tetrapetalous^a.

According to Jacquin, it grows to the height of twenty feet or more, and is of the same habit with the *nitida*.

It varies with acuminate leaves, more or less hoary underneath^b.

Native of the East and West Indies. Dr. Patrick Browne says, that it is frequent near the sea, both on the north and south side of Jamaica, growing in low moist ground. This is not the *Anacardium orientale* of the shops, as has been supposed^c.

2. Height forty feet. Leaves sharp, entire, opposite, three inches long, on short petioles. Peduncles racemed, branching a little, terminating. Flowers sessile: corollas whitish, with the effigy of a brown stamen usually impressed on the middle segment of the lower lip. The capsule opens as soon as it has fallen, but not on the tree. The creeping roots throw up abundance of suckers.

Native of Martinico^d.

3. The leaves of this tree are opposite, petioled, coriaceous, entire, sharp, shining above, hoary with a very short yellowish nap beneath, two inches long: petioles very short, semicylindric, wrinkled on the outside, from erect spreading. Peduncles terminating, subtrifid, loaded with a head of flowers. Native of New Zealand.

The green coloured gum, so much esteemed by the natives of New Zealand, and which is very hot in the mouth, is supposed to be the produce of this tree^e.

AULAX. See *Protea*.

AURANTIUM. See *Citrus*.

AURELIANA. See *Panax*.

AURICULA Leporis. See *Bupthalmum*, and *Bupleurum*.

AURICULA MURIS. See *Arenaria*, *Cerastium*, *Hieracium*, *Myosotis*, and *Silene*.

AURICULA URSI. See *Aretia*, *Primula*, *Dodecatheon*, and *Verbascum*.

AURICULARIA. See *Hedyotis*.

AWL-WORT. See *Subularia*.]

[AXYRIS.

Lin. gen. n. 1047. *Reich.* 1138. *Schreb.* 1409.
Juss. 86. *Gartn. t.* 128.

Class 21. 3. Monoecia Triandria.

Nat. order of *Holoraceae*.—*Atriplices* Juss.

GENERIC CHARACTER.

* Male flowers in an ament.

CAL. Perianth three-parted, spreading, obtuse.

COR. none.

STAM. Filaments three, capillary, spreading. Anthers roundish.

* Female flowers scattered.

CAL. Perianth five-leaved (two-leaved, *Syst.*) concave, obtuse, converging, permanent: the two outer leaflets shorter.

COR. none.

PIST. Germ roundish. Styles two, capillary. Stigmas acuminate.

^a Sloane.

^b Swartz. obf. 248.

^c Jacquin.

^d Ibid.

^e Forster escul.

PER. none. Calyx closely involving the seed with its three larger leaflets.

SEED one, ovate, compressed, obtuse.

Obs. *A. ceratoides*. Linn. constitutes a new genus between *Atriplex*, *Urtica*, and *Ceratocarpus*. It has therefore had the name of *Diotis* given it, and is to be placed after *Urtica* in the order tetrandria of this class Monoecia.

ESSENTIAL CHARACTER.

MALE. Cal. three-parted. Cor. none.

FEM. Cal. two-leaved. Cor. none. Styles two. Seed one.

SPECIES.

1. *Axyris amaranthoides*. Simple-spiked *Axyris*.

Lin. spec. 1389. *syst.* 846. *Reich.* 4. 116.
amæn. 3. 24. *Gmel. fib.* 3. 21. *t.* 2. *f.* 2. &
t. 3.

Leaves ovate, stem erect, spikes simple.

2. *Axyris hybrida*.

Lin. spec. 1390. *Reich.* 4. 117. *amæn.* 3. 24.
Gmel. fib. 3. 23. *n.* 12. *t.* 4. *f.* 1.

Leaves ovate, stem erect, spikes conglomerate.

3. *Axyris prostrata*.

Lin. spec. 1390. *Reich.* 4. 117. *amæn.* 3. 25.
Zinn. goett. 35. *Gmel. fib.* 3. 24. *t.* 4. *f.* 2.

Leaves obovate, stem subdivided, flowers capitated.

DESCRIPTIONS, &c.

1. Leaves rugged with stellate hairs. Fruit-bearing branches naked for a long way at the base. Spike very small, subsessile, quite simple, terminating the branches^a. Gmelin observes, that the calyx of the female flowers is two or three-leaved. It was cultivated in 1758, by Mr. Miller^b.

2. This much resembles the foregoing sort, from which however it differs in the spike of flowers being on long peduncles, conglomerate, or directed the same way, twisted, with the fruit-bearing branches crowded close to the stem, and the leaves more rough^c. According to Gmelin, the calyx of the female flowers is three-leaved, and there is one style. Pallas supposes this to be only a variety of the former sort.

3. Stem much branched, six or seven inches high, diffused. Leaves petioled. Flowers conglomerate at the ends of the branches, with numerous leaflets among them^d. According to Gmelin, the calyx of the female flowers is three-leaved.

All these are annual plants, natives of Siberia.

AXYRIS ceratoides. See *Diotis*.]

AYENIA. (Given in honour of the Duke D'Ayen, Duke and Marechalle de Noailles, a great promoter of the science of Botany, who had a noble garden at St. Germain en Laye.)

Lin. gen. 1020. *Reich.* 1108. *Schreb.* 367.
Gartn. 79. *Juss.* 278. *D'Ayen.* *Mill. dist.*

Class. 20. 4. Gynandria Pentandria.

Class. 5. 1. Pentandria Monogynia. *Schreb.*

Nat. order of *Columniferae*. *Malvaceae* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, five-parted: parts ovate-oblong, acute, coloured in the middle, reflex, withering.

COR. pentapetalous; petals five united at the top to the nectary into a flat star: claws capillary, very long, bowed outward: borders obcordate, resupinate, with a clubbed point at the top turned upward.—Nectary bell-shaped, sitting on a cylindric, erect column, shorter than the calyx: border five-lobed, lobes elevated, above flattish with a longitudinal furrow, excavated underneath, and sharp.

STAM. Filaments five, very short, inserted into the margin of the nectary, on the top of the ribs, between the divisions of the border, each bent downwards archwise through a notch at the end of each petal. Anthers roundish, under the borders of the petals.

PIST. Germ roundish, five-cornered, at the bottom of the nectary. Style cylindric. Stigma obtuse, five-lobed.

PER. Capsule five-grained, roundish, muricate, five-celled, ten-valved, elastic.

^a Linneus.

^b Hort. kew.

^c Linn.

^d Ibid.

SEEDS solitary, rather oblong, gibbous on one side, angular on the other.

OBS. If the petals be carefully separated from the nectary by a needle, this strange flower appears more natural.—The character is taken from the first species; the others are less known in Europe.

ESSENTIAL CHARACTER.

Monogynous. Cal. five-leaved. Pet. united into a star, with long claws. Anthers five, under the star. Caps. five-celled.

SPECIES.

1. *Ayenia pufilla*. Smooth *Ayenia*.
Lin. spec. 1354. *syft.* 821. *Reich.* 4. 45. *Aët.*
Stockb. 1756. p. 23. t. 2. *Loefl. it.* 200.
Gärtn. fruct. 1. 383.
D'Ayenia. Mill. dict. — *fig.* t. 118.
Urticæ folio anomala, &c. Sloan. jam. 1. 209.
t. 132. *f.* 2.
Leaves cordate, smooth.
- [2. *Ayenia tomentosa*.
Lin. spec. 1354. *Reich.* 4. 46. *Loefl. it.* 200.
Leaves ovate-roundish, tomentose.
3. *Ayenia magna*.
Lin. spec. 1354. *Reich.* 4. 46. *Loefl. it.* 199.
Jacqu. amer. pict. p. 112.
Leaves cordate, pubescent; germ of the flowers sessile.]
4. *Ayenia lævigata*.
Swartz prodr. 97.
Leaves ovate entire very smooth, germ pedicelled, nectary ten-cleft radiated.

DESCRIPTIONS, &c.

1. This has a weak woody stem, dividing into several slender branches, and rising from nine inches to a foot high. Leaves slightly indented on their edges, on pretty long footstalks, of a lucid green, ending in acute points, and placed alternately. At the base of each footstalk, from the side of the branches, come out two, three or four flowers from the same point, each on a separate slender peduncle. Corolla purple, tubulous, spreading open at the top into five acute segments, each terminated by a slender tail. [Capsule compound, raised above the calyx on a bristle-shaped peduncle; it is rounded five-cornered; the five grains of which it is composed are ovate, convex on one side, mucronated with little soft prickles, on the other side angular; they are one-celled, two-valved, and open with a spring. The common receptacle is filiform, in the axis of the fruit; the proper receptacle is a little scar in the inner angle of the grains, to which the seeds are fixed. These are solitary, shaped like grape-stones, mucronate at the tip, retuse at the base, gibbous on one side, on the other slightly angular and marked with a depressed longitudinal line, rugged all over with raised dots, and of a very dark brown colour: they have two coverings: the outer crustaceous, thick, brittle; the inner membranaceous and pale; there is no albumen, but the whole consists of an inverted, yellow embryo; the cotyledons or seedlobes are rounded, two-lobed, foliaceous, rolled spirally about the radicle, which is fusiform, straight, and superior^a.

Many of the flowers being abortive, Linneus suggests that they may possibly be of different sexes.]

Native of Peru, whence the seeds were sent by the younger Jussieu to Paris. Mr. Miller received them (about the year 1756) from Dr. Monier, intendant of the Duc D'Ayen's garden; and the plants flowered and perfected seeds annually in Chelsea garden. The flowers continue in succession on the same plants from July to winter.

[2. Leaflets of the calyx lanceolate, acute, permanent. Corolla without petals, but composed of a one-leaved, bell-shaped nectary, with a five-cleft margin. Stamens on the outside of the nectary, longer than the calyx, bowed, bent in, and fixed by a broad membranous tip to the edge of the nectary: anthers three. Native of South America^b.

^a Gartner.

^b Loefling.

3. An upright shrub, five feet high. Leaves acuminate, ferrate, alternate, three or four inches long, on a tomentose petiole, almost two inches in length. Peduncles axillary, mostly in fours, three-flowered, short. Flowers small, herbaceous, by no means gynandrous. Native of Carthage, and other places in South America^c.

4. Native of Jamaica^d.]

PROPAGATION AND CULTURE.

These plants are propagated by seeds, sown upon a moderate hotbed early in the spring: when they come up, and have four leaves, they should be transplanted on a fresh hotbed to bring them forward; part of them may be planted in small pots, and the others on the bed: those in the pots should be plunged into a hotbed of tanner's bark; they must be shaded till they have taken new root, then they must have free air admitted to them every day, in proportion to the warmth of the season; they require to be frequently watered in warm weather, but they should not have it in too great plenty. The plants should continue all the summer in the hotbed, where they must have a good share of air; for those which are fully exposed to the open air will not thrive, and if they be too much drawn, they do not flower well. The plants will live through the winter in a moderate stove, but as they perfect their seeds well the first year, few persons care to continue the old plants.

AZADARICHTA. See *Melia*.

AZALÆA. (*ἄζαλεος*, dry: from its growing in a dry soil.)

Lin. gen. 212. *Reich.* 226. *Schreb.* 277. *Gärtn.* 63. *Juss.* 158.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Bicornes*.—*Rhododendra* Juss.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, acute, erect, small, coloured, permanent.

COR. monopetalous, bell-shaped, semiquinquefid; the sides of the divisions bent in.

STAM. *Filaments* five, filiform, inserted into the receptacle, free. *Anthers* simple.

PIST. *Germ* roundish. *Style* filiform, the length of the corolla, permanent. *Stigma* obtuse.

PER. *Capsule* roundish, five-celled, five-valved.

SEEDS many, roundish.

OBS. The corolla in some species is funnel-shaped, in others bell-shaped; the stamens in some declining and very long. It principally differs from *Rhododendron* in the number of its stamens.

ESSENTIAL CHARACTER.

Cor. bell-shaped. Stam. inserted into the receptacle. Caps. five-celled.

SPECIES.

- [1. *Azalea pontica*. Pontic *Azalea*.
Lin. spec. 1669. *syft.* 198. *Reich.* 427.
A. arborea. Lin. spec. edit. 1. 150.
Chamærhododendros pontica, &c. Tourn. cor. 42.
aët. par. 1704. *Buxb. cent.* 5. 36. t. 69.
Leaves shining, lanceolate, smooth on both sides, racemes terminal.
2. *Azalea indica*. Indian *Azalea*.
Lin. spec. 214. *Reich.* 428. *Thunb. jap.* 84.
Cham. exoticum, &c. Breyn. prodr. 1. 24.
Cistus indicus, &c. Herm. lugdb. 152. t. 153. *Raii hist.* 1895.
Tsutsusi. Kämpf. amæn. 845. t. 846.
Flowers subsolitary, calyxes hairy.]
3. *Azalea nudiflora*. Naked-flowered *Azalea*.
Lin. spec. 214. *Reich.* 428. *hort. cliff.* 69. *Kalm. it.* 3. 110. *eng. edit.* 2. 169. *Dubam. arb.* 1. 160.
Mill. dict. n. 2. *Gron. virg.* 21. *Trew. ebr.* p. 16. 48. *Cold. novebor.* 25.
Cistus virgin. periclymeni flore ampliori minus odorato. Pluk. mant. 49.
 α . *A. coccinea*. Deep scarlet *Azalea*.
Curt. mag. t. 180.
 β . *A. rutilans*. Deep red *Azalea*.
Calyxes minute.

^c Jacquin.

^d Swartz.

- γ. *A. carnea*. Pale red Azalea.
Tube red at the base, calyxes leafy.
- δ. *A. alba*. Early white Azalea.
Calyxes of a middling length.
- ε. *A. bicolor*. Red and white Azalea.
Limb of the corolla pale, tube red; calyx small; branchlets hairy.
- ζ. *A. papilionacea*. Variegated Azalea.
Corolla red, the lowest segment white; calyxes leafy.
- η. *A. partita*. Downy Azalea.
Corolla pale red, divided into five parts to the very base.
Leaves ovate, corollas hairy, stamens very long.
4. *Azalea viscosa*. Viscid Azalea.
Lin. spec. 214. Reich. 428. Mill. dict. n. 1.
Gron. virg. 21. 27. Cold. novebor. 24.
C. virg. fl. & odore periclymeni. Pluk. alm. 106.
t. 161. f. 4. Catesb. car. 1. t. 57.
- α. *A. odorata*. Common white Azalea.
Branches diffused; leaves deep green shining.
- β. *A. vittata*. White-striped flowered Azalea.
Corolla white, with pale red keels; styles elongated red at the end; leaves pale ovate-oblong.
- γ. *A. fissa*. Narrow-petalled white Azalea.
Corolla divided to the very base; leaves deep green shining.
- δ. *A. floribunda*. Cluster-flowered white Azalea.
Styles longer than the corolla; leaves glaucous underneath.
- ε. *A. glauca*. Glaucous Azalea.
Corolla white; leaves glaucous on both sides, the younger with scattered hairs on the upper surface.
Leaves scabrous at the edge, corollas with glutinous hairs.
- [5. *Azalea lapponica*. Lapland Azalea.
Lin. spec. 214. Reich. 429. lapp. 89. t. 6. f. 1.
succ. 180.
Leaves with excavated dots sprinkled over them.
6. *Azalea procumbens*. Procumbent Azalea.
Lin. spec. 215. Reich. 429. lapp. 90. t. 6. f. 2.
succ. 197. Hudf. angl. 88. With. 212. Lightf. scot. 139. Hall. helv. n. 666. Scop. carn. n. 218. Gmel. sib. 4. 126. n. 12. Kram. austr. 45. Jacq. vind. 34. Oed. dan. t. 9. Gært. fruct. 1. 301. Villars dauph. 2. 533.
Chamærhododendros supina, &c. Bocc. mus. 2. 64. t. 53.
Chamæcistus serpillifolia flor. carneis. Baub. pin. 466. Ger. emac. 1284. Park. 657.
Branches diffusely-procumbent.
7. *Azalea punctata*. Dotted Azalea.
Lour. cochinch. 113.
Leaves rugged about the edge, flowers dotted, beaped.

DESCRIPTIONS, &c.

1. This species much resembles *Rhododendron ponticum*, but it has five stamens and yellow corollas, not ten stamens and violet-coloured corollas, as that has. The leaves are smaller, ovate and ciliate^a. Native of Pontus.

2. This is a shrub three feet in height, with a trunk an inch thick, having a rough cinereous-brown bark: the branches are short, twisted and irregular. Leaves stiff, villose, close and evergreen. Beautiful bright-red flowers cover the whole upper part of the shrub^b. Native of the East-Indies. Much cultivated in Japan for the elegance of its flowers, and the variety in their size and colours. Most of the varieties have stamens, but some have six or seven. Some have a very viscid calyx, others a very hirsute one^c.

3. This, in its native country, frequently rises to the height of fifteen feet, but in England is never more than half so high. It sends out several stems from the root. The leaves are oblong, smooth, alternate, petioled. The peduncles are axillary, long and naked, supporting a cluster of red flowers, which are tubulous, swelling at their base like those of the hyacinth, and contracted at their neck; they are divided at the top into five equal segments,

which spread open. The five stamens and style are much longer than the petals, and stand erect.

[Linneus observes, that it flowers before the leaves come out, whence the trivial name, and that the stamens are double the length of the corolla.

The flowers sit in a circle round the extremity of the stem, and in their wild state are either of a dark or lively red colour; by degrees the sun bleaches them. There are more varieties in the gardens; Colden speaks of yellow flowers, but that is probably a mistake. Some of the bushes, in their native place of growth are six feet high and more: others are low, and some not more than a few inches from the ground, all covered with flowers. It is a native of Virginia, and other provinces of North America; in the woods of New Jersey it is common, and is called *Mayflowers*, *Wild Honeyuckles*, and *Upright Honeyuckles*^d. Peter Collinson, Esq. introduced it here in 1734^e.]

4. This is a low shrub, rising with several slender stems near four feet high. The leaves come out in clusters at the ends of the shoots without order; they are spear-shaped, and narrow at their base; their edges are set with very short teeth, which are rough. The flowers come forth in clusters between the leaves at the extremities of the branches; they are white, with a mixture of dirty yellow on the outside; the tube is an inch long, and at the top they are pretty deeply cut into five segments; the two upper are reflex, the two side ones are bent inward, and the lower one is turned downward. The stamens are a little longer than the petals, and support oblong saffron-coloured anthers. The style is much longer than the stamens, and is crowned by an obtuse stigma. These flowers have much the appearance of those of Honeyuckle, and are as agreeably scented; more so than the foregoing sort. They appear the middle of july, but are not succeeded by seeds in England.

[Linneus remarks, that this is very nearly allied to the foregoing, but flowers after all the leaves are fully expanded; and that the stamens are scarcely longer than the corolla. They are however longer, though not so long as in the former sort. There are several varieties of this also, but all with white flowers.

It is likewise a native of North America in woods and moist places: and was introduced with the other, by the same curious gentleman^f.

5. This is a divaricated shrub, six or seven inches high. It differs from *Rhododendron dauricum* only in having five stamens, whereas that has ten. It also much resembles *R. ferrugineum*, which has however a more tubulous flower, and ten stamens; whereas this has a more spreading corolla, and five stamens^g.

6. Stems procumbent, branching, half a foot long and more. Leaves hard, convex, with the edges contracted, concave underneath with the nerve prominent, ovate-lanceolate. Flowers close, from the upper axillas, three or four together, on short one-flowered peduncles, at the base of which are two ovate-lanceolate stipules. Calyx purple, a little shorter than the corolla, five-cleft almost to the base. Corolla bright rose-colour or pale scarlet^h. Capsule small, subglobular, crustaceous, hard, two or three-furrowed, two or three-celled, two or three-valved, but most often three-celled, never five-celled; when the valves are ripe, they are frequently cloven at the end: partition doubled from the edges of the valves being bent in: receptacle central, columnar, acuminate, deciduous. Seeds minute, ovate, hollow-dotted, ferruginous-redⁱ.

Native of the mountains of Europe; found in the Highlands of Scotland by Mr. Lightfoot, Dr. Hope, and others.

7. This shrub is five feet high, upright and branched. Leaves lanceolate, quite entire, smooth, alternate. Corolla white. Calyx whitish, dotted

^a Kalm.^e Hort. kew.^f Ibid.^g Linneus.^h Haller, Scop.ⁱ Gærtner.^a Schreber.^b Herman.^c Thunberg.

with red; as are also the corolla, anthers, and germ. Native of the woods of Cochinchina^a.

PROPAGATION AND CULTURE.

1, 2. The Pontic and Indian species have not yet been cultivated in Europe.]

3, 4. Grow naturally in shade, and upon moist ground in most parts of North America, from whence many of the plants have been sent of late years to England, and several of them have produced their beautiful flowers in many curious gardens.

They must have a moist soil and a shady situation, otherwise they will not thrive. They can only be propagated by shoots from their roots, and laying down their branches, for they do not produce seeds here; and if good seeds could be obtained, they would be difficult to raise, and a long time before they would flower. But when they are in a proper situation, their roots extend, and put out shoots, which may be taken off with roots, and transplanted. When any of them are laid down, it should be only the young shoots of the same year, for the old branches will not put out roots. The best time for this is at Michaelmas, and if they are covered with some old tan, to keep out the frost, it will be of great use to them. The autumn is also the best time to remove the plants, but the ground about their roots should be covered in winter to keep out the frost; and if this is every year practised to the old plants, it will preserve them in vigour, and cause them to flower well.

5, 6. Are low plants of little beauty, and growing naturally on boggy ground upon the mountains, are difficult to keep in gardens.

AZAROLUS and AZAROLE. See *Cratægus*.

AZEDARACH. See *Melia*.

B.

BACCHARIS. (*A name in Dioscorides, from Βάχχος, Bacchus.*)

Engl. *Ploughman's Spikenard*. Fr. *Baccante*.

Lin. gen. n. 949. Reich. 1029. Schreb. 1285. Gært. t. 166. Juss. 180.

Class. 19. 2. Syngenesia Polygamia Superflua.

Nat. order of (*Compositæ*) Compound flowers, division the third—*Discoideæ*.—*Corymbifera* Juss.

GENERIC CHARACTER.

CAL. Common cylindric, imbricate: scales linear, acute.

COR. Compound equal; Corollules hermaphrodite and female mixed.—*Proper*, to the hermaphr. funnel-form, five-cleft—to the females scarcely apparent, almost none.

STAM. Filaments five, capillary, very small. Anthers cylindric, tubular.

PIST. Germ ovate. Style filiform, the length of the flower. Stigma bifid.

PER. none. Calyx unchanged.

SEEDS solitary, very short, oblong: down simple.

REC. naked.

OBS. Down in some species very long; in others scarcely exceeding the calyx.—Scarcely distinct from *Conyza*.

ESSENTIAL CHARACTER.

Cal. imbricate, cylindric. Florets female mixed with hermaphrodites. Down simple. Receptacle naked.

SPECIES.

1. *Baccharis ivæfolia*. *Peruvian Ploughman's Spikenard*.

Lin. spec. 1204. Juss. 751. Reich. 3. 768. hort. cliff. 404. 1. Berg. cap. 275. Gært. fruct. 2. 405.

Conyza frutescens, &c. *Fen. peruv.* 750. t. 37. (good.)

Eupatorium africanum, &c. *Pluk. phyt.* t. 328. f. 2. (good.)

E. indicum, fl. albo. *Barth. act.* 2. t. 57.

^a Loureiro.

Conyza afr. humilis, &c. *Tourn. inst.* 455. *Barth. act. bapn.* 2. 57. t. 57. Reich.

Leaves lanceolate, longitudinally tooth-ferrate.

2. *Baccharis neriifolia*. *Oleander-leaved Ploughman's Spikenard*.

Lin. spec. 1204. Reich. 3. 768. hort. cliff. 404. 3.

Leaves lanceolate, ferrate in the upper part with one or two toothlets.

[3. *Baccharis arborea*.

Lin. Juss. 751. Reich. 3. 768. mant. 284.

Leaves elliptic-lanceolate, quite entire, naked, petioled.]

4. *Baccharis halimifolia*. *Sea-purslane-leaved Ploughman's Spikenard*, or *Groundsel tree*.

Lin. spec. 1204. Reich. 3. 769. hort. cliff. 405. 4.

Gron. virg. 121. Dubum. arb. 1. t. 35.

Senecio virgin. arborescens, atriplicis folio. *Herm. par.* t. 225. *Raii hist.* 1799.

Pseudo-Helichrysum virg. frutescens, &c. *Mor. hist.* 3. 90. f. 7. t. 10. f. 4.

Elichryso-affinis virg. &c. *Pluk. phyt.* t. 27. f. 2.

Argyrocome. *Pet. gaz.* t. 7. f. 4.

Leaves obovate, emarginate-crenate in the upper part.

[5. *Baccharis Dioscoridis*.

Lin. spec. 1204. Juss. 751. Reich. 3. 769. suppl.

366. amen. 4. 289. *Lour. cochinch.* 494.

Conyza major altera. *Baub. pin.* 265.—*dioscoridis*.

Rauw. it. t. 54.—*syriæ*. *Baub. hist.* 2. 1054.

Raii hist. 262. *Gron. orient.* 110.—*minor Rauwolfii*. *Park.* 127. n. 10.

Leave broad-lanceolate toothed sessile stipuled.

6. *Baccharis indica*.

Lin. spec. 1205. Reich. 3. 769.

Eupatorio-affinis. *Breyn. cent.* t. 70.

Leaves obovate toothblotted petioled.

7. *Baccharis brasiliæna*.

Lin. spec. 1205. Reich. 3. 770.

Tremate. *Marcgr. bras.* 81.

Leaves obovate entire scabrous sessile, veined underneath.]

8. *Baccharis foetida*.

Lin. spec. 1205. Reich. 3. 770. *Gron. virg.* 121.

Conyza americ. frutescens foetidissima. *Dill. elth.* 106. t. 89. f. 105.

Leaves lanceolate, ferrate-toothed, corymbs leafy.

[9. *Baccharis chinensis*.

Lour. cochinch. 494.

Leaves lanceolate quite entire tomentose beneath, petioled; peduncles many-flowered axillary.

DESCRIPTIONS, &c.

Most of these plants are shrubby. The flowers are disposed commonly in corymbs.]

1. This grows to the height of five or six feet.

[The female florets with a trifid corolla are very abundant; the hermaphrodites of the disk are few and five-cleft^a. The scales of the calyx spread very much in a state of maturity. The florets of the disk are barren; of the ray subulate, scarcely toothed, fertile. Receptacle obtusely conical, alveolate at top, the cells toothletted, but at the sides simply and obscurely scrobiculate. Seeds small, ovate-oblong, flattened a little, obscurely margined, pale: pappus or down sparing, twice as long as the seed, scarcely toothed^b.

Native of America. It was cultivated in 1696, in the botanic garden at Chelsea; and flowers in July and August^c.]

2. This has a soft shrubby stalk, which rises to the height of eight or ten feet, putting out side branches toward the top. Leaves stiff, having a few indentures toward their top, and placed without order. The flowers are produced at the extremity of the branches in a close spike; they make little appearance, being of an herbaceous colour, and are not succeeded by seeds in England.

[Linneus says, that it grows to twice the height of a man in our gardens; that the stem is rugged and upright, with patulous branches; that the branches of the present and past year are leafy, but that the rest are naked, streaked, and irregular from the scars of fallen leaves; that these are narrow,

^a Linneus.

^b Gærtner.

^c Hort. kew.

acuminate to both ends, ending in the petioles, and bent down at the edge^d.

3. Height three feet; trunk the thickness of the human arm, and the largest of the genus. Leaves alternate; acute, roughish; not tomentose, a hand breadth long, and half as wide. The terminal corymb of the branches panicled, six or seven inches in length and breadth, subfastigate. Calyx subglobose, closely imbricate with awl-shaped scales. Down sessile, hairy, fastigate, twice the length of the calyx. Seeds streaked. Observed in woods, on the island of Johanna, by Koenig^e.

4. This is a herbaceous kind of shrub; six, seven, or eight feet high. Leaves many, like those of Goosefoot, but stiffer, irregularly set on the branches. Flowers crowded, naked, at the end of the twigs^f. These are not very beautiful, but the leaves continuing green through the year, has occasioned this shrub to be admitted into many curious gardens. It is a native of Virginia and other parts of North America; and flowers in October. [It was cultivated in 1688, by Bishop Compton^g.

5. Stems shrubby, six feet high, weak, a little hairy, much branching, luxuriant. Leaves alternate, half-stem-clasping, deeply indented at the base, soft. Panicles small, among the ramifications. Calyx shorter than the flower, flatted; scales awl-shaped. Female florets many, whitish, slender, naked; hermaphrodites in the disk five or six; style of the females bifid; down simple, standing out. It is wrongly named *Baccharis* of Dioscorides^h.

Loureiro describes the stem as five feet high, upright and round, with many weak branches; the leaves as dark green, smooth, aromatic, stipuled, the flowers many, yellow, on terminating corymbs; calyx oblong.

6. Branches with raised streaks. Leaves smooth. Corymb large, terminating. Peduncles angular, with some awl-shaped bracts. Calyxes cylindric, smooth. Branches from the axils of the upper leaves, longer than the corymb. Native of Ceylon and the Cape of Good Hopeⁱ.

7. Stem somewhat angular. Leaves obtuse, almost quite entire. Panicles nearly naked, with remote, alternate flowers. Calyx with imbricate, sharp scales. Down ferruginous. It resembles the *indica*, but the leaves are stiffer, sessile, and scarcely toothed; the flowers larger, fewer, and more remote. Native of Brasil^k.

8. This rises with a woody stem six or seven feet high. The leaves are long, hoary on their under side, and have a disagreeable scent when handled. The stems are terminated by loose corymbs of flowers, which appearing late in the autumn, are not followed by seeds in this country. It is a native of Carolina, and some other parts of North America. [It was cultivated in the Dutchess of Beaufort's garden at Badmington, and in 1729 in Mr. Sherard's garden at Eltham.

9. This is an undershrub, three feet high, upright, simple, round. Leaves alternate, on short petioles. Flowers yellow, oblong. Native of China, near Canton^l.]

PROPAGATION AND CULTURE.

1. This is a manageable shrub. It may be propagated by cuttings, planted in a shady border, during any of the summer months; or by seeds, sown on a common border in the spring. These seeds ripen well in this country, and if permitted to scatter on the ground, the plants will come up the following spring. It is pretty hardy, and will live abroad in mild winters, if planted in a warm situation; but it is usually kept in the greenhouse, and placed abroad in summer; it requires much water in warm weather.

2. This is difficult to propagate, for the cuttings with great difficulty take root; and it is very rare to find shoots near the root to lay down, so that in Holland they lay down the entire head of young

plants, sitting the smaller branches in the same manner as is practised for Carnations, laying them into the ground and forking each down to prevent their rising; these when duly watered put out roots in one year, when they may be taken off, and planted in small pots filled with light earth, and placed in the shade till they have taken new root; after which they may be placed in a sheltered situation in summer, but in winter must be kept in a green-house.

4. This sort may be propagated by cuttings, which should be planted in April or May, upon a shady border, and duly watered in dry weather, until they have taken root; and, at Michaelmas, they will be fit to transplant where they are to remain; this will live in the open air, and never is injured by the cold of our ordinary winters; but severe frost will sometimes destroy it.

8. This may also be propagated by cuttings planted towards the end of May; if shaded and duly watered they will put out roots in two months, when they should be potted; that they may be sheltered under a frame in winter.

[The other sorts are more tender, and mostly require the protection of a stove, but are little known in this country.]

BACCHARIS. See *Albanasia*, *Chrysocoma*, *Conyza*.

BACCHAROIDES. See *Conyza*.]

[BACOPA.

Lin. gen. Schreb. n. 266. Aubl. 49. Juss. 313.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Succulentæ*.—*Portulacæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted; two of the parts oblong, concave, acute: the two inferior deflex, ovate, acute; the single superior one broader, roundish, undulated.

COR. one-petalled. Tube short, towards the orifice a little enlarged: border five-parted: parts ovate-oblong, obtuse, equal, spreading.

STAM. *Filaments* five, inserted into the tube of the corolla. *Antthers* sagittate.

PIST. *Germ* ovate, compressed, below incrustated by the calyx growing to it. *Style* short. *Stigma* headed.

PER. *Capsule* one-celled.

SEEDS very many, extremely small.

ESSENTIAL CHARACTER.

Cor. with a short tube, spreading at top. Stam. inserted into the tube of the corolla. Stigma headed. Caps. one-celled.

SPECIES.

1. *Bacopa aquatica*.

Aublet. *guian.* 129. t. 49.

DESCRIPTION, &c.

This plant puts forth several cylindric, succulent, knotty stems. Leaves opposite, stem-clasping, or rather connate, thick, oblong, concave, sharp, smooth. Flowers solitary, peduncled, alternate from the axils. Below the calyx there is a pair of fleshy bracts on the long peduncle. Corolla blue. It puts forth roots from the knots, both as it runs along the ground, and as it lays on the surface of the water. Native of the island of Cayenne, on the borders of rivulets, flowering and fruiting in December. The French inhabitants call it *Herbe-aux-brulures*, on account of its efficacy in curing burns^a.]

[BACTRIS. (απο του Βακτρον, a staff; canes being made of the stem.)

Lin. gen. Schreb. n. 1693. Jacqu. *amer.* t. 171.

Gertn. 9. 139.

Class. 21. 6. Monoecia Hexandria.

Nat. order of *Palms*.

GENERIC CHARACTER.

* Male Flowers.

CAL. *Spathe* universal one-leafed; *spadix* branched. *Perianth* one-leafed, three-parted, small: parts lanceolate, concave, coloured.

COR. one-petalled, three-cleft: tube short, clefts ovate, acute, erect.

^a Hort. cliff. ^e Linneus. ^f Ray. ^g Hort. kew.
^h Linn. suppl. ⁱ Linneus. ^k Ibid. ^l Loureiro.

* Aublet.

STAM.

STAM. *Filaments* six, subulate, erect, of the length of the corolla, inserted into the middle of the tube. *Anthers* oblong, incumbent.

* *Female* flowers few in the same spadix, intermixed with the male ones.

CAL. *Spathe* the same as in the males. *Perianth* one-leaved, bell-shaped, three-toothed, sharp-pointed, coloured, very small, permanent.

COR. one-petalled, erect, three-toothed, permanent.

PIST. *Germ* ovate, large. *Style* very short. *Stigma* headed, obscurely three-cleft.

PER. *Drupe* coriaceous, roundish, fibrous-succulent, sharp-pointed with the style.

SEED. *Nut* roundish, depressed on each side, marked on the sides with three holes. *Kernel* solid.

ESSENTIAL CHARACTER.

MALE. *Cal.* three-parted. *Cor.* one-petalled, three-cleft. *Stam.* six.

FEM. *Cal.* one-leaved, three-toothed. *Cor.* one-petalled, three-toothed. *Stigma* obscurely three-cleft. *Drupe* coriaceous.

SPECIES.

1. *Bactris minor*.

Jacqu. amer. 279. t. 171. f. 1. *ic. select.* t. 256.

B. minima. *Gertn. fruct.* 2. 269.—conf. *B. globosa minor.* *Ejisd.* 1. 22. quæ *Cocos aculeata*, *Swartz & hort. kew.* *Palma* 7. *Brown. jam.* 344.]

P. spinosa. *Mill. dict. n.* 3. [*Grew. mus.* 203. t. 16?

Cocos guineensis. *Lin. syst.* 985. *mant.* 137?

Fruit roundish.

2. *Bactris major*.

Jacqu. amer. 280. t. 171. f. 2. *ic. select.* t. 263. f. 88. (fruit only.)

Fructus exoticus. *Clus. exot. l.* 2. c. 23. f. 2.

Fruit ovate.

DESCRIPTIONS, &c.

1. *Root* creeping. *Trunk* upright, armed with very numerous prickles, about an inch in diameter, seldom more than twelve feet high in open situations, but in woods somewhat higher, covered with a brownish bark. It begins to flower as soon as it has attained the height of about four feet. *Leaves* frondose, few, stem-clasping at the base, pinnate: the rib prickly, the leaflets ensiform, acuminate, shining, flat, very slightly folded back at the base, ferrate-prickly, (with very fine prickles, to be known only by drawing the finger from the tip towards the base) unarmed or with very few prickles on each surface, usually alternate, but sometimes opposite, uncertain in number. *Spathes* axillary, solitary, spreading, continuing a long time after the fruit is ripe. *Flowers* without scent, very slightly tinged with yellow. *Fruit* dark purple, the size of a common cherry, containing an acid juice, of which the Americans make a sort of wine. They are also eaten raw, but are not pleasant. *Canes* are made of the stem: they are dark-coloured, shining, jointed and very light; the French call them *Cannes de Tobago*.

2. In habit and manner of growth this is very like the foregoing, but it commonly grows to the height of twenty-five feet, and the trunk is two inches and more in diameter. The leaves are six feet long, the leaflets near two feet, with the marginal prickles brown, and more conspicuous. *Spadix* compressed flat, reclining. *Fruit* the form and size of an egg, acuminate with the style, fibrous, succulent, covered with a dark purple, coriaceous coat, of which the natives make a vinous liquor. The nut is large, of a dark colour, ovate-oblong, with an acuminate, trifid apex, and three obscure holes, two above the middle, and the third higher. *Kernel* oblong, blunt at both ends, cartilaginous, solid. The fruits are sold in the market, and are called *Cocorotes*.

Both these Palms are natives of Carthage in South America^a.

BADUCCA. See *Capparis*.]

^a Jacquin.

[BAECKIA. (So named in honour of Abraham Bæck, Archiater to the King of Sweden, and a much esteemed friend of Linneus's, who received this plant from him, among others, in his herbarium.)

Lin. gen. n. 491. *Reich.* 532. *Schreb.* 670. *Juss.* 321.

Class. 8. 1. Octandria Monogynia.

Nat. order of *Calycanthemæ*.—*Onagrea* Juss.

GENERIC CHARACTER.

CAL. *Perianth* one-leaved, funnel-form, five-toothed, permanent.

COR. *Petals* five, roundish, patulous, inserted into the calyx.

STAM. *Filaments* eight, of which six are equal, two solitary, very short, bent in. *Anthers* subovate, small.

PIST. *Germ* roundish. *Style* filiform, shorter than the corolla. *Stigma* capitate.

PER. *Capsule* globular, crowned, four-celled, four-valved.

SEEDS some, roundish, angular on one side.

ESSENTIAL CHARACTER.

Cal. funnel-form, five-toothed. *Cor.* five-petalled.

Caps. globular, four-celled, crowned.

SPECIES.

1. *Bæckia frutescens*.

Lin. spec. 514. *Reich.* 2. 200. *Osbeck. it.* 231. t. 1. DESCRIPTION, &c.

This is a shrub which has the habit of Southernwood, with wand-like branches, and opposite, short, simple twigs. *Leaves* opposite, linear, sharp, smooth, quite entire. *Flowers* axillary, solitary, on a naked peduncle, the length of the flower, much shorter than the leaves. Native of China, and called there *Tiongina*.

BÆOBOTRYS. (From *Bæos*, small, and *Botrys*, a raceme, the fructifications being in thin racemes.)

Lin. gen. *Schreb. n.* 318. *Forster. gen.* 11.

Class. 5. 1. Pentandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* double: exterior three-leaved: leaflets roundish, concave, smaller. *Inferior* one-leaved, bell-shaped, short, inferior, growing to the germ, five-cleft: clefts ovate, permanent, converging after flowering and crowning the fruit.

COR. one-petalled, tubular; tube very short. *Border* five-cleft, erect: clefts rounded, very short.

STAM. *Filaments* five, very short, in the middle of the tube. *Anthers* heart-shaped.

PIST. *Germ* globose, half-superior. *Style* cylindric, very short, permanent. *Stigma* obtuse, tuberculated.

PER. *Berry* globose, somewhat dry, one-celled, growing to the calyx.

SEEDS several, angular, affixed to a columnar receptacle in the bottom of the berry.

ESSENTIAL CHARACTER.

Cor. tubular, with a five-cleft border. *Cal.* double; outer two-leaved; inner one-leaved, bell-shaped. *Berry* globose, one-celled, growing to the calyx, many-seeded.

SPECIES.

1. *Bæobotrys nemoralis*.

Forst. fl. austral. n. 97.

Native of the isle of Tanna, in the South Seas.

BALANOPHORA. See *Cynomorium*.

BALANUS myrepica. See *Guilandina*.]

[BALLŌTA. (Βαλλῶτα, Gr. a name in *Dioscorides*.)

Lin. gen. n. 720. *Reich.* 778. *Schreb.* 975. *Juss.* 114. *Ballote*, *Tournef.* 85.

Class. 14. 1. Didynamia Gymnospermia.

Nat. order of *Verticillatæ*, or *Labiata*.

GENERIC CHARACTER.

CAL. *Perianth* one-leaved, tubular, salver-shaped, five-cornered, oblong, ten-streaked, erect, permanent, equal: mouth acute, patulous, plaited, five-toothed. —*Involucre* of linear folioles under the whorls.

COR. monopetalous, ringent: tube cylindric, the length of the calyx. *Upper lip* erect, ovate, entire, crenate, concave: lower trifid, obtuse; the middle segment larger, emarginate.

^b Linn. from Osbeck.

STAM. Filaments four, the two shorter, subulate, bending towards the upper lip, and shorter than it. Anthers oblong, lateral.

PIST. Germ quadrifid. Style filiform, in the same situation and form with the stamens. Stigma slender, bifid.

PER. none. Calyx unchanged, fostering the seeds in its bosom.

SEEDS four, ovate.

Obs. This genus has the involucre of *Clinopodium*; the calyx of *Marrubium*; the corolla of *Stachys*; and is nearly allied to *Marrubium*.

ESSENTIAL CHARACTER.

Cal. salver-shaped, five-toothed, ten-streaked. Cor. upper lip crenate, concave.

SPECIES.

1. *Ballota nigra*. Stinking or Black Horehound.
Lin. spec. 814. *Reich.* 3. 62. *suec. n.* 529. *hort. cliff.* 311. *Huds. angl.* 260. *With.* 615. *Lightf. scot.* 314. *Relb. cantabr. n.* 441. *Sowerby engl. bot. t.* 46. *Hall. belv. n.* 259. *Scop. carn. n.* 714. *Pollich pal. n.* 569. *Sabb. hort. 3. t.* 35. *Blackw.* 136.

Marrubiastrum. *Riv. t.* 65.

Marrubium nigrum. *Ger. emac.* 701. 1. *Raii hist.* 571.—*fœtidum*, *Ballote Dioscoridis*. *Baub. pin.* 230. *Park.* 1230. 3. *Mor. hist.* 3. 377. *f.* 11. *t.* 9. *f.* 14. *Pet. herb. t.* 32. *f.* 4.

Leaves cordate undivided ferrate, calyxes acuminate.

2. *Ballota alba*. White-flowered Black Horehound.
Lin. spec. 814. *syst.* 537. *Reich.* 3. 63. *suec. n.* 540. *Tourn. inst.* 185. *Vaill. par.* 20. *Cam. epit.* 572.

Leaves cordate undivided ferrate, calyxes subtruncate.

3. *Ballota lanata*. Woolly Black Horehound.
Lin. spec. 815. *syst.* 537. *Reich.* 3. 63. *Amm. ruth.* 47.

Phlomis fol. multicaulis. *Gmel. sib.* 3. 241. *n.* 72. *t.* 54.

Leaves palmate toothed, stem woolly.

4. *Ballota suaveolens*. Sweet-smelling Black Horehound.
Lin. spec. 815. *syst.* 537. *Reich.* 3. 63. *Jacqu. hort. 3. t.* 42. *amer.* 172. *piet.* 85. *t.* 163. *Swartz. obs.* 225.

Bystropogon suaveolens. *L'Herit. fert. angl.* 19.

Mesosphærum. *Brown. jam.* 257. *t.* 18. *f.* 3.

Mentastrium. *Sloan. jam.* 1. 171. *t.* 102. *f.* 2.

Melissa. *Pluk. phyt. t.* 306. *f.* 3. *Plum. cat.* 6. *ic.* 155. *t.* 16. *f.* 1.

Leaves cordate, spikes leafy, calyxes truncate, awns linear.

5. *Ballota disticha*. Betony-leaved Black Horehound.
Lin. syst. 537. *Reich.* 3. 63. *mant.* 83. *fl. zeyl.* 24? *Monarda*.

Stachys indica procerior, betonicæ folio. *Pluk. alm.* 357. *Raii hist.* 1872.

Marrubium odoratissimum, beton. fol. *Burm. zeyl.* 153. *t.* 71. *f.* 1.

Whorls halved, two-parted, half-spiked.

6. *Ballota pilosa*.
Lour. cochinch. 364.

Leaves ovate crenate tomentose, whorls hairy, calyxes ten-toothed.

DESCRIPTIONS, &c.

1. Stinking or Black Horehound is a hairy plant, with an upright brownish stem, about two feet in height. Leaves petioled, wrinkled, with the veins nearly parallel; the lower ones subcordate, the upper ones sharp to both ends. Peduncles very short, usually opposite, many-flowered. Involucre many-leaved; the leaflets awl-shaped, shorter than the calyx. Corolla purple, twice the length of the calyx. Filaments brown^a.

It is a perennial plant, common in most parts of Europe, in waste places and hedges; flowering in July.

It is recommended in hysterical cases^b. In Gotland it is an universal remedy in disorders incident to cattle^c: but the Swedish plant is supposed not

to be the same with ours. The flowers are occasionally found white, and then it is mistaken for *B. alba* of Linneus, which is not a native of England^d.

2. Linneus doubts whether this may not be a variety of the foregoing sort: in *Flora Suecica* however he gives us these differences. This has a pale stem and white corollas; that a brown stem and purple corollas: this has rounded-cordate veined leaves; that oblong-ovate, sharp, very soft villose leaves with parallel veins: this has involucre half the length of the calyx; that the whole length: but the principal difference is, that the calyx in this is almost truncate; in that cut half way into five parts and acuminate: the hairs also on the back of the helmet in the corolla converge upwards in that, which they do not in this, which is a native of Sweden.

3. Stems covered with a white wool. Whorls extremely hirsute. Leaves like those of Gooseberry, semitrifid or semiquinquefid, with blunt three-toothed lobes, smooth above, hirsute underneath. Calyxes five-toothed with bristle-shaped toothlets. Corollas extremely hirsute, pale yellow, white on the outside. Native of Siberia towards China^e. Cultivated in 1776, by Mr. James Gordon^f.

4. Root annual. Stem upright, shrubby at bottom, branched, hirsute: branches almost upright, villose. Leaves roundish, sometimes elliptic, crenate, nerved, villose, on long, slender, lax petioles. Peduncles axillary, bearing from three to five flowers at the tip of the branches. Flowers approximating, blue. Calyx villose, viscid; teeth awn-shaped, upright, subulate. Tube of the corolla narrower at the base, from the middle to the opening dilated: upper lip composed of the helmet and two upper side segments; helmet smaller than the segments, ovate, arched, bent down, keeled above; lower lip, the two lower segments bent down. Filaments longer than the throat of the corolla. Anthers blackish. Style shorter than the stamens. Stigma simple, obtuse. Seeds two, black, somewhat compressed^g. Jacquin observes, that although there be sometimes only two seeds, yet generally there are four. On the contrary Swartz affirms, that there are very seldom four seeds. Browne says, that it commonly rises to the height of three or four feet; and that it is a grateful cephalic and alexipharmic. It is a very odorous plant, and the people of St. Domingo use it in their warm baths^h. Native of the West Indies.

5. Stature of *Nepeta*. Stem pubescent. Leaves petioled, subcordate, ferrate, tomentose. Whorls single on each side; each two-parted, or of two conjugate spikes on one side, rising as in the *Asperifolia*. Flowers alternate, sessile, rising, on a simple, flexuose rachis. Bracte under each flower, awl-shaped, shorter than the calyx, which has five nearly equal clefts, is awnless, five-cornered, and obscurely ten-angled. Stamens four. Seeds four, roundish, shining. Native of the East Indiesⁱ.

Introduced in 1783, by John Earl of Bute^k.

6. Stem perennial, four feet high, upright but weak, streaked, hairy, branched. Leaves acute. Flowers white, in hairy whorls. Calyx recurved, ten-toothed; teeth sharp, reflex. Seeds four. It differs from *B. disticha* in its leaves, which are ovate, crenate, not cordate and ferrate, but especially in having the calyxes ten-toothed. Native of Cochinchina^l.

PROPAGATION AND CULTURE.

The European sorts, being common stinking weeds, are never introduced into gardens. The third is hardy. The three last require the protection of a stove. They may all be increased by seeds.]

BALM. See *Melissa*.

[— of Gilead. See *Dracocephalum*.

BALSAM of Capevi tree. See *Copaifera*.

— of Gilead and of Mecca tree. See *Amyris*.]

^d Engl. Bot.

^e Linneus.

^f Hort. kew.

^g Swartz.

^h Jacquin.

ⁱ Linneus.

^k Hort. kew.

^l Loureiro.

^a Relb. from Lyons's MSS.

^b Ray.

^c Linn.

BALSAMINA. See *Impatiens*.

BALSAMITA. See *Achillea*, *Chrysanthemum*, and *Tanacetum*.

[BALTIMORA. (So named by Linneus, in honour of Frederick Calvert Lord Baltimore of the kingdom of Ireland, proprietor of Maryland in North America.)
Lin. gen. Reich. n. 1068. Schreb. 1333. Juss. 187.
Gartn. t. 169.

Class. 19. 4. Syngenesia Polygamia Neceffaria.

Nat. order of *Compositæ Oppositifoliæ*.—*Corymbiferae* Juss.

GENERIC CHARACTER.

CAL. Common cylindric: leaflets seven, lanceolate, erect; the interior ones shorter.

COR. Compound radiate. Corollules hermaphrodite of the disk many (eleven): females of the ray five. Proper of the hermaphrodites funnel-form, with a five-cleft, tomentose border:—of the females ligulate, ovate, trifid; the middle ones less.

STAM. in the hermaphr. Filaments five: anther cylindric.

PIST. in the hermaphr. Germ. obscure. Style short. Stigma none.—In the females; Germ oblong, crowned with a toothed, deciduous calycle. Style filiform, very short. Stigmas two, filiform, longer than the corollule.

PER. none. Calyx unchanged.

SEEDS in the hermaphr. none—in the females three-sided, naked, gibbous at the top.

REC. chaffy.

ESSENTIAL CHARACTER.

Cal. cylindric, many-leaved. Ray of the corolla five-flowered. Down none. Rec. chaffy.

SPECIES.

1. *Baltimora recta*.

Lin. syst. 789. Reich. 3. 919. mant. 288. Gartn. fruct. 2. 444. Mor. hist. 3. 47. f. 6. t. 13. f. 16. (Scabiosa.)

DESCRIPTION, &c.

This is an annual plant, with a stem two feet high, four-cornered, upright, green, with the sides deeply channelled, and the angles rugged. Branches lateral, very short. Leaves opposite, petioled, ovate, acuminate, serrate, three-nerved, spreading, submentose, with very short, silky hairs; the old ones rugged. Panicles terminating, small. Flowers yellow. The corollules of the disk tomentose, with black anthers. This is of a distinct genus from *Milleria*, although the plant much resembles it^a. Gærtner adds, that the flowers are aggregate, terminating and axillary, on smooth, very simple, unequal peduncles, the later ones shorter; the corollules sulphur-coloured or pale yellow; the receptacle narrow; with membranaceous, linear-oblong chaffs, shorter than the calyx; the seeds inversely pyramidal, three-sided, smooth, brown; with a very short, many-leaved down, the leaflets membranaceous, linear-acuminate, marcescent, unequal, three or four longer than the rest. He observes, that Morison's figure, though inaccurate in other respects, well represents the manner of flowering; but that Plukenet's figure, quoted by Linneus, is a *Sigesbeckia*, which he names *Phaethusa americana*.

Native of Maryland, near Baltimore. Introduced in 1781, by Mons. Thouin^b. It flowers in June and July.]

BAMBOO or Bambu. See *Arundo*, and *Nastus*.

[BAMBUSA.

Lin. gen. Schreb. n. 607.

Class. 6. 1. Hexandria Monogynia.

GENERIC CHARACTER.

CAL. none, except glume-like bractes scattered, often three under each spikelet, oblong-ovate, sharp-pointed, concave, keeled, unequal, shorter than the floscules; two opposite, the third leaning on the flat side of the spikelet.

Spikelets lanceolate, distichous, compressed, sharp, nearly five-flowered.

COR. Glume two-valved; valve inferior oblong, ventricose, acuminate, towards the tip keeled and streaked. Interior lanceolate, flat, (with compli-

^a Linneus.

^b Hort. kew.

cated margins,) ciliate, a little longer than the inferior and projecting from it.

Nectary two-leaved; flat, at the anterior side of the germ: leaflets ovate, acuminate, bearded at the tip, membranaceous.

STAM. Filaments six, capillary, almost the length of the corolla. Anthers paralleliped, two-cleft at the base.

PIST. Germ oblong. Style capillary, two-cleft. Stigmas feathery.

PER. none. Corolla cherishes the seed, gapes? lets it fall?

SEED single, oblong.

OBS. The superior floscules in several spikelets examined by myself were merely male. Is this genus therefore to be transferred to *Polygamia*? S.

For the rest see *Arundo Bambos*, and *Nastus*.

Gmelin, in syst. nat. has made two genera of this, under the name of *Bambus* and *Nastus*.]

BANANA. See *Musa*.

[BANARA. (A vernacular name of the country.)

Lin. gen. Schreb. n. 809. Aubl. 217. Juss. 293.

Class. 11. 1. Dodecandria Monogynia.

Nat. order of *Columniferae*.—*Tiliaceæ* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, six-parted, permanent: parts ovate.

COR. Petals six, rounding, concave, spreading, three times larger than the calyx, inserted into the receptacle.

STAM. Filaments fifteen and more, capillary, length of the corolla, inserted into a glandule surrounding the germ. Anthers roundish.

PIST. Germ somewhat globose, seated in a glandule. Style filiform, of the height of the stamens. Stigma headed.

PER. Berry globose, but little succulent, one-celled, crowned by the permanent style.

SEEDS very many, very small, cornered, striated.

ESSENTIAL CHARACTER.

Cal. six-parted, permanent. Cor. six-petalled. Germ seated on a glandule. Stigma headed. Berry globose, one-celled, many-seeded.

SPECIES.

1. *Banara guianensis*.

Aubl. guian. 548. t. 217.

DESCRIPTION, &c.

This is a tree of ten feet or more in height, and about seven inches in diameter, with a grayish bark, and a whitish, light wood. Leaves alternate, ovate-oblong, toothletted, sharp, green and smooth on the upper surface, paler and slightly tomentose on the lower. The petiole is short, with two small, deciduous stipules at the base. The largest leaves are five inches long, and two broad. Flowers in axillary and terminating racemes, with a single bracte to each pedicel. The corolla is yellow. The berry is black.

Native of the island of Cayenne: flowering in May, and bearing fruit in July^a.]

BANE-BERRY. See *Alea*.

BANISTERIA. (So named by Dr. Honsloun, in memory of the Rev. John Banister, a curious botanist, who lost his life, in the search after plants, in Virginia^b.)

Lin. gen. n. 573. Reich. 622. Schreb. 780. Juss. 252. Cavanilles, t. 243-258. Gartn. t. 116.

Class. 10. 3. Decandria Trigynia.—*Monadelphica* Cav.

Nat. order of *Tribilata*.—*Malpigiæ* Juss.

GENERIC CHARACTER.

CAL. Perianth five-parted, (four seldom five. Cavan.) very small, stiff underneath with tubercles, permanent. Two melliferous glands are under each division of the calyx, except one; they are therefore eight in number.

^a Aublet.

^b Linneus's words are these: Hic Virginiae penetrons adyta, montesque rupestre scandens, ne quid absconditum ab ejus industria se subduceret, infelici casu titubabat, decidit, conquassatur, misere perit. Dicta itaque fuit planta americana scandens, fructu confraçto, sanguinolento."

COR. Petals five, orbiculate, very large, spreading, crenate (fimbriate, C.); claws oblong, linear.

STAM. Filaments ten, very small, coalescent at bottom. Anthers simple.

PIST. Germs three, winged, coalescent. Styles three, simple. Stigmas obtuse, (enlarged into a leaflet. Cav.)

PER. Capsules three, running out into a long wing, one-celled, marked at the sides with small appendices, not gaping.

SEEDS solitary, covered, toothed on the lateral edge.

OBS. The flower, especially the glands of the calyx, show the affinity between this and Malpighia. It differs however from that in the leafy stigmas, and winged fruit. *B. leona* has ten, the rest have eight glands. Cav.

ESSENTIAL CHARACTER.

Cal. five-parted, with melliferous pores at the base on the outside. Pet. roundish, with claws. Stigmas leaf-shaped. Seeds three, winged with membranes.

SPECIES.

- [1. *Banisteria angulosa*.
Lin. spec. 611. Reich. 2. 371. Cavan. diff. 426. t. 252. Lamarck dict. n. 1. Aublet guian. 2. 466.
Acer scandens, fol. anguloso. Plum. spec. 18.
Clematis anguloso folio, acris fructu. Plum. amer. 77. t. 92. Raii suppl. 328.
Leaves sinuate-angular.]
2. *Banisteria purpurea*.
Lin. spec. 611. Reich. 2. 372. Mill. dict. n. 7.
Cavan. diff. 423. t. 246. f. 1. Lam. dict. n. 2.
Plum. spec. 18. ic. 15. ms. t. 2. (Acer.) Burm. amer. t. 15.
Leaves ovate, spikes lateral, seeds erect.
3. *Banisteria laurifolia*.
Lin. spec. 611. Reich. 2. 372. Mill. dict. n. 1.
Swartz. obs. 182. Gertn. fruct. 2. 167. Lamarck dict. n. 3.
Ac. scand. fol. laurinis. Sloan. jam. 2. 26. Raii dendr. 94. Plum. spec. 18. ic. 14.
Leaves ovate-oblong rigid, racemes terminal.
- [4. *Banisteria longifolia*.
Swartz prodr. 75.
Leaves oblong acuminate rigid shining; panicle terminating, branches spreading very much.]
5. *Banisteria benghalensis*.
Lin. spec. 611. Reich. 2. 372. fl. zeyl. 176. Mill. dict. n. 5. Rheede mal. 6. t. 59. Pluk. alm. t. 3. f. 1.
Leaves ovate-oblong acuminate, racemes lateral, seeds spreading:
- [6. *Banisteria dichotoma*.
Lin. spec. 612. Reich. 2. 372. hort. cliff. 169. 3.
B. convolvulifolia. Cavan. diff. 428. t. 256. Lamarck dict. n. 6.
Leaves ovate, branches dichotomous.]
7. *Banisteria fulgens*.
Lin. spec. 612. Reich. 2. 373. hort. cliff. 169. 1.
Mill. dict. n. 2. Brown. jam. 231. 2. Sloan. jam. 2. 27. t. 162. f. 2. Raii dendr. 94. Pluk. mant. 185. Triopteris.
Leaves subovate tomentose underneath, racemes brachiate, peduncles umbelled.
8. *Banisteria brachiata*.
Lin. spec. 612. Reich. 2. 373. hort. cliff. 169. 2.
Mill. dict. n. 3. Lamarck dict. n. 8.
Leaves subovate, branches brachiate, seeds narrower within.
9. *Banisteria aculeata*.
Mill. dict. n. 6.
Leaves pinnate, leaflets oblong obtuse, flowers spiked, stem branching prickly.
- [10. *Banisteria coerulea*.
Cavan. diff. 421. t. 243. Lamarck dict. 1. 367. n. 4. Aubl. guian. 1. 466? Burm. amer. t. 14.
Acer. Plum. ms. 2. t. 109. spec. 18. Pluk. phyt. t. 3. f. 1.
Branches tubercled, leaves ovate-acute coriaceous, racemes axillary.
11. *Banisteria nitida*.
Cavan. diff. 422. t. 244. Lamarck dict. n. 12.

Leaves ovate-oblong quite entire shining beneath, panicle terminating leafy.

12. *Banisteria chrytophylla*.
Cavan. diff. 422. t. 245. Lamarck dict. n. 11.
Branches tubercled, leaves ovate-acute with a golden nap on the lower surface; wings very long.
13. *Banisteria muricata*.
Cavan. diff. 423. t. 246. f. 2.
Leaves ovate-acute tomentose beneath, racemes axillary, capsules muricate.
14. *Banisteria Leona*.
Cavan. diff. 424. t. 247.
Branches tubercled, leaves ovate-acuminate coriaceous, flowers panicled.
15. *Banisteria ferruginea*.
Cavan. diff. 424. t. 248.
Leaves ovate-acuminate ferruginous beneath, flowers panicled, bractes imbricate.
16. *Banisteria emarginata*.
Cavan. diff. 425. t. 249.
Leaves ovate subcordate, emarginate-cuspidate at the end; tomentose on the lower surface; flowers raceme-corymbed.
17. *Banisteria Quapara*.
Cavan. diff. 425. t. 250. Aubl. guian. 465. t. 186. Lamarck dict. n. 10.
Leaves ovate tomentose beneath, flowers in corymbs, seeds erect.
18. *Banisteria finemariensis*.
Cavan. diff. 425. t. 251. Aublet. guian. 462. t. 185. Lamarck dict. n. 9.
Leaves ovate acuminate, flowers in corymbs yellow, wings gradually widening.
19. *Banisteria orbiculata*.
B. fulgens. Cavan. diff. 426. t. 253. Lamarck dict. n. 7. Brown. jam. 231. Sloan. jam. 2. 27. t. 162. f. 2.
Stem twining; leaves orbiculate, beneath tomentose and silky; petioles biglandular.
20. *Banisteria ciliata*.
Cavan. diff. 427. t. 254. Lamarck dict. n. 13.
Leaves cordate-roundish eared smooth ciliate.
21. *Banisteria auriculata*.
Cavan. diff. 428. t. 255.
Stem twining, leaves subsagittate smooth, with rounded lobes, flowers in umbels.
22. *Banisteria ovata*.
Cavan. diff. 429. t. 257. f. 1.
Stem twining, leaves ovate acute quite entire, flowers in umbels, involucre stipuled.
23. *Banisteria palmata*.
Cavan. diff. 430. t. 257. f. 2.
Stem twining, leaves palmate tomentose beneath, petioles biglandular.
24. *Banisteria sagittata*.
Cavan. diff. 430. t. 257. f. 3.
Stem twining, leaves sagittate large tomentose, petioles biglandular.

DESCRIPTIONS, &c.

The species of this genus are all inhabitants of very hot climates, chiefly of America from Brasil to Louisiana, particularly the islands. They are shrubs, mostly with twining stems, adorning the woods with the beauty of their flowers, and the variety of their opposite leaves. Plumier detected four sorts; for the rest we are obliged to Aublet, Commerçon, and other modern travellers.

1. Stem twining, with opposite branches, thickened at the base. Leaves cordate, angular, the breadth equal to the length, ending at top in a short dagger point, green above, whitish beneath, nearly equal to the petioles, on which and near the leaf are two opposite glands. There are no stipules. Flowers in opposite axillary umbels: common peduncle elongated; rays five to seven, an inch long, jointed, having two, short, opposite bractes. At the insertion of the rays are two small suborbiculate leaves. Corolla sulphur-coloured. Native of the island of Dominique, where Plumier first observed it, Hispaniola, &c. The *B. angulosa* of Miller

• Cavanilles,

seems to be the *laurifolia* of Linneus; and the *laurifolia* of the latter to be the *dichotoma* of the former.]

2. Stems strong and woody, dividing into many branches, [which are opposite and twining. It ramps with these over the hedges. Leaves ovate, sometimes round, an inch long, on short petioles, and making the branch as it were pinnate.] There are five or six pairs of these, nearly of the same size with those of the common Acacia, but whitish on their under side. [Flowers axillary, in a kind of spike; with the partial peduncles opposite, jointed, and having a pair of very short bractes. Petals purplish, short. The third germ is frequently abortive in this species; hence Plumier was led to say that the fruit is bicapsular and two-winged^a; and Miller, that the greater number of species have two styles only.

Native of the Caribbee islands.] Mr. Miller says that it was sent him from Campeachy. [He cultivated it in 1759^c.

3. Stem shrubby, climbing, with loose, reflex, diverging, roundish, rugged branches. Leaves petioled, ovate-lanceolate, acute, entire, coriaceous-membranaceous, nerved, smooth. Racemes panicled, terminating branches and twigs decussate, ferruginous-tomentose, peduncles commonly one-flowered, ferruginous, short, yellow. Leaflets at the base of the peduncles two, opposite, minute, tomentose. Calyx five-leaved: leaflets ovate-lanceolate, acuminate, with two round, depressed, green glands fastened to the base. Petals spatulate. Anthers elliptic. Germ three-cornered, trifid at the tip: styles subulate, short: stigmas dilated, as it were halved. One of the three capsules is usually abortive: wings three or four times longer than the capsules. Native of Jamaica and Hispaniola^d.

4. Native of the West Indies^e.

5. This has strong woody stalks, twining about trees which grow near it, and rising twenty feet high. [Branches round. Leaves smooth, quite entire, petioled,] like those of the Bay-tree. [Racemes solitary, opposite, simple, the length of the leaves,] axillary, loose, on long peduncles. Corollas blue. [Fruit triple; each having a lanceolate, obtuse membrane, thicker downwards, with a small lobe on each side at the base^f. This species recedes from the genus; it has only one style, and the capsule has four wings. Native of the East and West Indies.

6. Cavanilles thus describes his *B. convolvulifolia*, to which he gives *B. dichotoma* of Linneus, as a synonym.

Stem sarmentose, slender, very tough, climbing aloft upon the neighbouring trees. Leaves ovate-acuminate, very like those of *Convolvulus*, but much larger, quite entire, smooth, bright green; the petioles and nerves red; petioles shorter than the leaf, and biglandular at top. Flowers in opposite, axillary umbels; common peduncles elongate, solitary, sometimes three together at top; rays commonly five, an inch long, jointed, with two scales at the joints, and two ovate leaflets at the base. Corolla of a golden scarlet colour, spreading. One or two of the germs are often abortive. The fruit is never pedicelled. Plumier first observed it in the island of Martinico.]

7. This has slender, winding stalks, which rise five or six feet high. The flowers grow in a round bunch at the extremity of the branches, and are of a brownish yellow colour. The seeds are smaller, and have narrower wings than in the third species.

[The leaves are ovate with a point, villose beneath, shining, smooth on the upper surface. A solitary branch comes forth from the axils, furnished with leaves, producing at top in a kind of umbel several filiform, simple, one-flowered peduncles. Seeds erect, the outer angle decreasing to an edge, the inner more blunt, putting forth a small sharp

membranaceous angle next the pistil; by the seeds on each side next the base are three small appressed toothlets^g. Native of Jamaica and Barbadoes. Miller says, Campeachy, &c.

The leaves are more oblong than in *B. fulgens* of Cavanilles (n. 19.), and though blunt are terminated by a short subulate point. He suspects it to be the same with his *B. sericea*^h.

8. Very like the foregoing, but the leaves more blunt; the upper branches flower-bearing, panicled; the inner margin of the winged seed sharp, the outer blunt; it has no toothlet besides the lateral ones at the baseⁱ.]

This sends out many branches, which divide again into others, growing without order, and become very bushy upward, sending out tendrils by which they fasten themselves to the neighbouring trees, and mount to a great height; these are garnished with oval stiff leaves, ending in a point. The flowers are produced in loose spikes at the ends of the branches; are first of a gold colour, and fade to a scarlet. These are succeeded by slender, thin seeds, and for the most part single. Native of Carthagen.

9. This has climbing stalks, which divide into many branches, garnished with long winged leaves, composed of about twenty pair of small, oblong, blunt pinnæ, each having a deep furrow on the under side. At the wings of the leaves the stalks are armed with short strong spines, a little crooked. The flowers grow in long loose spikes at the end of the branches, are succeeded by single seeds, and as large as those of the greater Maple. Native of Tolu.

[The following species are taken, with little variation, from Cavanilles's ninth dissertation on monadelphous plants, to which class he thinks these belong. Two are omitted, namely *Ban. microphylla* of Jacquin, which is *Tetrameris buxifolia*; and *Ban. sericea*, n. 589. which seems to be a doubtful species, and may perhaps be nothing more than a young specimen of *Ban. chrysophylla*.

10. Stem sarmentose, climbing: branches round, with a whitish bark, somewhat rough. Leaves quite entire, glaucous, on short petioles. Peduncles short, bracted. Calyx five-parted half way down. Corolla blueish. Filaments short, equal. Styles erect. Fruits somewhat woody and tomentose, with the wing of a sulphur-glaucous colour. Native of Jamaica and Dominique.

11. Branches smooth, round, but rendered alternately somewhat ancipital, by the running down of the petioles. Leaves acuminate, shining above, silvery beneath; petioles scarcely an inch long, from their base runs a little membrane, becoming gradually more slender, and disappearing at the next pair of leaves. Branchlets and flowers in the panicle decussately opposite; peduncles one-flowered, jointed and bracted. Capsules subtomentose, with a yellowish, shining wing. Native of Brasil, where it was found by Commerçon.

12. Stem arboreous, branched, covered with a glaucous bark, variegated with white tubercles and fissures. Leaves ovate-oblong, towards the tip obscurely sinuated, one-nerved, coriaceous: petioles short, with a small, brown gland at the base. Flowers as in the foregoing, but the peduncles thicker, and having two pairs of bractes. Fruits a little larger than the Chick-pea, smooth, running out into large golden wings. Found by Commerçon, near Rio-Janeiro in Brasil.

13. Branches round opposite. Leaves one-nerved, quite entire, on short petioles. Racemes and flowers opposite. Capsules armed with five short daggers, the lowest longer than the rest; wing rufous. The third germ is sometimes abortive. Native of Peru, where it was found by Joseph de Jussieu.

14. Branches round, with very small tubercles, otherwise smooth. Leaves large, quite entire, very smooth, one-nerved and netted with fine veins.

^a Cavanilles. ^c Hort. kew. ^f Swartz obs. ^g Swartz prodr. ^h Linneus.

ⁱ Linn. cliff. ^k Diff. p. 430. ^l Linn. cliff.

Panicle terminating, leafy, composed of axillary branchlets; each flower peduncled, with a concave, acuminate bracte at the base. The calyx has ten glands; and the corolla is small. It varies with leaves more elongated. Native of America; and found by Smeathman at Sierra Leona in Africa, whither perhaps it has been transported.

15. This does not seem to be scandent. Branches opposite, terminated by a panicle of flowers, imbricate with numerous, short bractes. Leaves rigid, hairy a little on both sides, especially the young ones, with one protuberant nerve: petioles short. Peduncles one-flowered, numerous, with a bracte at the base of each. Corolla reddish sulphur colour, small, concave. Filaments equal, a little longer than the calyx. Anthers yellow, ovate. Germs villose. Fruits villose-tomentose, coriaceous; wing an inch long, and subtomentose; with two lateral, membranaceous appendices. Seed ovate-acuminate, blunt at the base. Native of Rio-Janeiro near St. Sebastian in Brasil: and found there by Commerfon.

16. Branches slender, with a brown bark. Leaves above shining, lead-coloured when dry, ferruginously tomentose beneath, one-nerved. Petiole short, biglandular near the leaf. Flowers terminating. Corolla yellow. Stamens red. Germs tomentose. Capsules small, running out into a wing, which has one tooth at the base below without appendices. Native of America.

17. This is a shrub, six feet in height, putting out many farmentose twining branches, by which it climbs up trees. Leaves ovate-acute, quite entire, having very small hairs scattered over the upper surface, tomentose and rufous beneath. Petioles short, with two small deciduous stipules at the base. Flowers in globular axillary corymbs: the common peduncle elongated, the partial ones with two scales near the base. Corolla yellow, with unequal petals. Capsules netted, running out into a long, blunt, upright wing. Seeds lens-shaped. Native of Guiana, on the borders of meadows; flowering in august: observed there by Aublet.

18. This is a shrub with a trunk five feet high, putting forth many climbing twining branches. Leaves pale green beneath, darker green above, covered with very small bristles; and having a pair of stipules at the base of the petioles. The fifth petal of the corolla is larger than the rest and fringed. Native of Guiana, on trees, by the sides of meadows and fields; flowering and fruiting in august: observed there by Aublet.

19. Stem long, branched, jointed. Leaves large, cordate at the base, especially the lower ones, shortly acuminate, smooth above, much longer than the petioles; the upper ones orbiculate not cordate, mostly subsessile. Flowers in opposite, axillary umbels; rays several, short, jointed, with two bractes at the joints, and two short leaves at the base. Filaments short, unequal, united at the base; anthers ovate. Germs united: styles three: stigmas leafy, short. Native of Jamaica, Guadalupe, and St. Domingo.

Cavanilles attributes to this the same synonyms of Sloane and Browne, which Linneus has given to his *B. fulgens*.

20. Stem smooth, slender, twining, reddish, rough with little white dots. Leaves acute, one base of the lobes covering the other, with the toothlets hairy, so that they seem to be ciliate; the hairs are longer, and as it were recurved in the younger leaves; both surfaces are smooth; the petioles have two glands near the leaf; they have no stipules. Flowers in axillary, opposite, solitary umbels: common peduncles longer than the leaves: rays five to seven, half an inch long, with two leaflets at the base: partial peduncles one-flowered, jointed, with two bractes at the joints. Calyx half-five-cleft. Corolla an inch and half in diameter and spreading; petals crenulate, orange-coloured, with claws, resembling petioles, into which the bases of the stamens are inserted. The filaments surround the

germ in a kind of boat-shaped pitcher, and are divided above into ten unequal filaments; two of these, almost diametrically opposite, are three times thicker and longer; a third is a little shorter; the rest are capillary; three of these are between the longer filaments, and two on each side by the third. Anthers ovate, twin, larger on the longer filaments. Germs villose, coadunate at the base: styles longish, capillary: stigmas leafy, ovate, nerved. Wing of the seed ovate. Native of Brasil, where it was found by Dombey.

21. Stem slender. Leaves deeply cordate, quite entire: petiole shorter than the leaf, and near it biglandular. Flowers as in the foregoing. Seeds ovate-acute, and next the receptacle flattened. Native of Rio-Janeiro, and found there by Commerfon.

22. Stem somewhat villose. Leaves smooth above, glaucous and somewhat villose beneath, quite entire, on short petioles which are biglandular near the leaf. Flowers in axillary umbels: common peduncle an inch long: rays three, of the same length, with three bractes at the base resembling an involucre, and a little lower two opposite leaflets. Corolla red-sulphur coloured, with small petals. Stamens nearly equal, short: anthers yellow, grooved. Stigmas leafy, four-sided. Native of the island of Dominique, where it was found by Desportes and Surian.

23. Leaves divided into five acute parts, the middle one longest, cordate at their base; deep green and smooth above, very tomentose and whitish beneath; on the petiole near the leaf are two glands. Native of St. Domingo, and found there by Desportes.

24. The leaves have one tooth on each side towards the tip; they are smooth above, but tomentose beneath: and are twice as long as the petioles, on which, near the leaf, are two glands. Native of St. Domingo, and found there by Desportes.]

PROPAGATION AND CULTURE.

These plants, being all natives of hot countries, cannot be preserved in England, unless they are kept in a bark-stove. They are propagated by seeds, which must be procured from the countries where they grow naturally. These seeds should be fully ripe when gathered, and put into sand or earth, in which they should be sent to England, otherwise they will lose their vegetative quality; for from a large parcel of these seeds which were sent over in papers, as fresh as they could possibly arrive here, very few plants were raised, and those did not appear till the second year; therefore when the seeds arrive, they should be immediately sown in pots, and, if it happens in autumn or winter, the pots should be plunged into a hot-bed of tanners bark, where the heat is very moderate, and secured from frost and wet, till spring, when they must be removed to a fresh hot-bed, which will bring up the plants; but if they should not appear the first year, the pots should be preserved till the next spring, to see if the seeds will grow. When the plants come up, they must be put into separate pots, filled with light earth, and plunged into the bark bed, after which they must be treated like other tender plants from the same countries.

[BANISTERIA. See *Gouania*.

BANKSEA speciosa, Retz. See *Costus speciosus*.

BANKSIA. (So named by Linneus in honour of Sir Joseph Banks, Baronet, President of the Royal Society, who first discovered it in his voyage with Captain Cook.)

Lin. gen. Schreb. n. 191. suppl. 15. Gertn. t. 47. Juss. 79.

Class. 4. 1. Tetrandria Monogynia.

Nat. order of *Aggregatæ*. *Protæ* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leafed, four-cleft, inferior. COR. one-petalled. Tube cylindric, very short. Border very long, four-parted: parts linear, lanceolate at the tip, internally hollowed by a little cavity, acute.

STAM.

STAM. Filaments none. Anthers four, lanceolate, sessile in the cavity of the parts of the corolla.
 PIST. Germ superior, minute. Style filiform, stiff, longer than the corolla. Stigma pyramidal; acute.
 PER. Capsule ovate or globose, woody, one-celled, two-valved.

SEEDS two, obovate, convex on one side, flat on the other, terminated by a very large membranaceous veinless wing.

OBS. In some species a free or unconnected partition, of the figure and size of the cavity of the loculament, is placed between the seeds. It is of a coriaceous nature, and half-two-cleft, the clefts parallel and elastic, and when mature, reflex. (Is this an Arillus?)

ESSENTIAL CHARACTER.

Cal. four-cleft, inferior. Cor. four-parted; tube very short; border very long, linear-lanceolate. Anthers sessile in the cavity of the parts of the corolla. Caps. two-seeded, one (or two-) celled, two-valved.

SPECIES.

1. *Bankia ferrata*. Serrate-leaved *Bankia*.
Lin. syst. 161. *suppl.* 126. *White voy.* 223. fig. 1, 2, 3.
B. conchifera. *Gært. fruct.* 221. t. 48. f. 1.
Leaves linear, attenuated into the petiole, equally serrate, truncate at the end with a point.
2. *Bankia integrifolia*. Entire-leaved *Bankia*.
Lin. syst. 161. *suppl.* 127.
B. spicata. *Gært. fruct.* 221. t. 48. f. 2.
Leaves wedge-form quite entire white-tomentose underneath.
3. *Bankia ericæfolia*. Heath-leaved *Bankia*.
Lin. syst. 161. *suppl.* 127.
Leaves approximating acerose truncate-emarginate smooth.
4. *Bankia dentata*. Tooth-leaved *Bankia*.
Lin. syst. 161. *suppl.* 127.
Leaves oblong attenuated into the petiole curved flexuose toothed, teeth ending in a spinule, white underneath.
5. *Bankia pyriformis*. Pear-fruited *Bankia*.
Gært. fruct. 220. t. 47. f. 1. *White voy.* 224. fig.
Flowers solitary; capsules ovate, pubescent; leaves lanceolate, very entire, smooth.
6. *Bankia gibbosa*. Gibbous-fruited *Bankia*.
White voy. 224. t. 225. f. 2.
B. dactyloides? *Gært. 221. t. 47. f. 2.*
Flowers solitary; capsules ovate gibbous wrinkled; leaves columnar.
7. *Bankia musculiformis*. Muscle-fruited *Bankia*.
Gært. fruct. 221. *Rumph. amb.* 2. 185. t. 60.
Flowers solitary; capsules ovate-conical, muscle-shaped, pointed, with tubercles on the outside; leaves obovate, emarginate.
8. *Bankia spinulosa*. Prickly-leaved *Bankia*.
Smith New-Holl. 13. t. 4. *White voy.* 225. f. 1?
Leaves linear revolute with a little sharp point, and with spinous denticulations towards the top.

DESCRIPTIONS, &c.

This genus is nearly allied to *Protea* and *Embothrium* in appearance and character, but is sufficiently distinguished from both in the fruit. It boasts some of the most specious plants that have been discovered in the South Seas, and even in the known world.

Those with solitary flowers and one-celled capsules (n. 5, 6, 7.) form a separate genus, which Dr. Smith names *Salisburia*. This will be given in its place, and what is here imperfectly delivered will be there corrected.

1. This is the handsomest species of the genus. The leaves are at the ends of the branches, confluent, scattered, seven or eight inches long, narrow, smooth, coriaceous, flat, spreading much, surrounding the ament, which is very large, thick, columnar, obtuse, erect. Flowers much spreading, ascending, the borders pubescent on the outside and hoary ^a.

^a Linn. suppl.

It is thus described in Mr. White's voyage. Trunk thick and rugged. Leaves alternate, standing thick about the ends of the branches on short petioles, obtuse, strongly ferrate, of a bright green colour above, beneath opaque and whitish, with a strong rib running through their middle. A very large cylindrical spike of flowers terminates each branch: most of these are abortive, a few only in each spike producing ripe seed. The style growing more rapidly than the corolla, is held in a curved position by it. The capsules are covered with thick down. In the third figure, the leaves are not well represented.

The flowers and fruits are collected into a large globular ament. The capsule is between the globular and kidney shape, on a conical peduncle, thick, woody, pubescent with fulvous wool, two-celled, and gaping on the gibbous side: partition free, of the same form and size with the cavity of the cell, coriaceous-woody, half-two-cleft; the laminae, when ripe, reflex and elastic. Seed in each cell single, rather large, winged, dark brown. Embryo obovate, erect, white: lobes thin, somewhat leafy: radicle acuminate, inferior. The corolla is plainly one-petalled, with a short tube, the segments linear, very long, lanceolate at the tip, with an anther-bearing cavity on the inside. Style longer than the corolla, rigid, pyramidately head-shaped ^b.

2. The leaves are subverticillate at the ends of the twigs ^c. The flowers and fruits are collected into a cylindric ament; and, before they are ripe, are pubescent with a nap of snowy whiteness. Capsule coriaceous, orbiculate at top, turgidly lens-shaped, continued at bottom into a conical, compressed beak; within it is black, two-celled, and gapes at the tip ^d.

3. The leaves of this are very small, but more abundant than in the foregoing sort ^e.

4. The flowers in this species are smaller than in the others ^f.

5. The capsules are larger than in any other known species, being three inches long: they are in the shape of a pear inverted, woody, very thick, covered with a short, ash-coloured nap, resembling that of a peach: they are one-celled, and open longitudinally on the lower side. There is no receptacle, except a filiform umbilical chord extending from the bottom of the capsule to the outer side of the seed. There are two seeds, of a rufous cinnamon colour, convex on one side, flat on the other, with a very large, membranaceous, veinless wing ^g.

6. The leaves are perfectly cylindrical, about two inches long, and one line in diameter, pale green and smooth.

If this be the *B. dactyloides* of Gærtner, his figure is by no means a good one: but as he is in general very accurate, this is probably a different plant ^h.

Gærtner thus describes the fruits. They are aggregate on the middle of the branches. Capsules an inch long, ovate-globular, woody, thick, one-celled, two-valved; cell excentric, very much compressed. Seeds two, plano-convex, winged, bay-brown. Embryo obovate, grass-green; lobes plano-convex, thin; radicle acuminate, short, inferior. Dr. Smith however assures me that these are different species.

7. Leaves alternate, from six to eight inches long, and three broad. Flowers in a short, simple raceme, in which only one or two fruits ripen ⁱ. The capsule is from an inch to two inches or more in length, acuminate, woody, rough with roundish tubercles, or transverse winding sinuses, variegated brown and rust colour, one-celled. Seeds two, dark bay ^k.

8. Stem woody, branched; the branches commonly three or more together, curved upwards. Leaves irregularly scattered, closely covering the branches, on very short footstalks, but little spreading, from an inch and half to two inches in length, very narrow, revolute in the margin,

^b Gærtner.

^c Ibid.

^d Linn. suppl.

^e Gærtner.

^f Gærtner.

^g White voy.

^h Gærtner.

ⁱ Linn. suppl.

^k Rumphius.

green,

green and smooth above, white and downy beneath, ending very abruptly, tipped with three little spines, and having several of the same kind hooked upwards, in the margin, particularly towards the top: the young leaves are very downy. Flowers thick set in a cylindrical erect spike, arising from the divariations of the branches. Their common receptacle is cylindrical, rather obtuse, covered with closely imbricated downy scales, some of the lowermost of which terminate in a long downy pointed awn, and from among the rest the flowers come out in pairs.

It differs from *B. ericifolia* in having leaves at least four times as long, obtuse, but with a small central sharp point from the midrib between the other two terminal points, as well as in having a greater or less number of small sharp-hooked lateral teeth towards the end of each leaf.

The inhabitants of New South Wales call it *Wattangre*. All these plants are natives of that country, except the seventh, which Rumphius observed in Amboina, in 1693.

PROPAGATION AND CULTURE.

Some of the species have flowered and seeded here. They have not yet been increased any other way but by seeds. These, and the plants in general from the South Seas, are hardy considering their climate, and may be treated pretty much in the same manner with the Cape plants. They covet abundance of air, and flourish best near the front of the dry stove.

BANKSIA, Forst. See *Pimelea*.]

BAOBAB. See *Adansonia*.

[BARA NAREKA. See *Dolichos*.]

BARBA CAPRÆ. See *Spiræa*.

[BARBADOES Bastard-Cedar. See *Cedrela*.

Cherry. See *Malpighia*.

Gooseberry. See *Cactus Pereskia*.

Wild Olive. See *Bontia*.]

BARBA JOVIS. See *Amorpha*, *Anthyllis*, *Cytisus*, *Ebenus*, and *Psoralea*.

BARBAREA. See *Dentaria* and *Erysimum*.

[BARBERRY. See *Berberis*.]

BARDANA. See *Arctium*.

[BARK-BEDS. See *Hot-beds*.

BARK, Jesuit's. See *Cinchona*.]

BARLERIA. (This name was given by Plumier in honour of the reverend James Barrelier, a Dominican, and M. D. of Paris, who travelled from France into Spain and Italy, and died, aged sixty-eight, on the 17th of September 1673. His *Icones* were published in 1714. *Par. folio*.)

Lin. gen. n. 785. Reich. 848. Schreb. 1051.

Plum. 31. Juss. 103. Gært. i. 54.

Class. 14. 2. Didynamia Angiospermia.

Nat. order of *Personatae*. *Acanthi* Juss.

GENERIC CHARACTER.

CAL. Perianth four-parted, permanent; two opposite leaflets larger.

COR. monopetalous, funnel-form, quinquefid, subequal: the fifth division deeper.

STAM. Filaments four, filiform; two very short, capillary. Anthers, the upper oblong, the lower withered.

PIST. Germ ovate. Style filiform, the length of the stamens. Stigma bifid.

PER. Capsule acute, flat-quadrangular, two-celled, two-valved, gaping elastically at the claws. Partition contrary.

SEEDS two, compressed, roundish.

OBS. An intermediate genus between *Ruellia* and *Jussiaea*.

ESSENTIAL CHARACTER.

Cal. four-parted. Stam. two far less than the others. Caps. quadrangular, bilocular? bivalvular, elastic without the claws. Seeds two.

SPECIES.

[1. *Barleria longifolia*.

Lin. spec. 887. syst. 576. Reich. 3. 193. aman.

4. 320.

Anchusa. Pluk. alm. 30. t. 133. f. 4. Mor. hist. 3. f. 11. t. 27. f. 5.

Spines of the whorls sixfold; leaves ensiform very long, scabrous.]

2. *Barleria solanifolia*.

Lin. spec. 887. syst. 576. Reich. 3. 193. Mill.

dict. n. 1. Plum. gen. 31. ic. 43. f. 2.

Spines axillary, leaves lanceolate toothletted.

[3. *Barleria Hystrix*.

Lin. syst. 576. Reich. 3. 193. mant. 89.

Lycium. Seba mus. 1. 21. t. 13. f. 1.

Melampyro cognata. Pluk. alm. 243. t. 119. f. 5.

Hystrix frutex. Rumph. amb. 7. 22. t. 13.

Spines axillary twin simple, leaves quite entire, lanceolate-ovate.]

4. *Barleria Prionitis*.

Lin. spec. 887. syst. 576. Reich. 3. 194. fl. zeyl.

233. *Mill. dict. n. 2.*

Prionitis. Lin. hort. cliff. 486.

Coletta-Veetla. Rheed. mal. 9. 77. t. 41.

Spines axillary pedate fourfold; leaves quite entire lanceolate-ovate.

5. *Barleria buxifolia*.

Lin. spec. 887. Reich. 3. 194. Mill. dict. n. 3.

Amm. herb. 104.

Carauschulli. Rheed. mal. 2. 91. t. 47.

Spines axillary opposite solitary, leaves roundish quite entire.

[6. *Barleria noctiflora*.

Lin. syst. 577. suppl. 290.

Spines axillary branching, leaves lanceolate quite entire cuspidated; bractes ovate scarious, tube elongated.

7. *Barleria cristata*.

Lin. spec. 887. Reich. 3. 194. Ofb. it. 225. t. 8.

Melampyro cognata, &c. Mor. hist. 3. 429. f. 11.

t. 23. f. 7.

Leaves oblong quite entire, two leaflets of the calyx broader ciliated, and two linear acute.]

8. *Barleria coccinea*.

Lin. spec. 888. Reich. 3. 195. Mill. dict. n. 4.

Plum. gen. 31. ic. 43. f. 1.

Unarmed, leaves ovate toothletted petioled.

[9. *Barleria pungens*.

Lin. syst. 577. suppl. 290.

Unarmed, leaves ovate acute pungent, bractes ciliated.

10. *Barleria longiflora*.

Lin. syst. 577. suppl. 290. Gært. fruct. 253.

Unarmed, leaves ovate silky, bractes cordate scarious, corollas very long.

11. *Barleria procumbens*.

Lour. cochinch. 377.

Unarmed; leaves lanceolate crenate hispid, heads terminating.

DESCRIPTIONS, &c.

1. Stem bluntly quadrangular, erect; hispid. Leaves opposite, lanceolate-sword-shaped, quite entire, thrice the length of the internodes. Flowers in whorls, axillary. The spines of the stem are three on each side, the length of the whorls^a. Native of the East-Indies.

It was introduced in 1781, by Sir Joseph Banks, Bart.^b]

2. This rises with upright square stalks three feet high; and has two oblong entire leaves at every joint: above which the flowers come out in whorls surrounding the stalks, and under each whorl there are six sharp spines, which are as long as the calyx. These joints are about three inches from each other. The flowers are blue, and have more of the form of the labiate flowers than any of the other species. I received it from Panama.

[3. This is carefully to be separated from the next species. The stem is wand-like, not firm; the branches are rather quadrangular than round: the leaves smooth on both sides, not pubescent underneath. The axillary spines are twin, simple, sessile, horizontal; not erect, compound in fours, and pedate. Native of the East-Indies^c.

4. Stem herbaceous, round, stiff. Leaves opposite, running down the petioles, pubescent underneath: between the branch and the leaf a spine

^a Linn.

^b Hort. kew.

^c Linn.

with four sharp rays from the same centre. Flowers sessile in the axils. Calyxes acuminate-spiny. Two of the four stamens very small at the bottom of the corolla, with little anthers. The capsule has a longish solid point; and bursts without such internal elastic points as are in the *Justicia*. Native of the East-Indies^d.]

5. This has shrubby stalks, five or six feet high, with strong spines under the leaves. The flowers are produced in whorls toward the upper part of the stalk; these are succeeded by short seed-vessels, containing three or four flat seeds. Native of Jamaica, [and the East-Indies.

6. Bractes smooth, not hirsute. Flowers blue, resembling those of *buxifolia*, but longer, and expanding during the night. Observed near Tanjour, in the East-Indies, by Koenig^e.

7. Stem round. Leaves oblong, ovate, sharp at both ends. Flowers axillary, sessile. Two leaflets of the calyx ovate, acuminate, serrate-spiny; two alternate shorter, linear, acute, quite entire, spreading. Corolla blue, erect, spreading, with ovate lobes. Stigma obtuse. Capsule the length of the calyx; valves boat-shaped, with a longitudinal partition, and an elastic spine on the edge^f.]

8. Stems smooth, four feet high. Flowers scarlet, in whorls at the joints, appearing from July to September, and succeeded by short pods inclosing flat seeds. Native of South America.

[9. Found at the Cape of Good Hope by Thunberg^g.

10. This is an undershrub, with the branches generally opposite, silky and round. Leaves opposite, petioled, quite entire. Flowers terminating. Bractes two or bivalve, parallel, netted, bluntish, sessile, almost as large as the leaves; and below these four other bractes disposed crosswise, linear, the length of the leaves, spreading, silky^h. Capsule oblong, drawn to a point at each end, four-cornered, the sides unequal; it is two-celled, two-valved, opening elastically, dark chestnut-coloured: partition contrary to the valves, bifid, with alternate, hooked supports to the seeds; which are so flattened as to be almost like a bracte, of a brown bay colour, covered with waved bundles of appressed hairs, readily expanding in water into a floccose comaⁱ.

Observed on the mountain of St. Thomas in Malabar by Koenig^k.

11. This also is an undershrub, without spines, procumbent, twisted, hispid. Leaves opposite, broad-lanceolate. Flowers yellow. Bractes acuminate, ciliate. Segments of the calyx subulate, hairy. Capsule oblong, angular, with orbicular seeds. Native of China, near Canton^l.

PROPAGATION AND CULTURE.

Barlerias being all natives either of the East-Indies or South America, require the protection of the bark stove. The second, fourth, fifth and eighth were cultivated by Mr. Miller, but the others have not made their appearance in our stoves.]

The roots of the second sort will continue three or four years, but after the second year, the plants grow too rambling, and the lower parts of the branches being naked, are not so sightly as the young plants; therefore a succession of these should be raised, and the old ones turned out. They are propagated by seeds, which will sow themselves in the pots which are near them in the stove, when the plants are once obtained; but where the seeds are received from abroad, they must be sown upon a hot-bed in the spring; and when the plants are fit to remove, they must be each planted in a separate pot, and plunged into a hot-bed of tanners bark, where they must constantly remain, and be managed in the same manner as other tender exotics from the same countries; giving them water frequently in summer, and letting the fresh air to them every day in warm weather, but in winter they should have

less water and be kept warm. They flower from June to November, and their seeds ripen soon after.

The fourth sort has flexible perennial stalks, which if cut off during the summer months, and made into lengths of six or eight inches, and planted in pots, plunging them into a hot-bed, and duly watered and shaded from the sun, will soon put out roots, so may be planted each in a small pot, and plunged into the tan-bed in the stove; for although this sort may be kept in a dry stove through the winter, yet the plants will not grow near so fast, nor will their leaves be so large as those which are plunged into bark. By this method the plants may be propagated in plenty, but as they rarely produce flowers in England, so two or three plants will be sufficient to maintain the species.

The fifth and eighth sorts will produce seeds in England, provided the plants are kept in the tan-bed in the stove, these therefore may be propagated by seeds, which should be sown in the hot-bed, and the plants afterward treated in the same manner as the former.

BARLEY. See *Hordium*.

[BARNADESIA. (So named by Mutis, from Michael Barnades, a Spanish botanist.)

Lin. gen. Schreb. n. 1260. suppl. 55. Juss. 178. Class. 19. 1. Syngenesia Polygamia Æqualis.

Nat. order of *Compositæ Discoideæ*. *Corymbiferae* Juss. GENERIC CHARACTER.

CAL. Common somewhat ventricose, spreading at the tip, imbricate: scales numerous, gradually longer from base to tip: the inferior or exterior ovate, closely imbricate, sharp, pungent; the superior or interior subulate, flat, spreading, pungent.

COR. Compound rayed. Corolllets hermaphrodite, tubular, very few (three or four) remote, in the disk; ligulate, in a simple series, in the ray. Proper to the former funnel-form: tube very short; border hairy, five-parted; parts erect, converging. Proper to the latter ligulate, lanceolate, spreading at the base, incurved at the tip, and split; outwardly very hairy; tube longer than the calyx.

STAM. Filaments five. Anther cylindric, tubular.

PIST. Germ ovate. Style filiform, longer than the stamens. Stigma bifid: clefts spreading, ovate-rounded.

PER. none. Calyx converging.

SEEDS very many, ovate, hairy: hairs reversed. Down of the flowers of the disk bristly: rays subulate, stiff, broken backwards, naked, or covered with extremely minute hairs. Of the radial flowers long, erect, spreading, many-rayed, feathery, soft.

REC. flat, villose, without chaff.

ESSENTIAL CHARACTER.

Cal. naked, imbricate, pungent. Cor. radiate. Down, of the ray feathered—of the disk bristly, broken backwards.

SPECIES.

1. *Barnadesia spinosa*.

Lin. syst. 730. suppl. 348.

DESCRIPTION, &c.

This is a shrub, with very smooth branches, set with a pair of thorns, at their origin, which at first were stipules; they are patulous, brown and smooth. Leaves alternate, simple, ovate, quite entire, sharp, flat, veined, somewhat hairy on both sides, whitish underneath. Petioles very short. Stipules in pairs, small, subulate. Flowers paniced, terminating. Calyx pubescent. The flower is singular in having two sorts of down.

Native of South America, where it was found by Mutis^a.

BAROMETZ. See *Polypodium*.

BARONYCHIA. See *Asplenium Ruta muraria*.

BARRENWORT. See *Epimedium*.]

[BARRERIA. (So named from Peter Barrere, Professor of Medicine at Perpignan, author of Hist. Nat. de la France Equinoxiale. Par. 1714. 12°.

Lin. gen. Schreb. n. 1366. Scop. gen. n. 767.

Poraqueiba. Aubl. t. 47.

Class. 19. 6. Syngenesia Monogamia.

^d Linn. ^e Ibid. ^f Ibid. ^g Ibid. ^h Ibid.
ⁱ Gærtner. ^k Linn. ^l Loureiro.

B A R

GENERIC CHARACTER.

CAL. *Perianth* one-leaved, five-toothed, small.
COR. one-petalled, five-parted. *Parts* oblong, acute, convex beneath, concave above: with a double *pit*: the superior ovate, bifid, the wedge-shaped one trifid; excavated for the reception of the stamens.
STAM. *Filaments* five, ascending, linear, wider above, thick, triangular? bordered, curved. *Anthers* erect, four-cornered, marginated, coalescing into the form of a mill-wheel; each, in the closed flower, answering, together with the filaments, to the pits of two of the petals.
PIST. *Germ* roundish. *Style* short. *Stigma* trifid.
PER.
SEEDS.

ESSENTIAL CHARACTER.

Cal. five-toothed, very small. *Cor.* five-parted.
Style short. *Stigma* trifid.

SPECIES.

1. *Barreria guianensis*.
Poraqueiba guianensis.
Aublet. guian. 123. t. 47.

DESCRIPTION, &c.

This tree rises forty or fifty feet in height, and is two feet and a half in diameter: the bark is ash-coloured, and the wood is reddish brown, hard and compact. It sends forth from the top a great number of branches, which rise and spread in all directions. These branches are loaded with twigs, on which are alternate, entire, smooth, firm, ovate leaves, ending in a long point: their petiole is short, convex beneath, channelled above; the largest are seven inches long and three broad. The flowers are in small axillary spikes, alternate, and almost sessile. Native of Guiana, in the extensive forests, near the banks of the river Sinemari, fifty leagues from its mouth. It flowers there in november^a.

BARRINGTONIA. (So named by Forster, from the Hon. Daines Barrington, fellow of the Royal and Antiquary Societies, and one of the Welch Judges.)

Lin. gen. Schreb. n. 1150. *Forst. gen.* 38. *Lin. suppl.* 50. *Thunb. nov. gen.* 47. *Gertn. t.* 101. *Mammeæ spec. Edit. prior.* *Commerfona. Sonnerat. nov. Guin.* 8. *Butonica. Rumph. Hort. kew.* 2. 439. *Juss.* 326.

Class. 16. 6. Monadelphia Polyandria.—Polyandria Monogynia. *Forst. & Thunb.*

Nat. order of *Hesperidæ.* *Myrti Juss.*

GENERIC CHARACTER.

CAL. *Perianth* two-leaved, superior: *leaflets* roundish, concave, coriaceous, permanent.
COR. *Petals* four, equal, ovate, spreading, coriaceous, larger than the calyx.
Nectary conic, tubular, coating the base of the style, toothed at the tip: teeth several, unequal.
STAM. *Filaments* very many, monadelphous, (or conjoined from the very base into a cylinder seated on the receptacle,) capillary, longer than the corolla. *Anthers* small, roundish.
PIST. *Germ* inferior, turbinate. *Style* filiform, length of the stamens. *Stigma* simple.
PER. *Drupe* large, ovate, conic-quadrangular, crowned by the calyx.
SEED. *Nut* long, ovate, outwardly wrinkled-fibrose, four-celled. *Kernels* ovate, wrinkled.

ESSENTIAL CHARACTER.

Cal. simple, two-leaved, superior, permanent. *Fruit* a dry four-cornered drupe, inclosing a nut one to four-celled.

SPECIES.

1. *Barringtonia speciosa. Laurel-leaved Barringtonia.*
Lin. syst. 620. *suppl.* 312. *Cook voy.* 1. 157. n. 24. *fig.* *Forst. florul. n.* 255. *nov. gen.* 38. *J. F. Miller, ic.* 7.
Mammea asiatica. Lin. syst. edit. 13. 409. *spec.* 731. *Osborn. it.* 278. *Thunb. nov. gen.* 2. p. 47.
Commerfona. Sonn. guin. 14. t. 8, 9.
Butonica. Rumph. amb. 3. 179. t. 114.—*speciosa.* *Ait. hort. kew.* 2. 439.

^a Aublet.

B A R

DESCRIPTION, &c.

This is a lofty tree, and the handsomest in the whole equinoctial Flora, with its thick, shady bunches of leaves, and its large handsome, purple and white flowers, every where mixed with them. The trunk is lofty, thick, straight: covered with a dark-gray, smooth bark, scored with little chinks. The branches are round, expand very widely, are subflexuose, variously divided, covered with a chinky bark, and leafy at the ends. The leaves are crowded, the upper ones in a kind of whorl, sessile, wedge-form, obtuse, quite entire, expanding, from a foot to fifteen inches in length, thick, coriaceous, very smooth, shining, dark green, with yellow veins, the rachis yellow, thick, marked with a red base. The flowers are borne on a solitary, erect thyrses, a foot in length, at the ends of the branches. Peduncle round, subangular, very smooth, subflexuose, a foot long. Pedicels five to twenty, one-flowered, scattered, round, very smooth, expanding, three or four inches long, and the thickness of a goose-quill. Bractes roundish, very smooth, quite entire, sessile, deciduous, solitary at the base of the pedicels. Flowers very large, very white and transparent. Filaments white, with a purple top, and diaphanous at the base. Anthers gold-colour. Style white with a purple top. Drupe reddish brown. The flowers open during the night, and fall at sun-rise; the birds also pluck them off, and the ground about these trees is perfectly covered with them. The seed mixed with the bait, inebriates fish in the same manner with *Cocculus indicus*, &c.

It grows within the Tropics, especially on the shores of the ocean, and at the mouths of rivers, in the East-Indies, from the southern coasts of China through the Molucca isles to Otaheite and the other Society isles, the Friendly isles, &c.—It is cultivated in the governor's garden at the island of St. Helena^b.

Introduced 1786, by Mr. Anthony Hove^c.]

BARTRAMIA. See *Triumfetta*.

[**BARTSIA.** (So named by Linnæus, in memory of his beloved friend John Bartsch, M. D. of whom he gives an interesting melancholy account in his *Flora suecica*.)

Lin. gen. n. 739. *Reich.* 797. *Schreb.* 996. *Juss.* 100.

Class. 14. 2. Didynamia Angiospermia.

GENERIC CHARACTER.

CAL. *Perianth* one-leaved, tubular, permanent: *mouth* obtuse, two-lobed: lobes emarginate, coloured at the top.
COR. monopetalous, ringent: *upper lip* erect, slender, entire, longest; *lower* reflex, trifid, obtuse, very small.
STAM. *Filaments* four, bristle-shaped, the length of the upper lip; two somewhat shorter. *Anthers* oblong, approximating, under the top of the upper lip.
PIST. *Germ* ovate. *Style* filiform, longer than the stamens. *Stigma* obtuse, nodding.
PER. *Capsule* ovate, compressed, acuminate, two-celled, two-valved; *partition* contrary to the valves.
SEEDS numerous, angular, small.

OBS. *This is an intermediate genus between Rhinanthus, Euphrasia, and Pedicularis, distinguished by its coloured calyx.*

ESSENTIAL CHARACTER.

Cal. two-lobed, emarginate, coloured. *Cor.* coloured less than the calyx; upper lip longest. *Caps.* two-celled.

SPECIES.

1. *Bartsia coccinea. Red Bartsia.*
Lin. spec. 839. *syst.* 548. *Reich.* 3. 104. *hort. cliff.* 325. 1. *amæn.* 1. 160. *Gron. virg.* 20. 92. *Kalm. it.* 3. 100.
Pedicularis. Pluk. alm. 283. t. 102. f. 5. *Raii suppl.* 400. n. 9.
Homium. Mor. hist. 3. 395. f. 11. t. 13. f. 28. *Leaves alternate linear, two-toothed on each side.*
2. *Bartsia pallida. Pale-flowered Bartsia.*
Lin. spec. 839. *Reich.* 3. 104. *amæn.* 2. 356. *Gmel. fib.* 3. 201. n. 11. t. 42.

^b Linn. suppl.

^c Hort. kew.

B A R

- Leaves alternate lanceolate quite entire; floral leaves ovate, toothed.*
3. *Bartsia viscosa*. *Viscid Bartsia*, or *Yellow marsh Eyebright*.
Lin. spec. 839. *Reich.* 3. 105. *Huds. angl.* 267.
With. 632. *Lightf. scot.* 321. t. 14. *Ger. prov.* 283.
Euphrasia. *Raii hist.* 772. n. 4. *syn.* *285. *Pluk. alm.* 142. t. 27. f. 5. *Mor. hist.* 3. 432. n. 15. *Pet.* 36. 6.
Alectorolophos. *Barr. rar.* 209. t. 665.
Upper leaves alternate serrate, flowers distant lateral.
4. *Bartsia alpina*. *Alpine Bartsia*.
Lin. spec. 839. *Reich.* 3. 105. *suec.* 541. *hort. cliff.* 325. 2. *lapp.* 246. (*Euphrasia*.) *Scop. carn.* n. 750. *Huds. angl.* 267. *With.* 633.
Stæhelinia. *Hall. belv.* n. 312. *Crantz. austr.* 294.
Euphrasia. *Raii syn.* *285. n. 3.
Cratægonon. *Raii hist.* 773. n. 5.
Pedicularis. *Oed. dan.* t. 43.
Clinopodium. *Baub. pin.* 225. n. 5. *Pona bald.* 343.
Pluk. phyt. t. 163. f. 5.
Teucrium. *Baub. pin.* 247. n. 6.
Leaves opposite cordate obtusely serrate.
5. *Bartsia Gymnandra*.
Lin. syst. 549. *suppl.* 278.
Lagotis glauca. *Gærtn. in nov. comm. petrop.* 14. p. 534. t. 18. f. 2.
Gymnandra borealis. *Pall. it.* 3. 710. t. A. f. 1.
Veronica. *Gmel. fib.* 3. 219. n. 33.
Two-stamened; leaves radical two-fold petioled; stem mostly two-leaved one-spiked; spike linear obtuse; whorls bracted collected.

DESCRIPTIONS, &c.

1. This most beautiful plant has a stem entirely simple. Leaves divided, crowded towards the top into a spike, having a single flower to each leaf. Calyxes tinged towards the tip of a very deep red, as are also the trifid bractes. Capsule elastic. The fructification is not yet well ascertained^a.

Ray describes the leaves as hardly an inch long, broad, trifid, with the side segments narrow, tinged at the end with red. From the axils come out small pale flowers, on very short peduncles, in loose membranous hirsute bladdery calyxes.

It was found in Maryland by Vernon, in Virginia by Banister and Clayton, and in New York by Kalm.

2. Root fibrose. Stem round, almost upright, quite simple, somewhat streaked, villose towards the top. Leaves sessile, linear-lanceolate, three-nerved, longer than the internodes; the lower ones smaller, undivided: the upper longer, broader, with an oblong tooth on each side. Floral leaves involving the calyxes, not longer than the flowers, but broader, coloured, more obtuse, trifid or quinquefid. Spike terminating, leafy, a little inclining to one side: flowers alternate, sessile: corolla purple^b.

Native of Siberia and Hudson's Bay. Introduced in 1782, by the Hudson's-bay company^c.

3. Stem a foot high, upright, cylindric, simple, hirsute. Leaves lanceolate, sessile, wrinkled, sharply serrate, slightly hairy, an inch and half long, some opposite, others alternate. Flowers axillary, single, on short peduncles. Calyx very large, as long as the corolla, streaked, divided deeply into five segments which are lanceolate. Corolla yellow. The whole plant is clammy^d. It is an annual plant, native of France, Italy, and Britain: in the marshes of Cornwall, Devonshire, Lancashire, and Staffordshire; and of Argyleshire in Scotland: flowering in July and August.

4. Stem simple, six or seven inches high, hard, villose, obtusely quadrangular. Leaves dry, subhirsute, brownish green, sessile. Flowers solitary from the upper axils, forming a short terminating spike. Peduncles smooth, blueish. Calyx four-cleft. Corollas reddish blue or purple; helmet villose, slightly bifid, longer than the lip; stamens

^a Linneus.

^b Linn. amæn.

^c Hort. kew.

^d Woodw. in With. and Ray.

B A S

bearded. Capsule acuminate, terminated by the style. Seeds subtrigonal, as far as twenty-six in one cell^e.

Native of the mountains of Lapland, Switzerland, Savoy, monte Baldo, and near Orton in Westmoreland.

5. Stem three or four inches high, round, upright, smooth, entirely simple. Root-leaves thickish, succulent, oval, entire or serrate, very smooth; in the middle of the stem alternate, ovate, sessile. The spike consists of collected whorls. Bractes ovate, blueish. Calyx compressed, three-toothed. Corolla pale blue; lower lip bifid or trifid. Capsule four-toothed. It varies in the size and form of the leaves, which are sometimes connate and doubly serrate. It grows within the arctic circle, on the north side of the frozen rocks in Kamtschatka, where there is no other vegetation^f.

BARTSIA. See *Euphrasia* and *Rhinanthus*.]

BASĒLLA, (*a basis fucatis*. Lin. *A Malabar name*. Rheede.)

Lin. gen. n. 382. *Reich.* 413. *Schreb.* 520.

Juss. 84. *Gærtn.* t. 126.

Class. 5. 3. Pentandria Trigynia.

Nat. order of Holoraceæ. Atriplices Juss.

GENERIC CHARACTER.

CAL. none.

COR. seven-cleft, pitcher-shaped; the two outer divisions broader, one within the rest, converging above, fleshy at the base. (Gærtner calls this the calyx, and says that the clefts are from five to seven.)

STAM. Filaments five, subulate, equal, fastened to the corolla, and shorter than it. Anthers roundish.

PIST. Germ superior, subglobular. Styles three, filiform, the length of the stamens. Stigmas oblong, on one side the tops of the styles.

PER. Corolla permanent, closed, fleshy, counterfeiting a berry.

SEED single, roundish.

ESSENTIAL CHARACTER.

Cal. none. Cor. seven-cleft; two opposite divisions shorter, at length berried. Seed one.

SPECIES.

1. *Basella rubra*. *Red Malabar Nightshade*.

Lin. spec. 390. *Reich.* 748. *fl. zeyl.* 119. *Gærtn. fruct.* 2. 200. *Sabb. hort.* 2. t. 98. *Rheede.*

mal. 7. 45. t. 24. *Thunb. jap.* 127. *Raii*

suppl. 358. n. 13.

Cuscuta. *Lin. hort. cliff.* 39.

Gandola rubra. *Rumph. amb.* 5. 417. t. 154. f. 2.

Leaves flat, peduncles simple.

2. *Basella alba*. *White Malabar Nightshade*.

Lin. spec. 390. *Reich.* 748.

Gandola alba. *Rumph. amb.* 5. 417. *Pluk. alm.* 252. t. 63. f. 1.

Murasakki. *Kæmpf. amæn.* 784.

[3. *Basella lucida*. *Shining Malabar Nightshade*.

Lin. spec. 391. *Reich.* 748.

Leaves subcordate, peduncles crowded branching.

4. *Basella nigra*. *Black Malabar Nightshade*.

Lour. cochinch. 183.

Leaves round-ovate, spikes lateral.]

DESCRIPTIONS, &c.

1. The first sort has thick, strong, succulent stalks and leaves, of a deep purple colour. The plant requires to be supported, for it will climb to the height of eight or ten feet, when the plants are kept in a stove or glass-case, and produce a great number of side branches: but if they are exposed to the open air, they will not grow so large, nor will they perfect their seeds, except it be in very warm seasons; when they are placed in the bark-stove, they will often live through the winter, and produce great quantities of flowers and seeds. The flowers of this plant have no great beauty, but the plant is preserved for the odd appearance of the stalks and leaves.

[The fruit is a sort of spurious berry, of a very dark red colour, flattened a little, furrowed crosswise at top, formed out of the calyx (or corolla) and

^e Scopoli.

^f Linn. suppl.

containing a single nut, of a subglobular form, with five very obscure streaks, and a large umbilical aperture at the base. Medicus affirms that the nut has naturally three cells, with one seed in each^a.

It is a native of the East-Indies, Amboina, Japan, &c. and was cultivated in 1739, by Mr. Miller^b. In the *hortus malabaricus* it is said, that seed sent from Ceylon grew in the botanic garden at Amsterdam, in 1684.^c

From the berries of this sort, a beautiful colour is drawn, but when used for painting, does not continue very long, but changes to a pale colour; though I believe this beautiful colour might be fixed, so as to become very useful; for I have been assured, that the juice of these berries has been used for staining calicoes in India.

2. This has smaller stalks, the leaves are oblong and flaccid, and the flowers and fruit are smaller than in the foregoing. Mr. Miller received the seeds from Jussieu, and raised two varieties from them; one with purple stalks and leaves, the other having leaves variegated with white. [It was however cultivated by Bishop Compton in 1691. It is a native of China^d and Amboina.

3. This is a native of the East-Indies. All the three sorts have a very near relation; they keep themselves however distinct in our gardens^d.

4. Stem perennial, twining, slender, round, succulent, branched. Leaves thick, smooth, quite entire, alternate, petioled. Flowers purple and white, lateral, few, in simple, long, solitary, spikes. Calyx three, roundish, acuminate, very small scales. Corolla one-petalled, with a short swelling tube, and a six-cleft border; the clefts ovate, concave, bent in, almost closed. Germ four-lobed. Styles shorter than the stamens. Berry roundish, deep black, small, four-lobed, with four blunt concave clefts at top^e.

Loureiro is of opinion, that the berry is formed from the germ and not from the corolla; because it is four-lobed, as the germ is, whereas the tube of the corolla is simple, and the border six-cleft. He seems to think, that his plant is the same with the *Gandola alba* of Rumphius, but different from the *Bafella alba* of Linneus. Perhaps none of these are specifically distinct.

This is a native both of China and Cochin, in the hedges and fences of their gardens.]

PROPAGATION AND CULTURE.

These plants are propagated by seeds, which should be sown on a hot-bed in the spring; and when the plants are fit to remove, they should be each planted into a separate pot filled with rich earth and plunged into the tan-bed, where they must be treated in the same manner as other tender exotics. They may also be propagated by cuttings, which should be laid to dry a day or two after they are taken from the plants, before they are planted, that the wound may heal, otherwise they will rot. These cuttings must be planted into pots filled with light fresh earth, and plunged into a moderate hot-bed of tanners bark, where they will take root in a fortnight or three weeks time, when they should be treated in the same manner as the seedling plants. But as these rise so easily from seeds, it is seldom they are propagated any other way, because they are plants of short duration. These flower from June to autumn, and the seeds ripen in September and December.

These plants will climb to a considerable height, and send forth a great number of branches, so that they should have a place near the back of the stove, where they may be trained up to a trellise, or fastened to the back of the stove, otherwise they will twist themselves about whatever plants stand near them, and be very injurious to the other plants; whereas, when they are regularly trained to a trellise, they will have a good effect in adding to the variety.

^a Gartner.

^b Hort. kew.

^c Ibid.

^d Linn.

^e Loureiro,

[BASIL. See *Clinopodium*.]

BASILICUM. See *Ocimum*.

BASSIA. (Named by Koenig, in honour of Ferdinando Bassi, Curator of the Botanic Garden at Bologna.)

Lin. gen. Reich. n. 645. Schreb. 805. Juss. 152.
Gartn. t. 104.

Class. II. 1. Dodecandria Monogynia:

Nat. order of *Dumoseæ*. *Sapotæ* Juss.

GENERIC CHARACTER.

CAL. Perianth four-leaved; leaflets coriaceous, ovate; permanent.

COR. monopetalous, bell-shaped; tube inflated; ovate, fleshy: border shorter than the tube, eight-parted; divisions ovate, almost upright.

STAM. Filaments sixteen; eight below the jaws; and eight in the middle of the tube. Anthers linear, sagittate, acute, villose on the inside, shorter than the corolla.

PIST. Germ superior, ovate. Style subulate, twice as long as the corolla. Stigma acute.

PER. Drupe fleshy, milky.

SEEDS. Nuts five, oblong, three-cornered.

ESSENTIAL CHARACTER.

Cal. four-leaved. Cor. eight-cleft; tube inflated.

Stam. 16. Drupe five-seeded. (Berry five-celled; with a seed in each cell. G.)

SPECIES.

1. *Bassia longifolia*.

Lin. syst. 441. Reich. 2. 412. mant. 555 & 563.

Gartn. fruct. 2. 104.

Illippe Malabar. Miele Ceylonensibus.

Leaves ovate-lanceolate, peduncles axillary.

2. *Bassia dubia*.

Gartn. fruct. 2. 105.

Conf. *Vidoricum silvestre* 1. Rumph. amb. 3. 184.

3. *Bassia obovata*.

Forst. florul. n. 200.

Leaves obovate, peduncles heaped terminating.

DESCRIPTIONS, &c.

1. This is a lofty tree, with the outmost branches recurved, thickish, and covered with a gray down. Leaves on the extreme branches alternate, approximating, petioled, ovate-lanceolate, quite entire, acute, veined, naked, half a foot long, deciduous. Petioles roundish, short. Peduncles axillary, one to five, simple, filiform, one-flowered, upright; after the time of flowering, prolonged, pendulous^a.

Berry fleshy, milky, with five seeds, one in each cell; they are oblong, very slightly compressed, sometimes acuminate at each end, sometimes only at the base, very smooth, shining, yellow with a white band^b.

Native of Malabar and Ceylon.

2. Seed large, half-moon-shaped, flattened like a lens, smooth, shining, of a dark chestnut colour, except an oblong, rugged umbilical area, which is pale and almost white. The shell is thick, stony, and very hard. The seeds of *Bassia* are with difficulty distinguished from those of *Sapota*, without attending to the *albumen* of which *Bassia* is entirely destitute; the inner integument of the seed is also commonly wanting^c.

3. Native of the isle of Tanna, in the South Seas^d.

[BASSOVIA.

Lin. gen. Schreb. n. 348. Aubl. 85. Juss. 419.

Class. 5. 1. Pentandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth one-leaved, permanent, five-parted; parts ovate, acute.

COR. one-petalled. Tube very short. Border five-cleft, spreading: clefts ovate, acute, larger than the calyx.

STAM. Filaments five, inserted into the tube of the corolla, and opposite to its clefts. Anthers ovate.

PIST. Germ ovate, sitting on a glandule. Style short. Stigma thickish, obtuse.

PER. Berry ovate, knobbed.

SEEDS very many, kidney-shaped, girt with a membrane, nestling in pulp.

^a Linn.

^b Gartner.

^c Ibid.

^d Forst.

B A T

ESSENTIAL CHARACTER.

Cor. five-cleft, spreading, with a very short tube.
Berry ovate, knobbed, with many seeds.

SPECIES.

1. *Baffovia sylvatica*.

Aublet. guian. 217. t. 85.

DESCRIPTION, &c.

Stems herbaceous, three or four feet high, branched. Leaves alternate, ovate-acute, smooth, quite entire, on a petiole about an inch in length; the largest are ten inches long, and four and a half broad. Flowers in axillary corymbs, green and very small. Native of Guiana, in wet forests, flowering and fruiting in June^a.

BASTARD Alkanet. See *Lithospermum*.

———— Balm. See *Melittis*.

———— Cabbage-tree. See *Geoffroya*.

———— Cedar. See *Theobroma Guazuma*.

———— Crefs. See *Thlaspi*.

———— Feverfew. See *Parthenium*.

———— Gentian. See *Sarothra*.

———— Hare's-ear. See *Phyllis*.

———— Hatchet Vetch. See *Biserrula*.

———— Hemp. See *Datisca*.

———— Hibiscus. See *Achania*.

———— Jesuit's Bark Tree. See *Iva*.

———— Indigo. See *Amorpha*.

———— Knot-grass. See *Corrigiola*.

———— Lupine. See *Trifolium Lupinaster*.

———— Orpine. See *Andrachne*.

———— Pimpernel. See *Centunculus*.

———— Plantain. See *Heliconia Bibai* and *Centunculus*.

———— Quince. See *Mespilus Chamæespilus*.

———— Saffron. See *Carthamus*.

———— Toad-flax. See *Thesium*.

———— Vetch. See *Phaca*.

BASTERIA. See *Calycanthus*.

BATA. See *Musa*.

BATATAS. See *Convolvulus*.]

[BATHIS. (*Βατίς*, the name of an herb, which bears some resemblance to Bramble, *Βατος*. Pliny.)

Lin. gen. n. 1104. Reich. 1208. Schreb. 1503.

Brown. 356. Jacqu. amer. 260. Juss. 443.

Class. 22. 4. Dioecia Tetrandria.

GENERIC CHARACTER.

* Male.

CAL. Ament pyramidal, scales one-flowered, four-fold imbricate. Cor. none.

STAM. Filaments four, erect, longer than the scales of the ament. Anthers oblong, twin, incumbent.

* Female, on a separate plant.

CAL. Ament common fleshy, containing some floscules conglobated into an ovate, quadrangular body: involucre two-leaved. Cor. none.

PIST. Germ quadrangular, fastened to the ament. Style none. Stigma two-lobed, obtuse, villose.

PER. Berry conjoined with the rest, one-celled.

SEEDS four, triangular, acuminate.

ESSENTIAL CHARACTER.

MALE. Ament four-fold imbricate. Cal. and Cor. none.

FEM. Ament ovate; involucre two-leaved. Cal. and Cor. none. Stigma two-lobed, sessile. Berries conjoined, four-seeded.

SPECIES.

1. *Batis maritima*.

Lin. spec. 1451. syst. 883. Reich. 4. 240. Jacqu.

amer. 260. t. 40. f. 4. pict. 127. t. 246.

Brown. jam. 356. Sloan. jam. 1. 144. (Kali.)

DESCRIPTION, &c.

This is a shrub four feet high or less. Stems brittle, round, ash-coloured, much branched, diffused, procumbent: the young branches are four-cornered, four-furrowed, green, opposite and upright. Leaves oblong, thicker above, acute, gradually drawing to a point towards the base, fleshy, succulent, flat above convex beneath, sessile, opposite, scarcely an inch long, numerous. Stigmas white. Fruits yellow or greenish yellow. The whole plant is very salt to the taste; and it is burnt

^a Aublet.

B A U

for barilla at Carthagena, &c. Native of the Caribbee islands, and the neighbouring continent^b. It is very common on all the salt marshes on the south side of Jamaica. Linneus doubts whether this be distinct from the *Bucephalon* of Plumier.

BATTATA. See *Dioscorea*.

BATTATAS. See *Helianthus*.

BAUHINIA. (This genus was so named by Plumier, in honour of the two famous Botanists John and Caspar Bauhin.)

Lin. gen. n. 511. Reich. 554. Schreb. 697.

Plum. 13. Juss. 351.

Class. 10. 1. Decandria Monogynia.

Nat. order of Lomentaceæ. Leguminosæ Juss.

GENERIC CHARACTER.

CAL. Perianth oblong, gaping longitudinally on the lower side, reclining on the other, gaping also five ways at the base, with five cohering leaflets above, deciduous.

COR. Petals five oblong, waved, with attenuated reflected tops, expanding; the lower ones a little larger, the upper one more distant, all with claws placed on the calyx.

STAM. Filaments ten, declining, shorter than the corolla; the tenth much the longest. Anthers ovate; always on the tenth, seldom on the rest.

PIST. Germ oblong, fitting on a pedicel. Style filiform, declining. Stigma obtuse, rising.

PER. Legume long, subcolumnar, one-celled.

SEEDS many, roundish, compressed, placed according to the length of the legume.

OBS. B. divaricata & acuminata have diadelphous filaments, in a situation contrary to that of papilionaceous flowers, the solitary stamen occupying the lower place.

ESSENTIAL CHARACTER.

Cal. five-cleft, deciduous. Pet. expanding, oblong, with claws, the upper one more distant, all inserted into the calyx. Legume.

SPECIES.

1. *Bauhinia scandens*. Climbing Mountain Ebony.

Lin. spec. 535. Reich. 2. 245. Loeft. it. 218.

Clematitis indica, &c. Raii suppl. 328. n. 13 & 14.

Folium linguæ. Rumph. amb. 5. t. 1.

Naga-mu-valli. Rheed. mal. 8. 57. t. 30, 31.

Stem cirrhiferous.

2. *Bauhinia aculeata*. Prickly-stalked Mountain Ebony.

Lin. spec. 535. Reich. 2. 246. hort. cliff. 156.

n. 1. t. 14. Loeft. it. 219. Jacqu. amer. 119.

t. 177. f. 2. edit. 2. pict. 60. t. 260. f. 31.

Plum. gen. 23. ic. 44. f. 1.

Stem prickly.

3. *Bauhinia divaricata*. Dwarf Mountain Ebony.

Lin. spec. 535. α. Reich. 2. 246. hort. cliff. 156.

n. 2. t. 15.

Leaves smooth; lobes divaricated acute two-nerved; petals lanceolate.

4. *Bauhinia unguolata*.

Lin. spec. 535. Reich. 2. 246. hort. cliff. 157. 3.

Leaves ovate; lobes parallel.

5. *Bauhinia variegata*. Variegated Mountain Ebony.

Lin. spec. 535. Reich. 2. 246.

Arbor f. Thomæ. Zanon. hist. 26. t. 15.

Chovanna-mandaru. 1. Rheed. mal. 1. 57. t. 32.

Raii hist. 1751. n. 1. Burm. ind. 94.

Calyxes one-leaved bursting; petals sessile ovate; lobes of the leaves ovate obtuse.

6. *Bauhinia purpurea*. Purple Mountain Ebony.

Lin. spec. 536. Reich. 2. 247.

Chovanna-mandaru. 2. Rheed. mal. 1. 59. t. 33.

Raii hist. 1751. n. 2.

Mandaru secunda species. Pluk. alm. 240. Burm. ind. 94.

Leaves subcordate, two-parted, rounded, tomentose underneath.

7. *Bauhinia tomentosa*. Downy Mountain Ebony.

Lin. spec. 536. Reich. 2. 247. hort. cliff. 157.

n. 4. upf. 99. fl. zeyl. 147. Burm. zeyl. 44.

t. 18. Burm. ind. 94.

Mandaru maderaspatense. Pluk. alm. 240. t. 44. f. 6.

^b Jacquin.

Canfchena-

- Canfchena-pou. *Rheed. mal.* 1. 63. t. 35. *Raii*
hist. 1752.
Leaves cordate, lobes semiobcordate tomentose.
8. *Bauhinia acuminata.* *Sharp-leaved Mountain Ebony.*
Lin. spec. 536. *Reich.* 2. 247. *hort. cliff.* 157.
n. 5. fl. zeyl. 148.
- Velutta-mandaru.* *Rheed. mal.* 1. 61. t. 34. *Raii*
hist. 1751. 3.
Leaves ovate, lobes acuminate semiovate.
9. *Bauhinia emarginata.*
Mill. dict. n. 5.
B. aculeata fol. rotundo emarginato, fl. magno albo.
Houft.
Stem prickly, leaves cordate with round lobes, tomentose underneath.
10. *Bauhinia rotundata.*
Mill. dict. n. 7.
B. acul. fol. subrotundis bicornibus, fl. magno albo.
Houft.
Stem prickly, leaves subcordate two-parted rounded, flowers scattered.
11. *Bauhinia aurita.* *Long-eared Mountain Ebony.*
Ait. hort. kew. 2. 48. *Mill. fig.* 41. t. 61.
B. divaricata β. *Lin. spec.* 535.
Leaves subtransverse at the base, lobes lanceolate porrected three-nerved; petals lanceolate.
12. *Bauhinia porrecta.* *Smooth broad-leaved Mountain Ebony.*
Swartz. prodr. 66. *Ait. hort. kew.* 2. 48. *Plum.*
gen. 23. ic. 32. t. 44. f. 2. *Brown. jam.* 286. 1.
Sloan. jam. 2. 51. (*Senna.*)
Leaves cordate, lobes porrected acute three-nerved, petals lanceolate.
13. *Bauhinia candida.* *White-leaved Mountain Ebony.*
Ait. hort. kew. 2. 49.
Leaves cordate pubescent underneath, lobes ovate obtuse; calyxes attenuated upwards and elongated.

DESCRIPTIONS, &c.

The *Bauhinias* are trees or shrubs, some of them climbing. The leaves are simple, but two-lobed or two-parted, which circumstance gave occasion to Plumier to name this genus from the two famous brothers. The flowers are in spikes or racemes, either axillary or terminating.]

1. This rises with many slender stalks, which put out tendrils, and fasten themselves to the neighbouring trees, whereby they rise to a great height. Leaves alternate, heart-shaped, on long footstalks; they are six inches long, and three inches and a half broad in the middle, and are deeply cut into two pointed lobes, each having three prominent ribs running longitudinally. It is native of both Indies, and has not produced flowers in England. The seeds were sent to Mr. Miller from Campeachy, [probably before the year 1752.

The flowers are at first whitish, but turn to a yellowish colour. They seem to appear but seldom even in their place of natural growth. The fruit is slender and flat, half a foot or a palm in length, and an inch in breadth, hard, smooth, very dark brown; it contains six or eight flat bony seeds, black with a silvery border^a.

2. This is an erect inelegant shrub, the height of a man. The trunk and branches are very prickly. Leaves roundish; the two lobes also are roundish and blunt. The flowers are large, white, and have a scent which is somewhat unpleasant. Sometimes the fold of the calyx is entire, not cloven^b.

Linneus adds, that the leaves are cloven to one-third of their depth, that they are smooth, have nine nerves, and a very small thread from the division of the leaf, that the petiole is thicker and callous at both ends, and that there is one strong sharp short prickly at the base of the petiole on each side, from the top of which, when young, nectareous drops distil^c.]

Mr. Miller says, that it rises to the height of sixteen or eighteen feet, in Jamaica, where it grows plentifully, and the other sugar islands in America; that the stalks are terminated by several long spikes

of yellow flowers, which are succeeded by bordered pods, about three inches long, containing two or three swelling seeds; that these pods are glutinous, and have a strong balsamic scent, as have also the leaves when bruised; and that it is called in America, the Indian Savin-tree, from its strong odour, somewhat resembling the common Savin.

[According to Jacquin, it is frequent about Carthage in woods. It was cultivated by Mr. Miller, in 1752^d.]

3. This is a low shrub, seldom rising more than five or six feet high, dividing into several branches. [The stem is straight and unarmed, except that it has two reflex prickles at the origin of the branches, so small as to be scarcely visible. Leaves cordate, five-nerved, cloven half way, with the lobes standing very wide from each other, whence the trivial name. Flowers in a simple upright raceme. Corolla white^e.] They have a very agreeable scent, appear most part of the summer, and are one of the greatest beauties of the hot-house. The pods are taper, about four inches long, and contain four or five dark-coloured seeds. It grows naturally in great plenty on the north side of the island of Jamaica. [Cultivated before 1742, by Robert James Lord Petre. It flowers from June to September^f.]

4. This differs from the others in having the leaves more oblong, entire and not at all emarginate at the base, cloven to the middle into two straight parallel lobes, and having nine nerves, the outmost of which are very small. The calyx is very long, streaked and of a gray colour; the petals are subulate: stamens alternately shorter; legume very long, pendulous^g.]

It rises to the height of twenty feet, with a smooth stem, dividing into many small branches; which are terminated by loose bunches of white flowers; and these are succeeded by very long narrow compressed pods, with eight or ten seeds in each. Native of America; Mr. Miller says, that he received the seeds from Campeachy.

5. This rises with a strong stem, upwards of twenty feet high, dividing into many strong branches. The flowers are large, and grow in loose panicles at the extremity of the branches, of a purplish red colour, marked with white, and the bottom yellow. The pods are about six inches long, and three quarters of an inch broad, containing three or four compressed seeds in each. It grows naturally in both Indies: [and was introduced here in 1690, by Mr. Bentick^h.]

6. This also is a tall tree, but differing from the foregoing sort in having larger leaves, more deeply cut, and a little more contracted on the sides. In the flowers, the calyx is yellowish green and red; the corolla is of a very red purple, and one petal out of the five is streaked with white on the claw both within and withoutⁱ; they are all lanceolate and distant^k. The legumes are larger than those of any other sort, being one and a half or two spans in length, and an inch in breadth^l. Native of the East-Indies, where it flowers the whole year. Mr. Miller affirms, that it grows naturally at La Vera Cruz; but he seems to have mistaken the species. It was introduced here in 1778^m.

7. This grows to the height of two fathoms, with a trunk nearly six inches in diameter, and divides into many branches. The leaves are much smaller than in the foregoing speciesⁿ; they are rounded, cloven half way, seven-nerved and blunt, with the lobes rounded and almost upright^o; they have a strong scent, especially if rubbed during the night, when the lobes are clapped together. The flowers have a green calyx, and a bell-shaped, yellowish-white corolla; one of the petals has a dusky red-purple spot at the claw, resembling a little sharp-pointed leaf. Stamens yellowish-white. The flowers have no smell^p.

^a Hort. kew.^b Hort. kew.^c Hort. kew.^d Hort. cliff.^e Hort. malab.^f Hort. malab.^g Hort. kew.^h Linn.ⁱ Linn.^j Hort. cliff.^k Hort. malab.^l Hort. malab.^m Rumphius,ⁿ Jacquin,^o Hort. cliff.

[Native of the East-Indies.] Mr. Miller says, that it was sent him from Campeachy in 1730, by the late Dr. Houftoun: [but he seems again to confound the species. It was cultivated, according to Ray, by Compton Bishop of London, in 1687.]

8. This is only about the height of a man, with a trunk the thickness of the human arm. The leaves are more deeply cut, longer, contracted into a cusp or point towards the end, nine-nerved, less divaricated. The flowers are bell-shaped, of a very pure white without any spots, void of scent; the petals are rounded and quite blunt. Stamens white^a; in this and the third species diadelphous the contrary way to what they are in the papilionaceous flowers^r. Legumes smaller than in the others, being only four or five inches in length; they are an inch broad, smooth, a little bent on one side, with a round broad back^s.

Native of the East-Indies. Mr. Miller says, it grows naturally in both Indies, but he has confounded this with the twelfth species.]

9. This seldom rises more than ten feet high, dividing into many irregular branches, armed with short crooked spines; the leaves grow alternate, are heart-shaped, and have two roundish lobes; they are woolly on their under side, and have short foot-stalks. The flowers grow at the extremity of the branches, two or three together; these are large, and of a dirty white colour, and are succeeded by short flat pods, each containing two or three seeds.

10. This rises twenty feet high, with a strong upright stem, which sends out many branches toward the top; armed with spines growing by pairs, which are strong and crooked. The leaves are heart-shaped and grow alternately, having two rounded lobes. The flowers are large and white, coming out thinly at the ends of the branches. The petals of these are near two inches long, and spread open wide; the stamens and style are nearly of the same length. The flowers are succeeded by long flat pods, which are narrow, each containing five or six seeds.

Both these are natives of Carthage in New Spain. [I give them on Mr. Miller's authority; but they are nothing more than varieties of the second species.]

11. This sort approaches near to the *B. non aculeata, folio ampliori & bicorni* of Plumier, (*B. porrecta*, n. 12.) but the lobes of the leaves are much longer, nor are the flowers so large as in his plant, which is figured in *Hort. malab.* by the title of *Velutta-Mandaru*, and is *B. acuminata* of Linneus n. 8.^t

[It was cultivated in 1756, by Mr. Miller, and flowers in September^a.

12. This tree rises to about fifteen feet in height, having several straight trunks about the thickness of a man's leg, covered with a whitish bark, dividing into many branches and twigs, making a pleasant top. The leaves are three inches long, and two broad in their broadest part, yellowish green, smooth, thin, having seven or more ribs, with some transverse ones, making the whole very nervous; the petioles are an inch long. The flowers come out at the ends of the twigs several together, on pedicels half an inch in length: petals long, red white variegated or striated: stamens long and white. Legumes five or six inches in length, brown. It grows on the hills every where in Jamaica. The wood is very hard, and veined with black, whence the name of Ebony^s.

It was cultivated by Mr. Miller in 1739, and flowers in July^r.

13. This is a native of the East-Indies, where it was observed by Claude Ruffel, Esq. It was introduced in 1777, by Patrick Ruffel, M. D. and flowers in May and June^s.

The proper place of the eleventh species is after the third, of which it was supposed by Linneus to be only a variety. The twelfth should come in

between the seventh and eighth. The fifth, thirteenth, and sixth should be placed after the eighth. The ninth and tenth may be referred, as varieties, to the second. There are many other species both from the East and West Indies, not yet sufficiently determined. The whole genus indeed requires to be studied anew, in order to establish the species on better principles than we possess at present.]

PROPAGATION AND CULTURE.

All these plants being natives of hot countries, will not thrive in England, unless they are kept in the bark-stove. They are propagated by seeds, which must be procured from the countries where they grow naturally, for they do not perfect their seeds in England.

The third sort has several times produced pods in the Chelsea garden, but they have never come to maturity. The seeds should be brought over in their pods, which will preserve them good. These must be sown in pots filled with light fresh earth, and plunged into a moderate hot-bed of tanners-bark; if the seeds are good, the plants will come up in about six weeks, and in a month after, will be fit to transplant, when they should be carefully shaken out of the seed pot, so as not to tear off the roots, and each planted into a separate small pot filled with light loamy earth, and plunged into the hot-bed again, being careful to shade them until they have taken fresh root, after which they should have fresh air admitted to them every day in warm weather. In the autumn they must be placed in the bark-stove, and treated in the same way as other tender exotics, giving them but little water in winter. As these plants frequently flower, they are worthy of a place in the stove.

[BAWD-MONEY. See *Æthusa Meum*.]

BAY. See *Laurus*.

[BAY, Loblolly. See *Gordonia*.

BEAD-TREE. See *Melia*.

BEAM-TREE. See *Cratægus Aria*.]

BEAN. See *Vicia Faba*.

—, Kidney or French. See *Phaseolus*.

[BEAN-CAPER. See *Zygophyllum*.]

BEAN-TREFOIL. See *Anagyris* and *Cytisus*.

[BEAR-BERRY. See *Arbutus*.

BEAR'S-BREECH. See *Acanthus*.

BEAR'S-EAR. See *Primula Auricula*.]

— Sanicle. See *Verbascum*.

BEAR'S-FOOT. See *Helleborus*.

BECABUNGA. See *Veronica*.

BEE-FLOWER, or Orchis. See *Ophrys*.

BEECH-TREE. See *Fagus*.

BEET. See *Beta*.

BEFARIA. See *Bejaria*.

[BEGONIA. (So named by Plumier, from *Monf. Begon* *.)

Lin. gen. n. 1156. Reich. 1165. Schreb. 1442.

Dryander in Linn. transact. 1. 158. Tournef. inst.

t. 442. Gærtn. fruct. t. 31. Juss. gen. 436.

Class. 21. 8. Monoecia Polyandria.

Nat. order of Holoraceæ.—Incertæ Juss.

GENERIC CHARACTER.

* Male flowers.

CAL. none.

COR. Petals four (in *B. oëtopetala* six to nine.), of which two opposite ones are larger, commonly roundish (in *B. ferruginea* all nearly equal, oblong.)

STAM. Filaments numerous (fifteen to one hundred) inserted into the receptacle, very short, sometimes united at the base. Anthers oblong, erect.

* Female flowers, usually on the same common peduncle with the males.

CAL. none.

COR. Petals in most species five, in some six, in others perhaps four, commonly unequal.

PIST. Germ inferior, three-sided, in very many winged. Styles in most three, bifid. Stigmas six.

PER. Capsule in most three-cornered, winged, three-

^a Hort. malab. ^r Linn. ^s Hort. malab. ^t Mill. fig.
^a Hort. kew. ^r Sloane. ^s Hort. kew. ^t Ibid.

* Regi Galliz ab intimis consiliis, et rei nauticæ in ora Santorum præfectus.

celled, opening at the base by the wings; some are two-celled, and others perhaps one-celled.

ESSENTIAL CHARACTER.

MALE. Cal. none. Cor. many-petalled. Stam. numerous.

FEM. Cal. none. Cor. many-petalled, superior. Caps. winged, many-seeded.

SPECIES.

1. *Begonia nitida*.
Dryand. in Linn. transf. i. 159. Ait. hort. kew. 3. 352.
B. obliqua. L'Herit. stirp. nov. i. 95. t. 46.
B. minor. Jacqu. collect. i. 128. n. 3.
B. purpurea. Swartz. prodr. 86.
Shrubby erect, leaves very smooth unequally cordate obscurely toothed, largest wing of the capsule roundish.
2. *Begonia isoptera*.
Dryand. in Linn. transf. i. 160. Smith ic. ined. 2. 1. 43.
Caulescent, leaves smooth semicordate obscurely toothed, wings of the capsule almost equal parallel.
3. *Begonia reniformis*.
Dryand. in Linn. transf. i. 161. t. 14. f. 1, 2.
Caulescent, leaves kidney-shaped angular toothed, the largest wing of the capsule acute-angled, the others parallel very small.
4. *Begonia erminia*.
Dryand. in Linn. transf. i. 162. L'Herit. stirp. nov. i. 97. t. 47.
Caulescent, leaves cordate acuminate serrate, the largest wing of the capsule sickle-shaped, the rest obliterated.
5. *Begonia crenata*.
Dryand. in Linn. transf. i. 162. t. 14. f. 3.
Caulescent, leaves unequally cordate roundish obtuse crenate-toothed, capsules two-celled.
6. *Begonia tenuifolia*.
Dryand. in Linn. transf. i. 162. t. 14. f. 4.
Caulescent, leaves unequally cordate ovate acute angular obscurely toothed, capsules two-celled.
7. *Begonia ferruginea*.
Dryand. in Linn. transf. i. 163. Smith ic. ined. 2. t. 44. Linn. suppl. 419. Lamarck encycl. i. 395. n. 9. Jacqu. collect. i. 128. n. 1.
Caulescent, leaves unequally cordate toothed, petals of the male flower oblong nearly equal.
8. *Begonia grandis*.
Dryand. in Linn. transf. i. 163.
B. obliqua. Thunb. jap. 231. Kämpf. ic. select. t. 20.
Sjukaido. Kämpf. amœn. 888.
Caulescent, leaves unequally cordate angular serrate, wings of the capsule a little unequal.
9. *Begonia macrophylla*.
Dryand. in Linn. transf. i. 164. Lamarck encycl. i. 394. n. 6.
B. grandifolia. Jacqu. collect. i. 128. n. 2.
B. purpurea et nivea maxima, folio aurito. Plum. ic. 34. t. 45. f. 1.
10. *Begonia acutifolia*.
Dryand. in Linn. transf. i. 165. Jacqu. collect. i. 128. n. 4. Sloan. jam. t. 127. f. 1, 2.
Caulescent, leaves semicordate angular toothed, the largest wing of the capsule obtuse-angled, the others acute-angled.
11. *Begonia acuminata*.
Dryand. in Linn. transf. i. 166. t. 14. f. 5, 6.
Caulescent, leaves hispid semicordate acuminate unequally toothed, the largest wing of the capsule obtuse-angled, the others acute-angled.
12. *Begonia humilis*.
Dryand. in Linn. transf. i. 166. t. 15. Ait. hort. kew. 3. 353.
Caulescent upright, leaves hispid semicordate doubly serrate, wings of the capsule rounded a little unequal.
13. *Begonia hirsuta*.
Dryand. in Linn. transf. i. 167. Aublet guian. 913 t. 348. Lamarck encycl. i. 393. n. 3. Jacqu. collect. i. 129. n. 8.
Caulescent, leaves hispid semicordate doubly serrate, the largest wing of the capsule obtuse-angled, the others parallel and very small.

14. *Begonia Urticæ*.
Dryand. in Linn. transf. i. 167. Linn. suppl. 420. Lamarck encycl. i. 394. n. 8. Jacqu. collect. i. 129. n. 7.
B. urticæfolia. Smith ic. ined. 2. t. 45.
Caulescent radicans, leaves hispid on both sides unequally ovate doubly serrate, capsules three-horned at the base.
15. *Begonia scandens*.
Dryand. in Linn. transf. i. 168. Swartz prodr. 86.
B. glabra. Aublet guian. 916. t. 349. Lamarck encycl. i. 394. n. 4. Jacqu. collect. i. 129. n. 5.
Scandent radicans, leaves ovate-roundish obscurely toothed, the largest wing of the capsule obtuse-angled, the others parallel and very small.
16. *Begonia tuberosa*.
Dryand. in Linn. transf. i. 168. Lamarck encycl. i. 393. n. 1.
Empetrum acetosum. Rumph. amb. 5. 457. t. 169. f. 2.
Creeping, leaves unequally cordate angular toothed, wings of the capsule parallel.
17. *Begonia rotundifolia*.
Dryand. in Linn. transf. i. 169. Lamarck encycl. i. 394. n. 7.
B. obliqua d. Linn. spec. 1498.
B. roseo flore, folio orbiculari. Tournef. inst. 660. Plum. cat. amer. 20. ic. 33. t. 45.
Creeping, leaves reniform-roundish crenate.
18. *Begonia nana*.
Dryand. in Linn. transf. i. 169. L'Herit. stirp. nov. i. 99. t. 48.
Stemless, leaves lanceolate, scape with about two flowers.
19. *Begonia tenera*.
Dryand. in Linn. transf. i. 169. t. 16.
Falkea tenera. Koenig M. S. S. in bibl. Banks. 17. p. 227.
Stemless, leaves unequally cordate, flowers umbelled.
20. *Begonia diptera*.
Dryand. in Linn. transf. i. 170.
B. capensis. Linn. suppl. 420. Jacqu. collect. i. 130. n. 9. Linn. mant. 502.
Stemless, leaves unequally cordate, peduncles dichotomous, one wing of the capsule very large, another narrow, and the third obscure.
21. *Begonia octopetala*.
Dryand. in Linn. transf. i. 171. L'Herit. stirp. nov. i. 101.
Stemless, leaves cordate five-lobed, peduncles dichotomous.
22. *Begonia malabarica*.
Dryand. in Linn. transf. i. 171. Lamarck encycl. i. 393. n. 2. Jacqu. collect. i. 129. n. 6. Rheed. mal. 9. 167. t. 86.
Stems herbaceous, peduncles axillary short subtriflorous, fruits berried.
23. *Begonia repens*.
Dryand. in Linn. transf. i. 172. Lamarck encycl. i. 394. n. 5.
B. obliqua γ. Linn. spec. 1498. Plum. amer. 20. ic. 34. t. 45. f. 2.
Stems creeping rooting at the joints, leaves one-cared, peduncles axillary long many-flowered.

DESCRIPTIONS, &c.

The whole plant in the Begonias is fleshy. The stem, in most of the species, is herbaceous, but some of them are stemless. The leaves are petioled, in the caulescent species alternate. At the base of the petioles is a pair of stipules. The peduncles in the greater part are dichotomous; and, in the caulescent species, axillary. They are natives of Asia and America, within the Tropics. Three species have been found on the islands near the coast of Africa, but none on that continent^a.

Plumier gave six species of Begonia, but the few words by which he distinguished them, were not sufficient to discriminate them specifically. Whence Linneus, in his first edition of his Species Plantarum, joined all these, together with one from

^a Dryander in Linn. transf. i. 159.

Sloane, under the name of *Begonia obliqua*: and in the second edition he added two more synonyms, one from Rumphius, and another from Browne; so that it contained all the species at that time known. Chev. Lamarck in the *Dictionnaire Encyclopedique*, and M. Jacquin in the first volume of his *Collectanea*, were the first who attempted to bring this confused genus into some order; but neither of them had seen more than one species, and were obliged to make out the rest merely from books^b.

A species of *Begonia* flowering in October 1788, in Mr. Lee's garden at Hammersmith, fortunately induced Mr. Dryander to study this genus; and he laid the result of his researches before the Linnean society, the year following. The chief of what is here given is taken from that paper: and students in Botany will doubtless most ardently wish that many more obscure and doubtful genera may be treated in the same masterly way.

1. Stems almost upright, branched, round, smooth, as is the whole plant, with alternate cylindric branches. Leaves acute or acuminate, almost entire or obscurely toothed, seven-nerved; one lobe of the base is double the size of the other; the younger ones are rose-coloured about the edge; they are all very smooth and shining, bright green, paler beneath, permanent, spreading, four or five inches long, and two or three inches broad: the petioles are cylindric, thick, spreading, one-third only of the length of the leaf. Stipules sessile, oblong, one-nerved, as it were three-winged from a rib winged underneath produced into a point; on the sides membranaceous, revolute; they are spreading, deciduous, the length of the petiole. Racemes compound, cymose, androgynous, the males very numerous, the females few at the top, solitary, axillary, on long peduncles, dichotomous, three inches wide. Peduncles upright, cylindric, longer than the leaf, the thickness of the petiole. Bractes opposite, below the dichotomies and the pedicels, half-embracing, ovate or roundish, membranaceous, caducous. Corolla flesh or rose coloured^c, sometimes of a darker red: in the female flowers fix-petalled^d.

This elegant shrub, which is now a common ornament to our hot-houses, was introduced here in the year 1777, by William Brown, M. D. It is a native of Jamaica^e, and flowers here from May to December.

2. Stem upright, obscurely streaked, smooth. Leaves acuminate, waved, veined, bright green and very smooth on the upper surface, pale ferruginous on the under, most minutely dotted. Petioles short, semicylindric, smooth. Panicle terminating, dichotomous, many-flowered, smooth. Bractes oblong, membranaceous, deciduous, leaving a scar in form of a half ring at the base of each peduncle and pedicel. Male flowers superior, more numerous than the females, and small. Corolla two-petalled; petals cordate-roundish, entire, blunt, converging very closely before they unfold. Stamens thirty to forty: anthers obcordate, awnless, margined, two-celled, gaping on one side. Capsule turbinate, with three equal wings, with the angles bent down very much, and not ascending. Seeds numerous, small. Native of Java: where it was observed by Thouin^f.

3. Stems short, the thickness of a finger. Leaves broader than they are long, crenate-toothed, with from eight to ten sharp unequal angles, cordate at the base, one side smaller than the other. Petioles the length of the leaf. Common peduncle a span in length, terminated by a twice dichotomous cyme, splitting into fourfold divisions. Pedicels umbellated. In the male flowers, petals four cross-shaped spreading white: two opposite larger ovate blunt quite entire, in the middle convex outwardly; the others only half the size, oblong-lanceolate, acute, slightly keeled. Filaments about thirty, nearly equal, yellow. Anthers linear-oblong, longer than

the filaments, the length of the smaller petals, upright, yellow. No pistil. In the female flowers five petals oblong, nearly equal, spreading, a little concave, sharpish, white. Germ ovate, triangular: angles membranaceous: the membrane of the outer angle largest: styles three, two-parted, somewhat villose: stigmas simple. Capsule ovate, with the two inner angles equal and smaller than the third, which is very large and extends upwards into an acute angle; it is three-celled, and the cells are cylindric, gaping at the base. Seeds very numerous, ovate, small, fastened to a thick columnar receptacle^g.

Native of Brasil, near Rio de Janeiro, in shady clefts of rocks. Observed there by Sir Joseph Banks.

4. Stems few, simple, upright, scarcely a span in height. Leaves nearly equal, ciliate-toothed or serrate, having tailed toothlets on the upper surface most conspicuous whilst the leaves are young; they are very smooth, loosely nerved, bright green on both sides, three or four inches long, and two broad. Petioles nearly equal to the leaves. Stipules ovate, short, subulate-acuminate. Corymbs terminating, peduncled, upright, three-parted, androgynous. Bractes under the corymb and peduncles. Flowers peduncled, upright, whitish: males numerous; females mixed with the males, but fewer in number and scarcely larger, solitary in each branchlet of the corymb.

Native of Madagascar, on stones and rocks by brooks; collected there by Jo. Gul. Bruguere, M. D. who looks upon the appendices to the leaves, resembling the galls on lime-tree leaves, or the tails in ermine, as belonging to the leaves themselves, and not occasioned by punctures of insects^h.

5. Flowers pale red. The male flowers have four petals, two opposite ones narrower, but scarcely shorter. The female flowers have five petals, three of which are narrower. Style single.

Native of the East-Indies, in the island Salsette, and near Fort Victory, on walls and rocks. Found there by Ant. Pantaleon Hoveⁱ.

6. In the male flower, corolla four-petalled, compressed, pale flesh-colour with red streaks. Petals opposite in pairs; the two outer ovate-roundish, obtuse, a little cordate at the base, three or four lines in diameter; the two inner ones only half the size, ovate-oblong, bluntish. Filaments one hundred, inserted into a receptacle elevated into a little cone, and short: anthers ovate, erect, yellow. Pistil none. In the female flower, petals five, of the same colour as in the male, and of the same form with the outer petals in the male flower; the innermost less than the rest. Stamens none. Germ flesh-coloured. Styles three, smooth^k. Native of Pulo Pontangh, or Prince's island, near Java. Found there by Sir Joseph Banks^l.

7. Stem suffruticose, declining, round, rather solid, smooth and even: branches alternate, short, spreading, pubescent, leafy. Leaves spreading, sharp, obscurely crenate, subciliate; on the upper surface deep green, roughish, grooved at the veins; on the under pale, covered with very small rounded whitish scales crowded very close together; veins alternate, straight, divided, prominent, rough with hairs. Stipules semicordate, embracing, sharp, quite entire, subciliate; one twice the size of the other. Panicles dichotomous, axillary or terminating. Peduncles round, pubescent. Bractes a pair to each flower, from upright spreading, small, ovate, sharp, subciliate, deciduous. Flowers blood-red, nodding. Males very numerous. Petals four, nearly equal, lanceolate; the two outer ones a little longer, sharp, thicker, pubescent on the outside; inner blunt, emarginate, smaller especially before the expansion of the flower, smoothish. Stamens equal in length to the corolla (nine to eight, commonly twelve to fourteen) upright, with flat filaments. Anthers linear-lanceolate, very long, two-celled, yellow, gaping laterally, terminating in a

^b Dryander in Linn. trans. 1. 156.
^c Dryander.

^d L'Heritier.
^e Smith.

^f Jacquin.

^g Solander in Linn. trans. 1. 161.

^h L'Heritier.

ⁱ Dryander.

^k Solander in Linn. trans. 1. 162.

^l Dryander, Ibid.

filiform bifid beak, which is white except at the tip, where it is red, it is at first convolute, and afterwards revolute. No rudiment of a pistil.—Female flowers mixed with the males, and a little larger. Petals six, like those of the males; the three outer sharp and opposite to the angles of the germ, the three inner emarginate and opposite to the sides of the germ, all inserted below the top of it. Stamens none. Germ turbinate, pubescent, coloured. Styles numerous (twenty-four), in six parcels, dichotomous, unequal in length, upright, scarcely equal to the corolla. Stigmas simple. Capsule turbinate, triangular, crowned with a tubercle, opening at the angles below: it has no wings. Seeds numerous, small^m.

It is easily distinguished from the other species hitherto known, by the long and narrow petals of the male flowers, all of the same breadth, and very little differing in length.

Mutis gathered it in New Granadaⁿ.

8. Stem round, simple, the size of a quill, smooth, green except at the joints where it is red, dotted, two feet high, lax, upright; sometimes there is a small branch from the axils. Leaves ovate, shorter on one side, sharp, doubly serrate, nerved, rough with small prickles, otherwise smooth, pale beneath. Petiole round, like the stem, a finger's length. Flowers terminating, in a dichotomous panicle. Peduncles round, red, smooth, divided: pedicels subtriflorous, subdivided into three other pedicels. Bractes under the peduncles and pedicels two, opposite, ovate, blunt, concave, entire, purple, smooth, a little shorter than the flower. Corolla (in the male flowers) four-petalled, smooth, purple; the petals, before they open are cordate and compressed; but when open they are spreading and unequal: the two outer cordate, roundish; the inner only one-fourth of the size. Filaments more than fifty, united at the base, white, shorter than the corolla: anthers roundish, twin, yellow^o.

The wings of the germ, in the figure given by Kæmpfer, from whom alone we are acquainted with the female flowers, have an acute angle in several instances, but in others they are rounded. Thunberg supposes this species to be dioecous, but Kæmpfer's figure has male and female flowers in the same panicle. It is not uncommon to find male flowers only on monoecous plants.

This species and the next have by far the largest leaves of any in the genus; but in this the flowers are twice as large as in *macrophylla*^p.

Native of Japan.

9. This is two feet high, and entirely smooth. The female flowers are five-petalled^q. A specimen in Sir Joseph Banks's herbarium has a panicle consisting entirely of female flowers in the axilla of the lower leaf; and from the axilla of the leaf above a panicle of male flowers. Native of the islands in the West-Indies^r.

10. This species comes very near to the following, but differs in having few or no hairs on the leaves, which are on longer footstalks one-third or one-fourth of the length of the leaf itself; these on the contrary are so short in *B. acuminata*, as not to equal the angle of the leaf, which extends beyond the insertion of the footstalk^s. According to Jacquin, the stems creep, and as they run along, put out both roots, and upright branches a foot and half in height.

Native of Jamaica, where it was observed by Sir Hans Sloane, and since by Masson. Sloane's description does not accord either with his figure or specimens^t.

11. In the male flowers four petals, of which two that are opposite are smaller. The female flowers have five petals; of which two also are smaller than the rest. At the base of the germ are two bractes, which are sharply serrate, and only half the length of the germ.

Native of Jamaica, on the blue mountains. Introduced into the Royal garden at Kew in 1790^u.

12. The whole plant is pellucid. Stem, petioles and peduncles pale red. Stem round, swelling at the joints, a span high the first year, and two feet the second. Leaves acuminate, the serratures ciliate, the upper surface deep green, hispid with soft upright *strigæ*, tubercled at the base; the lower pale green, quite smooth except a few *strigæ* on the veins, as also on the petioles. Stipules semi-ovate, concave, ciliate, hyaline. Peduncles axillary, usually dichotomous. Bracte at the base of the pedicels, ovate, ciliate, minute. In the male flower, petals white; two cordate-orbulate, large; two very small; these are wanting in some flowers. Filaments about fifteen, very short: anthers oblong, yellow. In the female flowers, petals five, white, permanent, obovate-oblong, two a little narrower. Germ three-cornered, the corners sharp; the wings rounded, a little unequal, pale flesh-colour. Styles three, very short. Stigmas two-parted, the parts divaricate, then converging, and afterwards diverging again; they are yellow, and covered with very small glands.

It is a native of the island of Trinidad in the East-Indies, and was found there by Alex. Anderson.

When this plant flowered in Mr. Lee's garden at Hammer-smith in October 1788, it was supposed to be annual, having produced flowers and fruits in a few months from its being sown. It was then very low, whence it got the trivial name of *humilis*, but it has since stood over the winter, and grown much taller^v.

13. Stem cylindric, branched. Leaves eared, ovate, deeply notched, sharp, streaked with red veins, petioled. Stipules long, toothletted. Flowers paniced, terminating, dichotomous, with two small linear scales at the base of each. Corolla white^w.

The female flowers, according to Jacquin, are five-petalled. He affirms also, that this sort is annual and dioecous; but that may be a mistake. See n. 8.

Observed by Mons. Fusée Aublet, on the rocks of Guiana.

14. Stems very many, a foot high, ascending, jointed, throwing out roots at the joints, branched, leafy, roundish, subflexuose, rough with hairs at top. Leaves spreading, sharp, the serratures tipped with a hair, pale beneath, when they grow old entirely red. Petioles short, round, rough with hairs. Stipules ovate, membranaceous, setaceous-toothed at the tip, somewhat hairy on the outside. Peduncles axillary, the length of the leaf, upright, filiform, rough with hairs. Bractes membranaceous, ciliate-toothed, coloured. Flowers usually in pairs, a male with a female, small, blood-red. In the male, petals four; the two outer opposite, ovate, hairy on the outside towards the tip; the inner narrower, scarcely shorter, paler and more tender, smooth. Stamens scarcely equal to the corolla (fourteen to eighteen) upright. Filaments short, irregularly united, whitish, smooth: anthers oblong, awnless, two-celled, gaping at the sides, yellow. No rudiment of a pistil. Female flowers very like the males; petals ovate, obtuse, probably five. No stamens. Germ inferior, very large, hairy, three-horned at the base, crowned at the tip with the styles and petals. Styles about five, upright, shorter than the petals, subfoliaceous, and one or two of them resembling petals: stigmas subcapitate, and seem to be simple. Jacquin says, that it is annual, but it is probably a perennial plant. Mutis gathered it in New Granada^x.

15. This differs from the thirteenth in having the stems decumbent, knotty, and pushing out roots at the knots; it climbs trees when they are within its reach. Leaves less deeply toothed. Flowers smaller, greenish^y. Aublet affirms, that this species is dioecous. He also says, that the leaves are smooth, but they are not quite without hairs^z. This is peren-

^m Smith. ⁿ Dryander in Linn. transf. 163. ^o Thunberg.
^p Dryander in Linn. transf. 164. ^q Jacquin. ^r Dryander.
^s Ibid. ^t Ibid.

^u Dryander. ^v Idem. ^w Aublet. ^x Smith. ^y Aublet.
^z Dryander.

nial, and a native of Guiana, the isle of France^a and Jamaica^d.

16. Stems round, creeping. Scapes upright, round, red, semipellucid, racemed. Leaves pale red, white or pale green, smooth and somewhat shining. Petals two, red on the outside, white within, in the male flowers: four in the female flowers, and white^e.

Lamarck has joined this with *B. capensis* of Linnæus's supplement (n. 20.); but the capsules of that species have only two winged corners, one wing being very large; and there is every reason to suppose, from the figure and description of Rumphius, that this has all the wings of the same size, as in *B. isoptera*^f.

Native of Amboina, the Molucca islands, and Celebes^g.

17. Stems thick, cylindric, naked, with small permanent stipules, between which they are marked with scars from the fallen leaves: towards the top are several leaves, slightly crenate, green and shining above, white beneath, on pretty long petioles. From the end of each stem arises a peduncle or rather scape, longer than the leaves, bearing an umbel-shaped panicle of red monoecious flowers at the top. Native of South America, on rocks and trees^h. This is one of the species which was found by Plumier.

18. Root perennial, fleshy, in a manner tuberous, roundish, fibrous at the base, red within, brittle. Leaves few, radical, equal, acuminate, sharp at the base, ciliate-ferrate, smooth, bright green on both sides, from fifteen to eighteen lines in length, and six lines in breadth. Petioles scarcely shorter than the leaves. Scape upright, the length of the leaves, with two or three flowers at the top, very smooth. Flowers peduncled, upright, one or two males, the third female, scarcely larger than the others, four or five lines in diameter. Bractes opposite, linear, sharp, under the peduncles. Corolla of the males four-petalled; of the female six-petalled. Capsule oblong, triangular; one of the wings very large. Seeds very numerous, roundish, and very small.

Native of Madagascar, on rocks and trunks of trees. Found by Bruguiereⁱ.

19. Leaves all radical, orbiculate-cordate, sharp, unequally toothed, membranaceous, tender, with white pellucid fibrils glandular at the base on the upper surface, and with a smaller number of them especially at the veins on the under surface. Petioles round, almost upright, smooth, with a few fibrils scattered about them, red, longer than the leaves, often a foot in length, smaller than a goose-quill. Scapes upright, round, smooth and even, with fibrils on them, shorter and more slender than the petioles. Stipules radical, ovate, acuminate, concave, keeled at the back, fleshy, whitish, withering, half an inch long. Male flowers numerous; females few: umbels sometimes compound. Bractes at the base of the pedicels lanceolate, small, caducous. Pedicels round, smooth, with fibrils scattered over them, a little coloured, longer than the flower. In the male flower, petals four, snow white; the two outer cordate-orbiculate, with fibrils on the outside, within smooth, marked with obscure nerves, before they open pressed close, flat, after they open spreading; the two inner alternate with the outer ones, ovate, acute, smooth on both sides, less by two-thirds than the outer ones. Filaments connate at the base, numerous, (fifty) capillaceous, smooth, greenish white: anthers upright, club-shaped, longer than the filaments, shorter than the inner petals, yellow. In the female flower, petals six, three outer and three inner, differing from the male only in number. Germ club-shaped, three-sided, winged at the angles, having fibrils scattered over it. Styles three, almost upright, club-shaped, smooth, yellowish, a little shorter than the smaller petals. Stigmas curved in a kidney shape, with the tips thicker, covered with very slender golden-coloured

hairs, especially at the tips. Capsule turbinate, with three wings. Seeds fastened to the wings on each side, numerous, globular, very small. Native of Ceylon: found there by Koenig^k.

20. Root tuberous, thick. Scapes roundish, longer than the petioles, paniced. Leaves radical, petioled, repand, toothletted. The male flowers have two obcordate, upright petals, and two cordate, pale rose-colour: stamens many, with linear anthers, longer than the filaments. In the female flowers, the corolla as in the male: no stamens; styles three, branched, filiform; stigmas blunt. Capsule inferior, with three unequal sides^l. Native of the island of Joanna, in shady places, by the sides of mountains; found there by Koenig^m.

21. Root tuberous, viscid, purple within. Leaves radical, equal or nearly so, the lobes blunt, sharp at the end, doubly or unequally toothed, nerved, veined, scarcely pubescent, a span long. Petioles pubescent, longer than the leaves. Scape upright, two feet high, pubescent, many-flowered and trifid at the top, the middle segment bearing one male flower, the lateral ones subdivided. Flowers in a kind of corymb, pedicelled, males and females mixed, but fewer of the latter. Bractes opposite, sessile, under the peduncles and pedicels, ovate, emarginate, deciduous. Petals in the males six to nine, but most frequently eight, of which four are exterior: in the females five or six; in both equal or nearly so. Found on the mountains of Lima, by Dombey; who sent the seeds to the Paris garden, where it has grown some years (1785), but has not floweredⁿ.

22. No other species of *Begonia* being hitherto known, whose female flowers have only three petals, it requires the confirmation of modern botanists before we can trust to the authority of the Hortus Malabaricus for so singular a circumstance. The male flowers of *B. humilis* have sometimes only two petals, and why may not a similar monstrosity happen in female flowers^o? Native of Malabar.

23. Chevalier Lamarck describes this with white flowers, which according to Plumier's name should be pink. He gives as a variety *B. roseo flore*, folio aurito, minor et glabra; and adds, ic. 45. f. 3: but that figure belongs to *B. roseo flore*, foliis acutioribus, auritis et late crenatis^p. Native of St. Domingo.

The two last are justly denominated obscure species by Mr. Dryander, who adds also the following.

1. *Acetosa Nigritarum seu Indorum Lingat. Kamel stirp. luzon. in Raii hist. 3. p. 14. n. 24. Icon in Mus. brit. mss. Sloan. 4080. f. 109.*

This comes very near to *B. malabarica*, so far as can be judged from the rude figure of Father Kamel^q.

2. In a volume of drawings in Sir Joseph Banks's library, made at Canton by a Chinese, who had been instructed by the late Mr. Blake in the art of making botanical drawings, is a figure of a *Begonia*, under the name *Tsou Hoy Tong*, which is related to *grandis*, but differs in the leaves not being angulated, and the margin being equally ferrate. As only male flowers are represented in the drawing, it is impossible to determine it^r.

3. *Begonia roseo flore, folio aurito minor et glabra. Tournesf. inst. 660. Plum. amer. 20. B. obliqua β. Linn. spec. 1498.*

This is referred to *B. nitida* by Jacquin^s and Swartz: but Plumier was not in Jamaica, whence alone that species has come to us: besides the epithet of *minor* is ill applicable to so tall a shrub as that, which has as large leaves as any in the genus, except *macrophylla* and *grandis*^t.

4. *Begonia roseo flore, foliis acutioribus, auritis et late crenatis. Tournesf. inst. 660. Plum. amer. 20. ic. 34. t. 45. f. 3.—B. obliqua ε. Linn. spec. 1498.*

5. *Rumex sylvestris scandens, foliis cordato-angulatis ab altera parte majoribus. Brown. jam. 203.*

^k Koenig in Linn. transf.

^l Koenig in Linn. mant.

^m Dryander in Linn. transf.

ⁿ L'Heritier.

^o Dryander in Linn. transf.

^p Ibid.

^q Id. ib. 171. n. 2.

^r Id. ib. 172. n. 3.

^s Id. ib. 172. n. 5. & 160.

6. Totoncaxoxo

^a Aubler.

^d Dryander.

^e Rumphius.

^f Dryander.

^g Rumphius.

^h Lamarck.

ⁱ L'Heritier.

6. Totoncaxoxo coyollin. *Hern. mexic.* 195.
7. Begonia obliqua. *Gertn. fruct.* 156. t. 31.¹

PROPAGATION AND CULTURE.

These plants increase readily by cuttings; and if kept in the bark-stove prove highly ornamental, being much esteemed both for the beauty of the flowers and the singularity of the leaves. Where there is no bark-stove, they will be found to do very well over the flue of the dry stove.

BEHEN. See *Centaurea* and *Cucubalus*.

BEJARIA. (This name was given by Mutis, in honour of Bejar, a Spanish botanist.)

Lin. gen. Reich. n. 648. Schreb. 811. Juss. 159.

Class. II. I. Dodecandria Monogynia.

Nat. order of *Bicornes*.—*Rhododendra* Juss.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, gibbous downwards, sub-ventricose, seven-cleft; *divisions* subequal, ovate, acute, converging, small; the outer ones broader: permanent.

COR. *Petals* seven, oblong, broader above, obtuse, patulous, inserted into the receptacle.

STAM. *Filaments* fourteen, subulate, rather shorter than the corolla; alternately less. *Anthers* oblong, incumbent.

PIST. *Germ* superior. *Style* columnar, middle-sized, permanent. *Stigma* thickish, seven-*striated*.

PER. *Berry* juiceless, seven-cornered, depressed, umbilicate, seven-celled.

SEEDS numerous, columnar-oblong, imbricate.

ESSENTIAL CHARACTER.

Cal. seven-cleft. *Petals* seven. *Stam.* fourteen.

Berry seven-celled, many seeded.

SPECIES.

1. *Bejaria æstivans*.

Lin. syst. 443. Reich. 2. 415. mant. 242. suppl.

247. *Mutis amer. 1. t. 7.*

Leaves lanceolate, flowers in racemes.

2. *Bejaria resinosa*.

Lin. syst. 443. suppl. 246. Mutis amer. 1. t. 8.

Leaves ovate, flowers heaped.

DESCRIPTIONS, &c.

1. This is a shrub twelve feet in height, with roundish spreading branches. Leaves generally alternate, crowded, obtuse, quite entire, without veins, shining, tomentose underneath. Petioles very short, flattish. Flowers axillary, few; terminating many. Peduncles racemed; pedicels round, hirsute, the length of the flower, not shorter, as in the other species. Corollas flesh-colour. It resembles the *resinosa*, but is of a higher growth. Native of Mexico^a. Found in New Granada, by Mutis.

2. This is a tree, with proliferous branches, and an irregular tender subpubescent bark. Leaves scattered, subpetioled, smooth, evergreen, quite entire, an inch in length. Flowers from the ends of the branches, on pubescent one-flowered peduncles forming racemes not at all prolonged. Corolla purple, very resinous or viscid. Stamens pubescent near the base. Found in New Granada by Mutis.

These have a peculiar bitter flavour, and are allied to the *Rhododendrons*^b.

The generic name was erroneously made *Bejaria* by Linneus: he having taken the y in Mutis's manuscript for an f; as I learn from the obliging information of Dr. Smith, who possesses Mutis's letters to Linneus.

BEIUCO. See *Hippocratea*.

BELILLA. See *Mussaenda*.

BELLADONNA. See *Amaryllis* and *Atropa*.

BELL-FLOWER. See *Campanula* and *Canarina*.

BELLIDIASTRUM. See *Doronicum*.

BELLIDIOIDES. See *Chrysanthemum*.]

BELLIS. (Latin, from *Bellus*, pretty, handsome.)

Engl. Daisy. Fr. *Paquerette*.

Lin. gen. n. 962. Reich. 1042. Schreb. 1300.

Tournef. 280. Vaill. æt. gall. 1720. f. 16, 20.

Juss. 183. Gertn. t. 168. Bellis Leucanthemum. Mich. gen. 29.

¹ Dryander in Linn. transf. 173. n. 6; 7, 8, 9;

^a Linn. ^b Ibid.

Class. 19. 2. Syngenesia Polygamia Superflua.

Nat. order of *Compositæ Discoidææ*.—*Corymbifera* Juss.

GENERIC CHARACTER.

CAL. *Common* hemispheric, upright: leaflets ten to twenty in a double row, lanceolate, equal.

COR. *Compound* radiate. *Corollules* hermaphrodite, tubular, numerous in the disk: *Female* ligulate, more in number than the leaves of the calyx in the ray.

Proper of the hermaphrodite funnel-form, five-cleft: of the female ligulate, lanceolate, scarcely three-toothed.

STAM. of the hermaphrodite filaments five, capillary, very short. *Anther* cylindric, tubular.

PIST. *Germ* ovate: of the hermaphrodite style simple, stigma emarginate: of the female, style filiform; stigmas two, patulous.

PER. none. *Calyx* unchanged.

SEEDS solitary, obovate, compressed: *down* none.

REC. naked, conical.

ESSENTIAL CHARACTER.

Cal. hemispheric, with equal scales. *Seeds* ovate, with no down. *Rec.* naked, conical.

SPECIES.

1. *Bellis perennis*. *Perennial* or *common Daisy*.

Lin. spec. 1248. Reich. 3. 838. fl. suec. n. 761.

mat. med. 188. hort. cliff. 418. upf. 265. Gertn.

fruct. 2. 419. Huds. angl. 370. Wither.

arr. 926. Curt. lond. 1. 62. Lightf. scot. 487.

Hall. belv. n. 93. Scop. carn. n. 1039. Pollich

pal. n. 810. Krock. files. n. 1423. Villars

dauph. 3. 197. Fl. dan. t. 503. Blackw. herb.

t. 200. Mor. hist. f. 6. t. 8. f. 29. Petiv.

brit. t. 19. f. 2. Ger. 510. 4. emac. 636. 5.

Park. theat. 530. 11. Raii hist. 349. 2.

β. *B. hortensis*. *Double* or *Garden Daisy*.

Mill. dict. n. 3. Curtis magaz. t. 228. Raii

hist. 350. n. 4.

γ. *B. fistulosa*. *Quilled Daisy*.

δ. *B. prolifera*. *Proliferous* or *Hen and Chicken Daisy*.

Scape naked.

2. *Bellis annua*. *Annual Daisy*.

Lin. spec. 1249. syst. 770. Reich. 3. 838. Gouan.

hort. monsp. 447. illustr. 69. 1. Bauh. pin. 261.

n. 8. prodr. 121. n. 5. and 262. n. 3. prodr. 121.

n. 7. Bocc. mus. t. 35.

Stem somewhat leafy.

DESCRIPTIONS, &c.

1. [Common Daisy is sufficiently distinguished by its perennial root; truncate or præmorse at the end; leaves radical, inversely ovate or lanceolate or rather spatulate, blunt at the end, notched and often waved about the edge, an inch or more in length and about half an inch in breadth; scapes hirsute, solid at bottom, hollow at top, from two to four inches long, having sometimes a single leaf; and terminated by one radiate flower, frequently near an inch in diameter: florets in the disk yellow, numerous (one hundred and fifty); in the ray white, often purple on the outside, and sometimes at the tip, amounting frequently to near fifty in number: receptacle surrounded by very small tubercles, which perhaps may be nectaries^a: seeds cordate-oblong or emarginate, compressed, surrounded by a whitish rim, bay-ash-coloured in the middle, having a few whitish hairs on them^b. It is a native of most parts of Europe in pastures; flowers almost all the year, and shuts up close every night and in wet weather^c.

The taste of the leaves is somewhat acrid; in some countries however it is used as a potherb^d. The roots have a penetrating pungency^e. It is ungrateful to cattle, and even to geese; it occupies therefore a large share of pasture lands, to the exclusion of grass and profitable herbs. It has been much recommended as excellent for fresh wounds externally, and against inflammatory disorders, &c. internally; but it is now wholly out of use. Lady

^a Pollich, Krock. Relh.

^b Gærtner.

^c Linn.

^d Lightf.

^e Withering.

Margaret, Countess of Richmond, bore three white Daisies (Marguerites) on a green turf^f.

Varieties of the Garden Daisy are Double White, Red, White and Red striped, Variegated, Scarlet and Pied. Double quilled or with fistular florets. Double cock's-comb shaped, white red and speckled. Proliferous, Childing or Hen and Chicken Daisy.]

2. This is a low annual plant, seldom rising more than three inches high, with an upright stalk having leaves on the lower part, but the upper part naked, and supporting a single flower like that of the common Daisy, but smaller. Native of Sicily, Spain, about Montpellier, Verona, and Nice. [Cultivated in 1759, by Mr. Miller^g.]

PROPAGATION AND CULTURE.

The common wild Daisy being a troublesome weed in pasture lands, and the lawns and grass walks in gardens, is never cultivated.

The Garden Daisies flower in april and may, when they make a pretty variety, being intermixed with plants of the same growth; they should be planted in a shady border, and a loamy soil without dung, in which they may be preserved without varying, provided the roots are transplanted and parted every autumn; which is all the culture they require, except the keeping them clear from weeds.

These were formerly planted for edgings to borders, but they are very unfit for this purpose; because where they are fully exposed to the sun, they frequently die in large patches, whereby the edgings become bald in many places.

[Mr. Curtis, on the contrary, thinks that Daisies appear to most advantage in edgings to borders, not that they are equal to box for this purpose, but because they enliven the border more, and add much to the general gaiety of the garden. He recommends the roots to be taken up the last week in september, or the first in october, to be divided into single plants, and to be planted three inches apart in a trench, not in holes by a dibber, spreading out the fibres, and pressing the earth closely round them; by which means they will not be subject to be drawn out of the ground by the worms. Such edgings should be replanted every autumn, because the plants, if they grow well, spread too wide. Mr. Curtis affirms, that if they remain undisturbed in the same spot, they will recur to their natural state and become single, notwithstanding Mr. Miller informs us, that he never observed them so to do^h.

BELLIS. See *Anthemis*, *Aster*, *Athanasia*, *Bellium*, *Calendula*, *Chrysanthemum*, *Cotula*, *Doronicum*, *Eclipta*, *Osmites*, *Saponaria*.

BELLIS major. See *Chrysanthemum*.

BELLIS cærulea. See *Globularia*.]

[BELLIUM.

Lin. gen. Reich. n. 1043. Schreb. 1301. Juss. 182.

Class 19. 2. Syngenesia Polygamia Superflua.

Nat. order of *Compositæ Discoideæ. Corymbiferae* Juss.

GENERIC CHARACTER.

CAL. Common simple, with very many, equal, boat-shaped leaflets.

COR. Compound radiated: in the ray female, ten or twelve; in the disk hermaphr. very many.—*Proper*, of the hermaphr. funnel-shaped, quadrifid, erect; of the females elliptic, emarginate, ligulate.

STAM. in the hermaphr. *Filaments* four, short. *Anther* cylindric.

PIST. in the hermaphr. *germ* turbinate; *style* filiform: *stigma* bifid, oblong—in the females, *germ* turbinate; *style* very short; *stigma* bifid, minute.

PER. none. *Calyx* unchanged.

SEEDS turbinate; crown chaffy, eight-leaved, rounded: down with eight simple awns.

REC. naked, conic.

OBS. *Different from Bellis and Pectis, on account of the down, and four-cleft corollules.*

ESSENTIAL CHARACTER.

Cal. with equal leaflets. *Seeds* conic, with a chaffy eight-leaved crown, and awned down. *Recept.* naked.

^f Ord M.S.

^g Hort. kew.

^h Magaz. 228.

SPECIES.

1. *Bellium bellidioides*.

Lin. syst. 770. Reich. 3. 839. mant. 285. Gærtn. fruct. 2. 461.

Bellis droseræfolia. Gouan. illustr. 69. 2.

B. annua minima. Triumph. obs. t. 82.

B. maritima min. &c. Bocc. mus. 149. t. 107.

Scapes naked filiform.

2. *Bellium minutum*.

Lin. syst. 770. Reich. 3. 839. mant. 286.

Pectis minuta. Lin. spec. 1250. Schreb. act. upf. nov. 1. 84. t. 5. f. 2.

Bellis cretica fontana omnium minima. Tournef. cor. 37. Vaill. act. 547.

Stem leafy.

DESCRIPTIONS, &c.

1. This has the habit of the Daisy, but differs essentially from it in having a down to the seed. Leaves radical, obovate, quite entire, almost upright, scabrous on the upper surface, shorter than the petiole. It has filiform runners, rooting at the end, bearing both leaves and flowers. Scapes longer than the leaves, bearing one flower, which nods before it opens. Leaflets of the calyx ten, lanceolate, rather scabrous, parallel. Ray white, with oval emarginate corolllets: disk yellow, with quadrifid corolllets. Seeds somewhat hairy: the down has eight roundish chaffs; and eight bristles, longer and placed alternately with the chaffs^a. Native of Italy, about Rome; and in the island of Majorca.

2. This is one of the minutest of plants. Stem capillary, an inch in length; the whole plant smooth and ascending. Leaves obovate, quite entire, smooth, shorter than the petiole. Peduncles one or two, terminating, the length of the whole plant, capillary, one-flowered. Calyx the size of a cabbage seed. The plant, examined with a glass, appears to have hairs scattered over it^b. Native of the Levant. Introduced in 1772, by Monf. Richard^c.]

BELLONIA. (So named by Plumier, in honour of the famous French physician Pierre Belon, who has left many valuable tracts on natural history.)

Lin. gen. 226. Reich. 242. Schreb. 298.

Plum. 31. Juss. 200.

Class 5. 1. Pentandria Monogynia.

Nat. order of *Rubiaceæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* one-leaved, superior, semiquinquefid, permanent; *divisions* lanceolate, acute.

COR. monopetalous, wheel-shaped; *tube* very short; *border* flat, semiquinquefid, obtuse, large.

STAM. *Filaments* five, subulate, erect, very short. *Anthers* erect, converging, short.

PIST. *Germ* inferior. *Style* subulate, straight, longer than the stamens. *Stigma* acute.

PER. *Capsule* turbinate-ovate, wrapped up in the calyx, and beaked with its converging divisions, one-celled.

SEEDS numerous, roundish, small.

ESSENTIAL CHARACTER.

Cor. wheel-shaped. *Caps.* one-celled, inferior, many-seeded, beaked with the calyx.

SPECIES.

1. *Bellonia aspera*.

Lin. spec. 244. Reich. 475. Plum. gen. 19. ic. 47. Swartz prodr. 42. 2. obs. 69.

Leaves ovate serrate, flowers corymbed terminating.

2. *Bellonia spinosa*.

Swartz prodr. 42.

Thorny; leaves ovate angular tooth-serrate, peduncles axillary, one-flowered.]

DESCRIPTION, &c.

1. This is a shrub, ten or twelve feet in height, sending out many lateral branches. [Leaves opposite ovate serrate, rough beneath, on very short petioles. Flowers in loose corymbs^d. This species is yet little known, and according to Swartz, has been seen only by Plumier, and rests wholly upon his authority.] Mr. Miller says, that it is very common in several of the warm islands in America, whence

^a Linn.

^b Ibid.

^c Hort. kew.

^d Linn.

he has received the seeds. [As there is no specimen of it in his herbarium, which is now in the possession of Sir Joseph Banks, we cannot form a judgment whether the plant which, he speaks of might be that of Plumier, or the second species, discovered in Hispaniola by Swartz.]

PROPAGATION AND CULTURE.

It is propagated by seeds, which should be sown early in the spring, in a pot filled with light fresh earth, and plunged into a hot-bed of tanners bark, observing to water it frequently, as the earth appears dry; but you must be careful not to wash the seeds out of the ground. When the plants are come up half an inch high, they should be carefully transplanted into pots filled with light fresh earth, and plunged into the hot-bed again, observing to water and shade them until they have taken root; after which time they should have air admitted to them every day, when the weather is warm; they must also be frequently watered. When the plants have filled these pots with their roots, they should be carefully shaken out of them, and their roots trimmed, and put into larger pots filled with light fresh earth, and plunged into the hot-bed again. In warm weather they should have free air admitted to them every day; but in autumn they must be plunged into the bark-stove, and treated in the same manner as other tender exotic plants. The second year these plants will sometimes flower, but they rarely produce good seeds in this climate; however, they may be propagated by cuttings in the summer months, provided they are planted in light earth on a moderate hot-bed, and carefully watered and shaded until they have taken root. These plants must be constantly kept in the stove, and should have a large share of free air in warm weather; but if they are set abroad, they will not thrive in this climate.

BELVEDERE. See *Scoparia*.

[BELUTTA. See *Celosia* and *Crinum*.

BEM-CURINI. See *Justicia*.

BENJAMIN-TREE. See *Laurus*.

BENNET, Herb. See *Geum*.

BENT-GRASS. See *Agrostis*.

BENZOE. See *Croton*.]

BENZOIN. See *Laurus*.

BERBERIS. (*An Arabic name, used by Averrhoes, and the officinal writers.*)

Engl. *The Barberry or Pipperidge-bush.*

Fr. *Epine-vinette.*

Lin. gen. n. 442. Reich. 476. Schreb. 595.

Tournef. 385. Juss. 286. Gertn. t. 42.

Class. 6. 1. Hexandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth six-leaved, patulous: leaflets ovate, with a narrower base, concave, alternately smaller, coloured, deciduous.

COR. Petals six, roundish, concave, erect-expanding, scarcely larger than the calyx.

Nectary, two small, roundish, coloured bodies, fastened to the base of each petal.

STAM. Filaments six, erect, compressed, obtuse. Anthers two, fastened on each side to the top of the filaments.

PIST. Germ cylindric, the length of the stamens. Style none. Stigma orbiculate, broader than the germ, surrounded with a sharp edge.

PER. Berry cylindric, obtuse, umbilicated with a point, one-celled.

SEEDS two, oblong, cylindric, obtuse.

OBS. *B. cretica* has three seeds. Reich.

ESSENTIAL CHARACTER.

Cal. six-leaved. Pet. six, with two glands at the claws. Style none. Berry two-seeded.

SPECIES.

1. *Berberis vulgaris*. Common Barberry.

Lin. spec. 471. Reich. 2. 106. mat. med. 97.

hort. cliff. 122. Juss. 311. Gertn. fruct. 1. 200.

Huds. angl. 137. Willd. 366. Lightf. scot. 178.

Sowerby engl. bot. t. 49. Hall. belv. n. 828.

Scop. carn. n. 437. Krock. fles. n. 560. Villars

dauph. 3. 266. Pollich pal. n. 354. Mill. fig.

t. 63. Blackw. t. 165. Plenck, ic. t. 252.

Dubam. p. 162. fig. Ger. 1144. emac. 1325.

Park. 1559. Raii hist. 1605. syn. 465. Cam.

epit. 86. Fuchs. 543. Baub. hist. 1. 54.

β. *B. violacea*. Purple-fruited Barberry.

γ. *B. canadensis*. Canada Barberry.

Mill. dict. n. 2.—

B. latissimo fol. canadensis. H. R. Par. Boerb. lugdb. 2: 233.

Peduncles racemed, spines triple.

2. *Berberis cretica*. Cretan or Box-leaved Barberry.

Lin. spec. 472. syst. 343. Reich. 2. 107. Tourn.

cor. 42. Baub. pin. 454. Thunb. jap. 146.

Lycium creticum. Alp. exot. 21. t. 20. Pon. ital. 137.

Peduncles subumbelled; spines triple.

[3. *Berberis ilicifolia*. Holm-leaved Barberry.

Lin. syst. 343. suppl. 210.

Leaves obovate serrate-spinous, pedicels elongated cymose, spines digitate.

4. *Berberis fibrica*. Siberian Barberry.

Lin. syst. 343. Murr. in comm. got. 1784. 37. t. 6.

Pall. it. 2. 737. t. P. f. 2.

Peduncles one-flowered solitary nodding, spines palmate.]

DESCRIPTIONS, &c.

1. The Common Barberry is a shrub rising to the height of eight or ten feet. [The stems are upright and branched, smooth and slightly grooved, brittle, with a large white pith,] and covered with a whitish or ash-coloured bark which is yellow on the inside. Both stems and branches are armed with sharp thorns, which commonly grow by threes. [Linneus affirms, that the first leaves of the present year change into these thorns the next; this however is denied by others. The first leaves are obovate, serrate-ciliate, not jointed. The stipules are terminated on each side by a capillary tooth. Stem-leaves alternate; the lowest subpinnatifid with spiny teeth. The secondary leaves are in pairs; they are oblong and serrate: and between the lowermost leaves and the thorns smaller leaves are concealed^a. Flowers in pendulous racemes towards the ends of the branches, with a bracte to each pedicel. Corolla yellow; petals frequently serrate about the edge, at the base of each are two orange-coloured dots, which are probably the nectaries. Anthers roundish, yellow. Stigma greenish.] Berries at first green, but when ripe turning to a fine red colour: [they are superior, of an ovate-cylindric form, and have a brown pervious teat at top; the cell of the stone is larger than the seeds, and has a raised streak on one side from the hole downwards. There are usually two, rarely three seeds, free or loose except at bottom, where they are fastened to a very minute tubercle; they are oblong, thicker at top, blunt, smooth, of a pale testaceous colour, and hard. The cotyledons or seed-lobes are of an elliptic form^b.

It is a native of the Eastern countries, and now of most parts of Europe in woods, coppices, and hedges. In England, chiefly in a chalky soil, as particularly about Saffron Walden in Essex.] The flowers appear in may, and the fruit ripens in september.

There are many varieties of this shrub. Mr. Miller mentions three: 1. *Berberis sine nucleo*. Baub. pin. 454. 2. Barberry without stone. 3. *B. orientalis procerior fructu nigro suavissimo*. Tournef. cor. 1. The first of these, he says, is certainly accidental, because the suckers, when transplanted, commonly produce fruit with stones; and it is the age of the plant which occasions this variation. 2. The variety with white fruit seldom bears: the leaves are of a lighter green colour, and the bark is whiter than in the common Barberry. 3. The third only differs in the colour and flavour of the fruit. He makes the Canada Barberry to be a distinct species; and says that the leaves are much broader and shorter than those of the common sort, and that the fruit is black when ripe.

^a Linn. spec.

^b Gartner.

[Other varieties are scarcely worth recording: as one without any aril; and another with simple spines, native of Syria, mentioned by Rauwolf^c. It is not uncommon to find some of the spines simple in the Common Berberry.

The leaves of this shrub are gratefully acid. The smell of the flowers is offensive when near, but pleasant at a certain distance. The berries are so very acid, that birds seldom touch them. The Berberry however is cultivated for the sake of these, which are pickled and used for garnishing dishes; and, being boiled with sugar, form a most agreeable rob or jelly; they are used likewise as a sweetmeat, and are put into sugar-plums or comfits. The roots boiled in lye yield a yellow colour: and in Poland they dye leather of a fine yellow with the bark of the root. The inner bark of the stems also will dye linen of a fine yellow, with the assistance of alum. Kine, sheep, and goats are said to eat it; horses and swine to refuse it^d.

The fruit of the Berberry is considered as a mild restraining acid, agreeable to the stomach, and of efficacy, (like other vegetable acids) in hot bilious disorders, and in a putrid disposition of the humors. According to Prosper Alpinus, the Egyptians employ a diluted juice of the berries in ardent and pestilential fevers. Their method is to macerate them in about twelve times their quantity of water, and let them stand for about twenty-four hours, and then to add a little fennel-seed. The liquor is then pressed out and strained, and sweetened with sugar, or syrup of citrons, roses, &c. and given plentifully as a drink. A concrete similar to cream of tartar may be obtained from the juice, by mixing it with lemon juice, in the proportion of two pounds of Berberry juice and two ounces of lemon juice, and digesting them in a sand-heat for two days; and then gently evaporating the filtered liquor to one half, and setting it in a cellar for some days. The tartar incrustates the sides of the vessel, and is a grateful medicine in febrile disorders. In fact it is the essential salt of the Berberry. The berries of this shrub are also made into an agreeable jelly, by boiling them with an equal weight of fine sugar to a proper consistence, and then straining it. The leaves themselves of the Berberry are acid, and have been sometimes employed for nearly the same purposes as the fruit: they have also been used as an ingredient in salads. The inner yellow bark, which is austere and bitterish, has been sometimes used with success as a gentle purgative in the jaundice, taken in the form of a decoction, in ale or other liquors. In this manner it was used with success by the celebrated Mr. Ray.

Insects of various kinds are remarkably fond of the flowers of Berberry. Linneus observed long since, that when bees in search of honey touch the filaments, the anthers approximate to the stigma, and explode the pollen.

Dr. Smith has given the following particular account of this curious phenomenon:

The stamens of such flowers as are open, bend back to each petal, and shelter themselves under their concave tips. No shaking of the branch has any effect upon them; but if the inside of the filaments be touched with a small bit of stick, they instantly spring from the petal, and strike the anther against the stigma. The outside of the filament has no irritability, nor has the anther itself any; as may easily be proved by touching either of them with a blunt needle, a fine bristle, a feather, or any thing which cannot injure the structure of the part. If a stamen be bent to the stigma, by means of a pair of scissars applied to the anther, no contraction in the filament is produced. From all this it is evident, that the spring of the stamens, is owing to an high degree of irritability in the side of the filament next the germ, by which, when touched, it contracts, that side becomes shorter than the other, and consequently the filament is bent towards the germ.

This irritability is perceptible in stamens of all ages; in flowers only so far expanded as to admit a bristle; and in old flowers ready to fall off.

If the germ be cut off, the filaments will still contract, and nothing being in their way, will bend over quite to the opposite side of the flower.

After irritation, the stamens will return to their original place. On being touched they will contract with the same facility as before: and this may be repeated three or four times.

The purpose, which this curious contrivance of nature answers, is evident. In the original position of the stamens, the anthers are sheltered from rain by the concavity of the petals. Thus probably they remain, till some insect coming to extract honey from the base of the flower, thrusts itself between the filaments, and almost unavoidably touches them in the most irritable part: thus the impregnation of the germ is performed; and as it is chiefly in fine sunny weather that insects are on the wing, the pollen is also in such weather most fit for the purpose of impregnation^e.

This shrub has lately acquired an ill name for a very mischievous effect, which, if true, should induce every husbandman to extirpate it from the vicinity of his corn lands. It is affirmed, that ears of wheat which grow near it never fill, and that its influence in this respect has been known to extend three or four hundred yards^f.

Mr. Macro, a very respectable farmer at Barrow in Suffolk, planted a Berberry bush in his garden, on purpose to ascertain the fact. He set wheat round it three succeeding years, and it was all so completely mildewed, that the best of the little grain it produced, was only about the size of thin rice, and that without any flour. He adds, that some, which he set on the opposite side of his garden, one of the years, produced very good grain, although the straw was a little mildewed^g. There are other accounts from practical men corresponding with this of Mr. Macro's. We can scarcely however yield our assent to an appearance so strange and so wholly unaccountable, till the fact has been examined more accurately. The Berberry is so common in the hedges about Saffron Walden in Essex, and many miles round that place, where corn grows frequently up to the very hedge, that we can scarcely suppose such an interesting effect to have escaped observation. The celebrated Duhamel long since looked upon the mildewing power of Berberry as totally void of foundation; and Mons. Broussonet, who has bent his attention particularly to agriculture, assures us of the same thing, from his own observation^h.]

2. This never rises more than three or four feet high in England. It sends out many stalks from the root, which are strongly armed with spines at every joint; the leaves are produced without order, and are shaped like those of the narrow-leaved Box-tree; the flowers come out from between the leaves, each upon a slender peduncle, but these are not succeeded by fruit in England.

[Stem and branches angular, purple, smooth, prickly. Lower prickles in threes, reflex; upper ones solitary, horizontal. Leaves in bundles, unequal, attenuated into the petioles, ovate, obtuse, quite entire, smooth, spreading. Flowers in racemes. The corolla has two minute glands at the base. Stigma capitate, flatⁱ. Native of the island of Crete or Candia, and also of Japan. Cultivated in 1759, by Mr. Miller. It flowers in april and may^k.

3. Leaves resembling those of the Holm-oak, stiff, on very short petioles, quite entire at the base, but having two or three serratures on each side towards the middle, and terminated by a spine, as is also the point of the leaf, very smooth, and more glaucous beneath. Stipules palmate. Racemes terminating, very short: but the pedicels much prolonged.

^c Smith in philos. trans. vol. 78. 1. 158.

^e Young's Annals, 7. 188.

ⁱ Thunberg.

^f Withering.

^h English Botany, 49.

^k Hort. kew.

^d Haller from Bradl. & Rauw.

^g Withering.

Found in the Terra del Fuego by Sparrman. The inhabitants there use the wood for bows, on account of its great elasticity.

4. This is a small shrub scarcely a span in height. Branches numerous, stiff, upright, covered with a gray or dirty yellow bark, except at the ends, which are green. Stipules palmate-spiny, on the older branches, thick, very stiff, alternate, of a dirty yellow colour; the upper ones smaller and less divided, sometimes only into three; the lower ones semilunar, divided into parts from seven to thirteen. Petiole very short, upright, three-nerved. Leaves commonly ovate, some of the lower ones roundish, the uppermost elliptic, ferrate-spiny, with a sinus between the ferratures, the spines very short, parallel, pale, directed forwards, twenty-one or even twenty-six in number, narrowed and entire at the base, in a bunch at the axil of the stipule, where there is one, otherwise proceeding from a naked bud, alternate except the upper leaves, which form a terminating bundle: they are somewhat glaucous, and paler underneath. Petioles often longer than the leaves, but on the young leaves shorter, semicylindric, broader at the base, winged with a membrane ending on each side forwards in a soft spreading bristle. Flower conglobose, on a nodding, cylindrical peduncle, thicker at the top. Calyx reddish-yellow. Corolla yellow: petals ovate, bifid at the end, narrowed at the claw. Filaments half the length of the corolla, into the bottom of which they are inserted: anthers twin, incumbent. Berry obovate, red. The old leaves become spines, as in the common fort. Native of Siberia, where it was observed by Pallas¹.]

PROPAGATION AND CULTURE.

1. The common fort is generally propagated by suckers, which are put out in great plenty from the root; but these plants are very subject to send out suckers, in greater plenty than those which are propagated by layers; therefore the latter method should be preferred. The best time for laying down the branches is in the autumn, when their leaves begin to fall; the young shoots of the same year are the best for this purpose; these will be well rooted by the next autumn, when they may be taken off, and planted where they are designed to remain. Where this plant is cultivated for its fruit, it should be planted single, (not in hedges, as was the old practice) and the suckers every autumn taken away, and all the gross shoots pruned out: by this method the fruit will be much fairer, and in greater plenty, than upon those which are suffered to grow wild. A few of these shrubs may be allowed to have place in wildernesses, or plantations of shrubs, where they will make a pretty variety, and the fruit will be food for the birds; but they should not be planted in great quantities, near walks which are much frequented, because their flowers emit a very strong disagreeable odour.

1. β. The Canada fort was more common in the English gardens some years past, than at present. This may be propagated in the same way as the common fort, and is equally hardy.

2. The Box-leaved fort is at present very rare in England; and while young, the plants being somewhat tender, are killed by severe frost.

This fort may be propagated by laying down the branches in the same manner as the first; but when the young plants are taken off, they should be planted in pots, and sheltered under a frame in the winter, till they have obtained strength, when they may be turned out of the pots, and planted in a warm situation.

[BERGERA. (From Christ. Job. Berger, Prof. at Kiel.)
Auth. D. Koenig. Lin. gen. Schreb. n. 718.

Class. 10. 1. Decandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth five-parted, very small, acute, spreading, permanent.

COR. Petals five, oblong, bluntish, spreading.

¹ Murray.

STAM. Filaments ten, five alternately shorter. Anthers round.

PIST. Germ roundish, superior. Style filiform, club-shaped. Stigma turbinate, shining, with transverse grooves.

PER. Berry subglobular, one-celled.

SEEDS TWO.

ESSENTIAL CHARACTER.

Cal. five-parted. Pet. five. Berry subglobular, one-celled, with two seeds.

SPECIES.

1. Bergera Koenigii.

Linn. mant. 563.

DESCRIPTION, &c.

This is a very leafy tree, with the bark of Alder. Leaves alternate, petioled, unequally pinnate: leaflets also alternate, petioled, ovate-lanceolate, rhomboid, narrower on one side, smooth, subferrate on the forward side. Corymbs terminating, compound, shorter than the leaves, spreading. Bractes pressed close to the pedicels, solitary, lanceolate, small, caducous. Racemes upright, on short roundish pedicels; bractes lanceolate, permanent. Native of the East-Indies^a.

[BERGIA. (From Peter Jonas Bergius, M. D. Professor of Natural History at Stockholm: author of Descriptiones Plantarum ex Capite Bonæ Spei. Stockh. 1767. 8°.)

Lin. gen. Reich. n. 631. Schreb. 791. Juss. 301.

Class. 10. 4. Decandria Pentagynia.

Nat. order of Succulentæ. Caryophyllæ Juss.

GENERIC CHARACTER.

CAL. Perianth five-parted, spreading: leaflets lanceolate, permanent.

COR. Petals five, oblong, spreading, the length of the calyx.

STAM. Filaments ten, bristle-shaped, of middling length. Anthers roundish.

PIST. Germ roundish, superior. Styles five, very short, approximating. Stigmas simple, permanent.

PER. Capsule simple, subglobular, mucronate, with five little swellings, five-celled, five-valved: valves ovate, flat, opening along the furrows, permanent, spreading very widely.

SEEDS numerous, minute.

ESSENTIAL CHARACTER.

Cal. five-parted. Pet. five. Caps. one, globular with swellings, five-celled, five-valved; valves resembling petals. Seeds very many.

SPECIES.

1. Bergia capensis.

Lin. syst. 431. Reich. 2. 386. suppl. 243. mant. 241.

Pola-tsjira. Rheed. mal. 9. 153. t. 78.

Leaves lanceolate or elliptic, flowers in whorls.

2. Bergia glomerata.

Lin. syst. 431. suppl. 243.

Leaves obovate crenulate, flowers glomerate.

DESCRIPTIONS, &c.

1. This has the stature of Ammannia. Stem extremely simple, half a foot high, the thickness of a pigeon's quill, erect, smooth, rather succulent. Leaves opposite, subpetioled, somewhat obtuse, very finely ferrate, smooth, spreading. Flowers subsessile, very copious, and much crowded. It is a native of Tranquebar in the East-Indies, and therefore is misnamed *capensis*^b. The valves of the capsule continuing after it is ripe, form a kind of five-petalled wheel-shaped flower^c.

2. This differs from the foregoing in having minute, glomerate, crenulate leaves; minute glomerate flowers; and a more diffused branching stem. It was found at the Cape of Good Hope by Bergius^d.]

BERMUDAS Cedar. See *Juniperus*.

BERMUDIANA. See *Sisyrinchium*.

BERNARDIA. See *Adelia*.

BERRY-BEARING Alder. See *Rhamnus Frangula*.

^a Koenig in Linn. mant.

^b Linn. mant.

^c Linn. syst.

^d Linn. suppl.

[BERTIERA: (So named by Aublet, from Monf. Bertier of the kingdom of France.)

Lin. gen. Schreb. n. 304. Aubl. 69. Juss. 200.

Class. 5. 1. Pentandria Monogynia.

Nat. order of Contortæ Lin. Rubiaceæ Juss.

GENERIC CHARACTER.

CAL. Perianth turbinate; five-toothed.

COR. one-petalled. Tube short: mouth villose. Border five-cleft: clefts ovate, acute, spreading.

STAM. Filaments five, very short, inserted into the tube beneath the orifice. Anthers linear, erect.

PIST. Germ roundish, inferior, crowned by a gland. Style filiform. Stigma two-plated.

PER. Berry globose, crowned by the teeth of the calyx, two-celled.

SEEDS very many, roundish, affixed to the dissepiment.

ESSENTIAL CHARACTER.

Cal. turbinate, five-toothed. Cor. tube short with a villose mouth. Berry globose, inferior, two-celled, many-seeded.

SPECIES.

1. Bertiera guianensis.

Aublet. guian. 1. 180. t. 69.

DESCRIPTION, &c.

This is a shrub six or seven feet in height, the thickness of the human arm: branches opposite, knotty, tomentose. Leaves opposite, ovate, acuminate, tomentose underneath. Petioles short, convex beneath, channelled above. Stipules stem-clasping, two-lobed; lobes oblong, acute, opposite. Flowers in terminating racemes, opposite or alternate, with a pointed bracte or two at the base. Corolla white. Found by Aublet, in the wood of Aroura in Guiana, flowering and fruiting in the month of June^a.]

BESLERIA. (So named by Plumier after Basil Besler, an apothecary at Nuremberg, editor, with the assistance of Jungermann, of a sumptuous work entitled Hortus Eystettensis, 1613. The garden belonged to Conrad a Gemmingen, a bishop, and the plates were engraved at his expense.)

Lin. gen. n. 755. Reich. 813. Schreb. 1012.

Plum. 5. Jacqu. amer. 187. Juss. 121. Gært. t. 52.

Class. 14. 2. Didynamia Angiospermia.

Nat. order of Personatæ. Scrophulariæ Juss.

GENERIC CHARACTER.

CAL. Perianth one-leafed, five-parted, acuminate, erect, loose, with reflected tops.

COR. monopetalous, ringent. Tube the length of the calyx, roundish, gibbous on one side at the base, and at the top: border five-cleft; divisions roundish; the lowermost largest; the two upper less divided.

STAM. Filaments four, within the tube of the corolla, of which two are a little shorter. Anthers oblong, twin, hanging down on each side.

PIST. Germ globular, fitting on a glandular body which embraces it and is permanent, cordate where the corolla is gibbous: style subulate, erect: stigma bifid, obtuse.

PER. Berry subglobular, one-celled: partition, two opposite semiovate laminae, not cohering. G.

SEEDS numerous, round, very small, nestling, fixed to the inner surface of the berry.

ESSENTIAL CHARACTER.

Cal. five-parted. Berry subglobular, many-seeded.

SPECIES.

1. Besleria melittifolia.

Lin. spec. 862. Reich. 3. 144. Plum. gen. 29. ic. 48.

Peduncles branching, leaves ovate.

2. Besleria lutea.

Lin. spec. 863. Reich. 3. 144. Jacqu. amer. 187. edit. 2. pict. 92. Gært. fruct. 1. 241. Plum. gen. 29. ic. 49. f. 1.

Eriphia. Brown. jam. 270.

β. B. &c. fl. luteo, major. Plum. gen. 29.

Peduncles simple crowded, leaves lanceolate.

3. Besleria cristata.

Lin. spec. 863. Juss. 559. Reich. 3. 144. Jacqu.

^a Aublet,

amer. 188. t. 119. pict. 93. t. 180. Plum.

gen. 29. ic. 50.

Peduncles simple, solitary, calyxes ferrate-crested.

[4. Besleria bivalvis.

Lin. Juss. 559. suppl. 280.

Calyxes bivalve torn.

5. Besleria biflora.

Forst. florul. n. 236. Cyrtandra biflora. Forst. gen. 3. n. 1.

Peduncles two-flowered, involucre caducous inflated, leaves ovate quite entire.

6. Besleria cymosa.

Forst. florul. n. 237.—C. cymosa. Forst. gen. 3. n. 2.

Peduncles cymed, pedicels with little bractes, leaves ovate crenate.]

DESCRIPTIONS, &c.

1. The first sort has a smooth woody stalk which is jointed; at each joint are placed two ovate nerved leaves opposite, which are crenate on their edges; the flowers come out from the wings of the leaves, upon short branching foot-stalks, each sustaining six or eight flowers, which stand each upon a separate smaller foot-stalk.

Native of South America.

2. The second sort rises with a ligneous stem six or seven feet high, dividing toward the top into many irregular branches, with spear-shaped ferrate leaves, which have many transverse veins; the flowers come out at the wings of the leaves, in large clusters, each having a separate foot-stalk; these are small, tubulous, and of a pale yellow colour.

[Native of Martinico, Jamaica, &c.

3. This shrubby plant, very different in its habit from the foregoing, climbs up trees, to which it adheres by means of roots thrown out from the joints. The twigs are round, hirsute and long. Leaves ovate, acute, ferrate, hirsute, wrinkled, veined, petioled, opposite, two inches long. Peduncles one-flowered, axillary, bent down, almost the length of the leaves. Calyx bright scarlet. Corolla yellow. Stamens from a common membrane, fastened to the tube of the corolla, and cleft longitudinally at the gibbous part of it; in the fissure there is a rudiment of a fifth filament quite free from the membrane. Before the dispersion of the pollen the filaments are upright, but afterwards they are strangely interwoven as in Martynia. A yellow gland embraces the germ, as in most of this class and order, but it is more conspicuous in this genus, in Columnea, Crescentia, Bignonia, and a few others.

Native of Martinico, &c. in moist mountainous woods^a.

4. Stem herbaceous, very long, weak, creeping, hairy, round. Leaves opposite, petioled, veined, hairy, nerved, a hand's breadth in length. Peduncles lateral, opposite, shorter than the leaves, two from each axil, one-flowered. Berry oval, with a hard two-celled nucleus. It resembles the third species much in the leaves and calyx, but is very different in the fruit, and in the defect of the five-leaved perianth. It was observed at Surinam by Dahlberg^b.

5. Native of the island of Otaheite.

6. Native of the island of Tanna^c.]

PROPAGATION AND CULTURE.

These plants grow naturally in the warm parts of America. The seeds should be sown on a hot-bed early in the spring; and when the plants are come up half an inch high, they should be each transplanted into a small pot filled with light fresh earth, and plunged into a hot-bed of tanners bark, observing to water and shade them until they have taken root; after which time they should have air and water in proportion to the warmth of the season, and the heat of the bed in which they are placed. When the plants have filled these small pots with their roots, they should be shaken out of them, and their roots trimmed, and put into larger pots filled with light fresh earth, and plunged into

^a Jacquin.

^b Linn. suppl.

^c Forster.

B E T

the hot-bed again; where they should have a large share of air in warm weather, and must be frequently watered. With this management the plants will thrive very well in summer, but in winter they must be removed into the stove, where they must be placed in a temperate warmth, and should be often, but sparingly, watered. The second year these plants will flower, and sometimes they will perfect their seeds in this country; but they must be constantly preserved in the stove, for they will not live in the open air.

BETA. (From the form of the letter *Bēta*, which it has when it swells with seed.)

Lin. gen. 310. Reich. 338. Schreb. 436. Tournef. 286. Gærtn. t. 75. Juss. 85.

Class. 5. 2. Pentandria Digynia.

Nat. order of *Holoraceæ*. *Atriplices* Juss.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved, concave, permanent; divisions ovate-oblong, obtuse.

COR. none.

STAM. *Filaments* five, subulate, opposite to the leaves of the calyx, and of the same length with them. *Antbers* roundish.

PIST. *Germ* in a manner below the receptacle. *Styles* two, very short, erect. *Stigmas* acute.

PER. *Capsule* within the bottom of the calyx, one-celled, deciduous.

SEED single, kidney-form, compressed, involved in the calyx.

ESSENTIAL CHARACTER.

Cal. five-leaved. *Cor.* none. *Seed* kidney-form, within the substance of the base of the calyx.

SPECIES.

1. *Beta vulgaris.* Red Garden Beet.

Lin. spec. 322. syst. 262. Reich. 623. mat. med. 74. hort. cliff. 83. upf. 56. Mill. dict. n. 3. Plenck, ic. t. 169.

2. *B. rubra vulgaris.* Baub. pin. 118. Raii hist. 204. n. 2. Ger. emac. 318. n. 2. Park. theat. 751. f. 3. Common red Beet.

3. *B. rubra major.* Baub. pin. 118. Blackw. t. 235. Ger. 251. n. 3. emac. 319.—*B. italica.* Park. par. 490. Raii hist. 205. Great red Beet.

4. *B. rubra, radice rapæ.* Baub. pin. 118. Raii hist. 204. n. 4.—*romana rubra, Raposa dicta.* Park. par. 489. Turnep-rooted red Beet.

5. *B. lutea major.* Baub. pin. 118. Raii hist. 204. n. 5.—*syriaca.* Park. theat. 752. n. 3. Yellow-rooted Beet.

6. *B. pallide virens major.* Baub. pin. 118. Green-leaved red Beet.

Flowers beaped; leaflets of the calyx toothed at the base.

2. *Beta Cicla.* White Garden Beet.

Lin. syst. 262. Reich. 623. mat. med. 74. Plenck, ic. t. 170.

B. hortensis. Mill. dict. n. 2.

B. vulgaris ζ, n. Lin. spec. 322.

B. alba. Ger. 251. n. 1. emac. 318. n. 1. Raii hist. 204.

B. communis alba. Park. par. 489. 1.

B. alba vel pallescens, quæ Cicla offic. Baub. pin. 118.—& *B. communis viridis, ejusd.*

Flowers three-fold; leaflets of the calyx unarmed at the base.

3. *Beta maritima.* Sea-Beet.

Lin. spec. 322. syst. 262. Reich. 623. Hudf. angl. 108. With. 257. Lightf. scot. 150.

B. sylvestris maritima. Baub. pin. 118. Park. theat. 750. 2. Raii syn. 157. hist. 204. Ger. emac. 318. 2. fig. (according to Lightf. and With.)—and, *communis f. viridis.* Baub. pin. 118. (according to Ray.)

Flowers double or twin; leaflets of the calyx even, not toothed.

[4. *Beta patula.* Spreading Beet.

Ait. hort. kew. 1. 315.

Flowers beaped, all the leaves linear-lanceolate, branches divaricated.]

B E T

DESCRIPTIONS, &c.

1. Garden Red Beet has large, thick, succulent leaves, which are for the most part of a dark red, or purple colour. The roots are large and deep red, and on these circumstances their goodness depends; for the larger they grow, the more tender they will be, and the deeper their colour, the more they are esteemed.

[Native of the sea-coast of the southern parts of Europe^a.

α. Leaves shorter than in the white Beet, more or less red, sometimes so dark as to have the name of black Beet (*B. nigra*.) Root white^b.

β. " Leaves very great and red, as is all the rest of the plant, as well root, as stalk, and flowers full of a purple juice tending to redness; the midribs of the leaves are very broad and thick, like that of the cabbage-leaf, and they are equal in goodness with the leaves of cabbage, being boiled. It was brought unto me by that courteous merchant master Lete; and grew with me in 1596 to the height of eight cubits, and did bring forth his rough seeds very plentifully. These, though taken from a plant of one colour, bring forth plants of many and variable colours, as the worshipful gentleman master John Norden can testify^c."

γ. Stem higher than the common red Beet. Root thick, swelling like the Navew, and sometimes like the Carrot, within and without of a high blood red^d.

δ. Leaves paler than in the white Beet, of a greenish yellow colour^e. The root is of a fine high yellow, sweet and well tasted.

All these are only seminal varieties. The Beet is very subject to change, and to degenerate, at least in our climate. I cannot but be inclined to the opinion of Linneus, expressed in the *Hortus Cliffortianus*, and *Species Plantarum*, that the *Cicla* is not specifically different from the *vulgaris*: and that both are probably derived from the *maritima*, cultivated on a rich soil, in southern climes.

The roots of red Beet are boiled, sliced, and eaten cold, by themselves, or in salads; are used as garnish to dishes, and as a pickle. The green-leaved sort is most esteemed; the roots being the largest, and most tender.

Martial has justly marked the Beet for its fatuity. It is said to be prejudicial to the stomach, and to afford little nourishment.

Taken in quantity it tends to loosen the belly. The juice both of the roots and leaves is said to be a powerful errhine, occasioning a copious discharge of mucus without provoking sneezing. A good sugar may be obtained from the juice of the fresh roots^f.

It was cultivated in 1656, by Mr. John Tradescant, jun.^g

2. The root of this sort seldom grows larger than a man's thumb: the stalks grow erect, and have oblong spear-shaped leaves, growing close to the stalk: the spikes of flowers are axillary, long, and have narrow leaves placed between the flowers. The lower leaves are thick and succulent, and their foot-stalks are broad. For these it is cultivated; the leaves being boiled as Spinach, or put into soups, [and the stalks and midrib of the leaf being stewed and eaten as Asparagus.

A large variety of this has lately been introduced from abroad, under the titles of *Racine de disette*, *Root of Scarcity*, and *Mangel Wurzel*. It is much cultivated in many parts of the continent, not only in gardens, but in the fields; being much more in esteem, and perhaps really better than with us, where it seems to degenerate. Its qualities, and the quantity of its produce, have been much magnified, in common with most other things newly introduced. The leaf and root are said to be excellent food for man and beast: it is affirmed not to be liable to destruction by insects; nor to be affected by

^a Hort. kew.

^b Ray.

^c Gerard's herbal.

^d Ray.

^e Parkinson.

^f Ray and Lewis.

^g Hort. kew.

drought, &c. The leaves are recommended as equal in quality to Spinach: and being from thirty to forty inches long, and from twenty-two to twenty-five broad, exceed it greatly in quantity. They may also be gathered every twelve or fifteen days during the season.

The roots have an earthy taste; and are mawkishly sweet, either boiled, fried, or in salad. They weigh ten or twelve pounds when transplanted; but when left in the ground where they were sown have weighed as high as twenty-four pounds.

The ancients called the white Beet *Cicla* or rather *Sicla*, by contraction from *Sicula*, Sicilian Beet; as we call the Savoy Cabbages, *Savoys*.]

Mr. Miller mentions three varieties of this: the White, the Green, and the Swiss or Chard Beet: [by the last of these he probably intended the same as the modern Mangel Wurzel, or Racine de Difette. He affirms, that they vary from one to another in culture, as he has often experienced, but that they never alter to the first or third.

An anonymous writer in the Gentleman's Magazine (v. 58. 2. p. 872.) informs us, that three varieties appeared from seeds procured from Dr. Lettsom. 1. With leaves and stem dark green; which was the most common.—2. With stem and leaves of a lighter colour; which he takes to be the white Beet.—3. With stem and veins of the leaves red; which he says is the red Beet.—All of them have flowers in clusters from two to three; pistils from two to five; a leaf growing from the base of the flowers; the segments of the calyx equal, hunched, and membranaceous at the edge^a. Few plants flowering the first year, he concludes it to be biennial; as indeed all the garden sorts are, if not the wild Sea Beet also, although Linneus sets it down as annual, and Ray as perennial.

Dr. Lettsom, who took much pains to introduce the Mangel Wurzel, informs us, that on his own land, which was not favourable to its growth, the roots upon an average, weighed full ten pounds, and if the leaves were calculated at half that weight, the whole product would be fifteen pounds of nutritious aliment upon every square of eighteen inches¹.

3. This differs from the others, according to Linneus, in flowering the first year; in having oblique or vertical leaves; and in the leaflets of the calyx being equal, not toothed: according to Ray, in having a perennial root. This is probably the original parent of all the Garden Beets: Mr. Miller however affirms,] that he has brought the seeds from the places where they grow naturally, many times, and has cultivated the plants with care, but could never find any of them to vary from the parent plant in the characters.

It is a native of Holland and Great Britain on the sea coast and in salt marshes; [it is also found plentifully about Nottingham.

4. Stem short, hardly a foot high, very branching: branches long, divaricate. Calycine leaflets dilated at the base, but not toothed. It flowers in august. Native of the island of Madeira. Mr. Francis Masson. Introduced in 1788^k.]

PROPAGATION AND CULTURE.

1. The Red Beet is frequently sown with Carrots, Parsneps, or Onions, by the kitchen gardeners near London, who draw up their Carrots or Onions when they are young, whereby the Beets will have room to grow, when the other crops are gathered; but where the crops are not timely removed from them, it will be a better method to sow them separately. This sort requires a deep light soil, for as their roots run deep in the ground, so in shallow ground they will be short and stringy. The seeds should be sown in march, and must be treated in the same manner as the former sort; but the plants should not be left nearer than a foot distance, or in

good land a foot and a half, for the leaves will cover the ground at that distance. The roots will be fit for use in the autumn, and continue good all the winter; but in the spring, when they begin to shoot, they will be hard and stringy. A few roots may be left for seed, or some of the fairest roots transplanted to a sheltered spot of ground, where they may be defended from strong winds, which frequently break down their stalks, if they are not well supported, especially when the seeds are formed; which becoming heavy as it increases in bulk, is apt to weigh down the slender stalks upon which they grow. The seed will ripen in september, when the stalks should be cut off, and spread on mats to dry, and afterwards threshed out and cleared, and put up in bags for use.

2. The second sort, which is cultivated in gardens for its leaves, is commonly sown by itself, and not mixed with other crops. This is sown the beginning of march, upon an open spot of ground, not too moist; the seeds should be sown thinly, because the plants require room to spread; for when they are too close, the leaves being small and full of fibres, will be unfit for the purposes designed. When the plants have put out four leaves, the ground should be hoed, as is practised for Carrots, carefully cutting up all the weeds, and also the plants where they are too near each other, leaving them at least four inches asunder: if this is performed in dry weather, all the present weeds will be destroyed; but as young weeds will soon appear, in three weeks or a month's time, the ground should be a second time hoed over, to cut up the weeds, and thin the plants to a greater distance; for by this time they will be past danger, and should not be left nearer than six inches, if regard is had to the goodness of their leaves: and if it is of the Swiss kind, with broad leaves, the plants must not be nearer than nine or ten inches. If the second hoeing is well performed, and in dry weather, the ground will remain clean a month longer, when it should be hoed over a third time; which, if properly done, will destroy all the weeds; so that after this, the plants will spread and prevent the weeds from growing, therefore will want but little cleaning for a considerable time, and the leaves will soon be fit for use, when the outer large leaves should be first gathered, leaving the small inner leaves to grow larger; so that a small spot of ground will supply a moderate family, and will furnish a new supply of leaves for two years, provided the plants are not permitted to run up to seed, for after that, their leaves will not be good: therefore those who are curious in their herbs, must sow a fresh spot of ground annually, because these plants naturally run up the second year; and although the roots may be continued longer, by cutting off the stalks when they begin to shoot, yet the leaves will not be so large or tender upon these roots, as upon the young plants.

[The Mangel Wurzel is recommended to be sown on good ground, in march or april, and as soon as the plants are the size of a goose-quill, to be transplanted in rows, eighteen inches distant, and eighteen inches apart in the rows. Sow very thin, and cover the seed an inch only: it will continue in the ground about a month. In transplanting, the root is not to be shortened, but the leaves cut at the top: then set the plant with a dibber, so that the upper part of the root shall appear half an inch out of the ground. After once hoeing, they will take care of themselves, and suffocate every kind of weed. Some seed may be sown every month, till the beginning of july for a succession^l.

The roots however will be larger, and the leaves more abundant, if the plants are permitted to stand where the seed is sown. It is better therefore to treat this plant as Mr. Miller has directed for the Swiss Beet, allowing it sufficient room to spread, and therefore setting out the plants, at the last hoeing, from a foot to eighteen inches asunder.]

BETEL or Betle. See *Piper*.

^a See also pp. 1043, 1044 of the same volume.
¹ Gentleman's magazine, vol. 58. 2. p. 1042. See also Abbé Commerell's and Dr. Lettsom's pamphlets.

^k Hort. kew.

^l Trans. Soc. Arts, vol. 5.

B E T

BETONICA. (Corrupted from *Vettonica*, which is derived from the *Vettones*, an ancient people of Spain.)

Engl. *Betony*. Fr. *Betoine*.

Lin. gen. n. 718. Reich. 776. Schreb. 973.

Tournef. 96. Juss. 114.

Class. 14. 1. Didynamia Gymnospermia.

Nat. order of *Verticillatae*, or *Labiatae*.

GENERIC CHARACTER.

CAL. Perianth one-leaved, tubular, cylindric, five-toothed, awned, permanent.

COR. monopetalous, ringent: tube bent in, cylindric: upper lip roundish, entire, flat, erect; lower trifid: middle division broader, roundish, emarginate.

STAM. Filaments four, subulate, the length of the throat; two shorter, inclined to the upper lip. Anthers roundish.

PIST. Germ four-parted. Style form, situation and size of the stamens. Stigma bifid.

PER. none. Calyx fostering the seeds in its bosom.

SEEDS four, ovate.

ESSENTIAL CHARACTER.

Cal. awned. Cor. upper lip ascending, flattish; tube cylindric.

SPECIES.

1. *Betonica officinalis*. Wood Betony.

Lin. spec. 810. Reich. 3. 53. succ. n. 515. hort.

cliff. 310. upf. 164. mat. med. 149. Hudf.

angl. 258. With. 611. Curtis lond. 3. 33.

Lightf. scot. 311. Relb. cantabr. n. 437. Hall.

belv. n. 264. Scop. carn. n. 729. Pollich pal.

n. 562. Krock. files. n. 936. Villars dauph. 2.

379. Allion. pedem. n. 128. Riv. t. 28. Blackw.

t. 46. Fl. dan. 726. Sabb. hort. t. 82. Mor.

hist. f. 11. t. 5. f. 1. Pet. herb. t. 32. f. 6.

Ger. emac. 714. Park. 614. 1. Raii hist. 550.

Cam. epit. 681.

β. *B. alba*. Baub. pin. 235. Hall. β. Ger. 577. 2.

γ. *B. minima alpina helvetica*. Tourn. Hall. γ.

Lightf. β. Mor. f. 4. Park. 614. f. 3. Raii

hist. 550.

Spike interrupted; helmet of the corolla entire; middle division of the lower lip emarginate; calyxes smoothish.

2. *Betonica orientalis*. Oriental Betony.

Lin. spec. 811. Reich. 3. 54. Tournef. cor. 13.

Spike entire, middle division of the lip of the corolla quite entire.

3. *Betonica alopecuros*. Fox-tail Betony.

Lin. spec. 811. syst. 535. Reich. 3. 54. Jacqu.

vind. 251. austr. 1. t. 78. Crantz. austr. 256.

Krock. files. n. 937. Villars dauph. 2. 381.

Allion. pedem. n. 129. Mill. dict. edit. 7. n. 7.

Sideritis alopecuros. Scop. carn. n. 711. t. 28.

Horminum alpinum luteum, betonicae spica. Raii

hist. 547.—minus album, &c. Baub. pin. 239.

prodr. 114.

Spike leafy at the base, helmet of the corolla bifid.

4. *Betonica hirsuta*. Hairy Betony.

Lin. syst. 535. Reich. 3. 55. mant. 248. Murr.

comm. gott. 1779. vol. 2. 13. t. 3. Hall. belv.

n. 265. Villars dauph. 2. 380.

B. alpina. Mill. dict. n. 3.

B. Monierii. Obs. 146. Gouan. illustr. 36. Allion.

pedem. n. 130.

B. alpina incana purpurea. Barr. ic. 340.

B. fol. hirsutis, flor. purpureis amplissimis. Mentz.

pug. Zanon. t. 30. p. 46.

Spike leafy at the base, helmet of the corolla entire.

[5. *Betonica heraclea*.

Lin. syst. 535. Reich. 3. 55. mant. 83.

Spike with woolly calyxes, teeth filiform; leaves lanceolate naked.]

6. *Betonica stricta*. Danish Betony.

Ait. hort. kew. 2. 299.

B. danica. Mill. dict. n. 2.

Spike oblong; helmet of the corolla entire, middle division of the lower lip notch-waved; calyxes hairy.

7. *Betonica incana*. Hoary Betony.

Mill. dict. n. 5. Ait. hort. kew. 2. 299.

Spike interrupted; helmet of the corolla bifid, middle division of the lower lip notched; tube tomentose bent in.

B E T

DESCRIPTIONS, &c.

The species of this genus are herbaceous, fibrous-rooted, hardy, perennial plants. The stems are simple, or but little branched. The flowers are in whorls, forming a terminating spike.

1. Common Wood Betony has an upright stem, a foot high or more, not branched, or but very little in the wild state, hairy, channelled, the corners rounded. Root-leaves on long petioles, oblong-heart-shaped, obtuse, wrinkled, crenate, with few hairs, but dotted all over with small hollow points, the edge ciliate. Stem-leaves subsessile, lanceolate, ferrate. Bractes numerous, lanceolate, ciliate, shorter than the calyx. Flowers in whorls, forming a short spike at the top of the stem, the lowermost remote: there are about fourteen flowers in a whorl; in some seventeen or eighteen. Calyx coloured, sessile, almost upright, villose within, having long hairs between the five long-pointed segments; the two upper teeth are recurved. Corollas purple, varying to flesh-colour and white: tube downy, longer than the calyx: upper lip commonly entire, but sometimes cloven at the end: lower scalloped or crenulate: filaments villose; anthers blackish^a.

Native of woods, heaths and pastures among bushes; flowering from the beginning of July to September.

Betony, says Linneus, was formerly much used in medicine, but it is discarded from modern practice. When fresh it intoxicates. The leaves when dry excite sneezing. Sheep eat it, but goats refuse it. The leaves and flowers, according to Lewis, have an herbaceous, roughish, and somewhat bitterish taste, with a weak aromatic flavour. An infusion or light decoction of them may be drank as tea; or a saturated tincture in rectified spirit may be given in laxity and debility of the viscera. The sneezing quality of the dried leaves seems to be owing only to the rough hairs on them. The roots are bitter and very nauseous: in a small dose they vomit and purge violently. This plant dyes wool of a very fine dark yellow colour.

β. It is not uncommon with a white flower, in subalpine pastures. Gerard remarked it near Hampstead; and Mr. Miller says, he often found it in Kent.

[γ. There is a small mountainous variety not unfrequent, with a spike nearly globular; the leaves and flowers are smaller: but all these differences are owing to situation.]

2. Leaves very long, narrow, hairy, neatly crenated on their edges. Flowers in very close thick spikes at the top of the stalks: they are larger, and of a lighter purple than those of the common sort. It was first discovered by Tournefort in the Levant: and was cultivated by Mr. Miller in 1739^b.

3. This has the appearance of common Betony, but the leaves are altogether heart-shaped, hirsute and ferrate. The stem is a foot high, hirsute, obtusely quadrangular, and has two or three pairs of leaves; those immediately under the whorls are entire, broad, with the ends bent down. The whorls have from sixteen to twenty flowers, forming a short spike. The flowers smell like Elder. The calyx is sessile, villose, pentangular; the teeth equal and acuminate: under each a small lanceolate bracte. The corollas are pale yellow: the upper lip oval, drawn out into a bifid point: the lower lip trifid, with the middle segment quite entire and bent upwards; the tube is flattened, and of the same length with the calyx. Filaments lanuginous. Germs smooth and shining.

Scopoli will not allow this to be a Betony, because the germs are covered with a crown of villose hairs^c.

It is a native of the mountains of Savoy, Piedmont, Austria, Carniola, Silesia, and Provence: and was cultivated in 1759, by Mr. Miller^d.

4. This resembles the foregoing, but is more stout, lusty and hairy, with a shorter, thicker spike.

^a Curtis, Withering.

^b Hort. kew.

^c Scopoli.

^d Hort kew.

The helmet of the corolla is entire, not bifid; and the corolla is purple, not yellow; the spike is ovate, and not interrupted, as it is in that. Bractes between the flowers oblong; the larger ones ferrate, the smaller only subciliate, not ovate. It has a pair or two of petioled leaves, besides the sessile pair under the spike, as in that^c.

Ray, who cultivated it some years in his garden at Cambridge, says that it differs from the first sort, in having leaves twice or thrice as large; a stronger smell approaching to a stink; a firmer and loftier stem; thicker and longer spikes of purple flowers.]

Mr. Miller affirms, that it seldom rises more than four inches high in the wild state, and when cultivated in a garden not above seven or eight; that the leaves are much broader at the base than those of the common sort, and very different in shape, being triangular, and blunt at the end; the spikes are very short and close, and these differences are constant.

[Native of the Alps, Apennines, and Pyrenees; and cultivated by Mr. Miller, in 1739^f.

5. Stem and leaves almost smooth. Spike largish, woolly. Involucres filiform, the length of the calyx. Teeth of the calyx filiform, soft, the length of the tube. Corollas yellow; upper lip scarcely longer than the calyx; lower trifid, with the middle segment larger than the two others and rounded. Stamens nearly the length of the upper lip^g. Native of the Levant.]

6. This differs greatly from our common sort, the lower leaves being much broader and heart-shaped; those upon the stalks are spear-shaped, and rounded at the end; the stalks are larger, stand upright, and are terminated by thicker spikes of flowers. Native of Denmark. [Cultivated by Mr. Miller in 1759^h.]

7. The leaves of this sort are broader, and not so long as those of the common sort, and are hoary; the stalks are shorter and much thicker, as are also the spikes of flowers, than those of the common Betony; the flowers are larger and flesh-coloured. Native of Italy. [Cultivated by Mr. Miller in 1759ⁱ.]

PROPAGATION AND CULTURE.

All the sorts may be propagated by seeds, or parting the roots. They require a shady situation and a moist stiff soil, in which they will thrive better than in rich ground. The best time to transplant and separate the roots is in the autumn, but the seeds should be sown in the spring upon a shady border, and when the plants come up, they will require no other care but to keep them clean from weeds, and to thin them where they are too close.

These all of them flower in may and june, and the seeds ripen in august.

BETONICA aquatica. See *Scrophularia*.

Pauli. See *Veronica*.

BETŪLA. (From bitumen, according to some (Plin. l. 16. c. 18.): from batuere, i. e. cædere, q. Batula, according to others.)

Lin. gen. n. 1052. Reich. 1147. Schreb. 1419.

Tournef. 350. Juss. 409. Gært. t. 90.—

Alnus. Tournef. 359. Gært. t. 90.

Engl. Birch and Alder. Fr. Bouleau & Aune.

Class. 21. 4. Monoecia Tetrandria.

Nat. order of Amentaceæ.

GENERIC CHARACTER.

* Male flowers in a cylindric ament.

CAL. Ament imbricate on every side, loose, cylindric; consisting of three-flowered scales, in each of which are two very minute scales, placed at the sides. Three equal floscules, fixed to the disk of each scale of the calyx.—Perianth in each one-leaved, small, entire, three or four-parted; divisions ovate, obtuse.

COR. none.

STAM. Filaments to each four (or three or two) very small. Anthers twin.

^c Linn.

^f Hort. kew.

ⁱ Ibid.

^g Linn.

^h Hort. kew.

* Female flowers in an ament of the same plant.

CAL. Ament cylindric or roundish, imbricate; with two-flowered scales.

COR. none.

PIST. Germ proper ovate compressed, very small, two-seeded. Styles two setaceous. Stigmas simple.

PER. none. Ament under each scale cherishing the seeds of two florets.

SEEDS solitary, ovate.

OBS. Betula T. has the fruits in cylindric aments: scales three-forked: seeds with a double lateral wing. Alnus T. has them in a roundish strobile: scales roundish: seeds angular, without wings.

ESSENTIAL CHARACTER.

MALE. Cal. one-leaved, three-cleft, three-flowered. Cor. four-parted.

FEM. Cal. one-leaved, subtrifid, two-flowered. Seed with a winged membrane on each side.

SPECIES.

1. Betula alba. Common Birch-tree.

Lin. spec. 1393. Reich. 4. 125. mat. med. 200.

hort. cliff. 442. l. lapp. 341. succ. 859. amæn. 1.

p. 2. Hudf. angl. 416. With. 1065. Lightf.

scot. 572. Evelyn, p. 96. fig. Hunt. Evel. 218.

Hall. belv. n. 1628. Pallas ross. 61. Scop.

carn. n. 1171. Leers herborn. n. 730. Pollich

pal. n. 898. Allion. pedem. n. 1973. Villars

dauph. 2. 788. Dubam. arb. 1. 100. t. 39.

Blackw. t. 240. Trag. 1113. Matth. 142.

Dod. 836. Camer. epit. 68. Lob. ic. 2. 190.

Bauh. hist. 1. 149. Ger. 1295. emac. 1478.

Park. 1408. Raii hist. 1410.

β. B. pendula. Weeping Birch.

γ. B. alba dalecarlica. Lin. suppl. 416.

Leaves ovate acuminate ferrate.

2. Betula nigra. Black Virginia Birch-tree.

Lin. spec. 1394. Reich. 4. 126. Dubam. arb. 3.

Gært. fruct. 2. 54. t. 90. Gron. virg. 188: 146.

Pluk. alm. 67. Raii dendr. 12. n. 2. Ait. hort.

kew. 3. 336.

Leaves rhomb-ovate acute doubly ferrate, pubescent underneath, entire at the base; scales of the strobiles villose, segments linear equal.

3. Betula lenta. Canada Birch.

Lin. spec. 1394. Reich. 4. 126. Gron. virg. 115:

146. Dubam. arb. n. 2.

Leaves cordate oblong acuminate ferrate.

4. Betula nana. Smooth Dwarf Birch.

Lin. spec. 1394. Reich. 4. 127. lapp. n. 342. t. 6.

f. 4. succ. 860. hort. cliff. 422. amæn. 1. p. 4.

t. 1. Hudf. angl. 416. With. 1066. Lightf.

scot. 575. t. 25. Hall. belv. n. 1629. Fl. dan.

t. 91. Pallas ross. 63. t. 40. D—G.

Leaves orbiculate crenate.

[5. Betula pumila. American or hairy Dwarf Birch.

Lin. syst. 849. Reich. 4. 127. mant. 124. Jacqu.

hort. 2. t. 122.

B. nana. Kalm it. 2. 263.

Leaves obovate crenate.

6. Betula Alnus. Alder.

Lin. spec. 1394. Reich. 4. 127. succ. n. 861.

Hudf. angl. 416. With. 1067. Lightf. scot. 576.

Pollich pal. n. 899. Pallas ross. 64. Leers

herborn. n. 731. D'Affo aragon. n. 923. Ait.

hort. kew. 3. 338.]

Alnus. Lin. lapp. 340. hort. cliff. 441. Gært.

fruct. 2. 54. t. 90. Hall. belv. n. 1630. Mill. dict.

edit. 7. Loef. pruss. 10. t. 1. Hunt. Evelyn. 233.

Ger. 1294. emac. 1477. Park. 1409. Raii

hist. 1409. Cam. epit. 68.

α. glutinosa. Common Alder.

Leaves undivided.

β. A. laciniata. Cut-leaved Alder.

Ait. hort. kew. 3. 338. 10 β. Dubam. arb. 42. n. 4.

Leaves pinnatifid.

Peduncles branched; leaves roundish-wedge-form very

obtuse glutinous; axils of the veins villose under-

neath.

[7. Betula incana. Hoary Alder.

Lin. syst. 849. suppl. 417. Hall. belv. n. 1631.

Villars dauph. 2. 790. Pallas ross. 64. Du Roy

harbecc. 1. 109. Gmel. sib. 1. 171. n. 24. 2.

B. Alnus

- Betula Alnus incana.* *Lin. spec.* 1394. *Reich.* 4. 127.
B. viridis. *Villars dauph.* 2. 789.
Alnus fol. incano. *Baub. pin.* 428. *Raii hist.* 1410.
A. incana & hirsuta. *Baub. hist.* 1. P. 2. p. 154.
α. B. glauca. *Glaucous-leaved Alder.*
Leaves glaucous beneath, petioles red.
β. B. angulata. *Elm-leaved Alder.*
Leaves green beneath, petioles green.
Peduncles branched; leaves roundish elliptic acute pubescent underneath; axils of the veins naked; stipules lanceolate.
8. *Betula populifolia.* *Poplar-leaved Birch.*
Ait. hort. kew. 3. 336.
Leaves deltoid drawn out to a long point unequally serrate very smooth; the scales of the strobiles having roundish side lobes; petioles smooth.
9. *Betula papyracea.* *Paper Birch.*
Ait. hort. kew. 3. 337.
Leaves ovate acuminate doubly-serrate, veins hirsute underneath.
10. *Betula excelsa.* *Tall Birch.*
Ait. hort. kew. 3. 337.
Leaves ovate acute serrate; scales of the strobiles having the side lobes rounded; petioles pubescent shorter than the peduncle.]
11. *Betula oblongata.* *Turkey Alder.*
Ait. hort. kew. 3. 338. *Mill. dict. edit.* 7. n. 2.
A. fol. oblongo viridi. *Baub. pin.* 428.
α. foliis oblongis. *Oblong-leaved Turkey Alder.*
β. fol. ellipticis. *Oval-leaved Turkey Alder.*
Peduncles branched; leaves oval obtusish glutinous; the axils of the veins naked underneath.
[12. *Betula ferrulata.* *Notch-leaved Alder.*
Ait. hort. kew. 3. 338.
Peduncles branched; leaves obovate acute; veins and their axils villose underneath; stipules oval obtuse.
13. *Betula crispa.* *Curled-leaved Alder.*
Ait. hort. kew. 3. 339.
Peduncles branched; leaves ovate acute somewhat waved; veins hairy underneath; axils naked; stipules roundish-ovate.
14. *Betula daurica.*
Pallas itin. 3. 224. *t. kk. f. 4. ab. fl. ross.* 60.
t. 39. Gmel. sib. 1. 167. *α. 2.*
Leaves ovate acuminate serrate, hairy on the nerve.
15. *Betula fruticosa.*
Pallas itin. 3. app. 758. *n. 133. t. kk. f. 1, 2, 3. fl. ross.* 62. *t. 40. A, B, C. Gmel. sib.* 1. 167.
var. 3. t. 36. f. 2.
Leaves rhomboid-ovate, equally serrate, smooth.

DESCRIPTIONS, &c.

1. The common Birch tree is known at first sight, by the silvery colour of its bark, or rather *epidermis*, or outer thin covering to the bark; the smallness of the leaves in comparison with other timber trees; and the lightness and airiness of the whole appearance. It is of a middling or rather inferior size among other forest trees. Branches alternate, subdivided, very pliant and flexible, covered with a reddish brown or russet, smooth bark, generally dotted with white. Leaves alternate, bright green, smooth, shining beneath, with the veins crossing like the meshes of a net; the petioles are half an inch or more in length, smooth, grooved above; and at the base are ovate green glands. The male aments or catkins appear in autumn, keep on during the winter, and unfold their flowers when the females appear in spring; they are situated at the ends of the twigs, commonly two together, sessile, cylindric, blunt, long, narrow and pendulous; the scales separating the flowers are roundish, acuminate, yellowish brown, and smooth: the female aments appear in spring at the ends of the shorter branches; they are solitary, at first upright, but afterwards nodding a little, cylindric or rather ovate, blunt, on pedicels near a quarter of an inch in length, shorter and thicker than the male aments; the scales have from two to four flowers in each, they are lanceolate, blunt, green and smooth. Germs two, sometimes more, compressed; styles and stigmas reddish^a.

^a Pollich.

Native of Europe, from Lapland to the subalpine parts of Italy; and of Asia, chiefly in mountainous situations; flowering with us in april and may.

β. The twigs are erect in young trees, but being very slender and pliant are apt to become pendent in old ones; hence a variety no less beautiful than the weeping Willow.

γ. There is a remarkable variety mentioned, in the Supplement of the younger Linneus, to be found in Dalecarlia; described to have leaves almost palmate, with the segments toothed.

Other varieties, of a trifling nature, being chiefly slight differences in the shape of the leaves, are given by Linneus, in his *Flora Suecica*, from Linder—

1. With a rounder leaf, and pendent branches.
2. With a white broader acuminate leaf.
3. Brittle, with a blackish woolly leaf.
4. Saxatilis, torminalis, with an oblong leaf.
5. Dwarf Birch. *Thal. hercyn.* 20. *Mapp. alfat.* 139.

The most common names of the Birch tree are; in Greek *Σημύδα*; in Latin *Betula* or *Betulla*; in German *Birke*; in Dutch *Berk*; in Danish and Scotch *Birk*; in Swedish *Björk* or *Börk*; in French *Bouleau*; in Italian *Betulla*, *Maio* or *Maiella*; in Spanish *el Abedul*, *la Betulla*; in Portuguese *Betula*, *Betulla*; in Russian *Berésa*; in Polish *Brzoza*.

Though Birch, says the excellent Evelyn, be of all other the worst of timber, yet has it its various uses: as for the husbandman's ox-yoaks; also for hoops, small screws, paniers, brooms, wands, bavinbands, and wythes for faggots; and claims a memory for arrows, bolts, shafts (our old English artillery); also for dishes, bowls, ladles, and other domestic utensils, in the good old days of more simplicity, yet of better and truer hospitality. In New England our northern Americans make Canoes, Boxes, Buckets, Kettles, Dishes, which they sew and join very curiously with thread made of Cedar roots; and divers other domestical utensils, as Baskets, Bags, with this tree, whereof they have a blacker kind^b; and out of an excrescence or fungus from the bole, boiled beaten and dried in an oven they make excellent Spunck or Touchwood, and Balls to play withal; and being reduced to powder, it is an infallible remedy in the Hæmorrhoids. They make also not only this small ware, but even small-craft, Pinnaces of Birch, ribbing them with white Cedar, and covering them with large flakes of Birch-bark, sew them with thread of Spruce-roots, and pitch them; as it seems we did even here in Britain, as well as the Venetians. Also for fuel: in many of the Mosses in the west-riding of Yorkshire, are often dug up Birch-trees, that burn and flame like Fir and Candle-wood; and Pliny says, the Gauls extracted a sort of bitumen out of Birch. Great and small Coals are made by the charring of this wood; as of the tops and loppings Mr. Howard's new Tan. The inner white cuticle and silken bark, which strips off of itself almost yearly, was anciently used for writing-tables, before the invention of paper: and there is a Birch-tree in Canada, whose bark will serve to write on, and may be made into books, and of the twigs very pretty baskets. With the outward thicker and coarser part of the common Birch are divers houses in Russia, Poland, and those poor northern tracts covered, instead of slates and tile; nay in Sweden, the poor people grind the very bark, to mingle with their bread-corn. 'Tis affirmed by Cardan, that some Birch-roots are so very extravagantly veined, as to represent the shapes of beasts, birds, trees, &c. Of the whitest part of the old wood, found commonly in doating Birches; is made the ground of our *effeminate farined Gallants sweet powder*; and of the quite consumed and rotten, is gotten the best mould for the raising of divers seedlings of the rarest plants and flowers; to say nothing here of the magisterial fæces, for which anciently the cudgels were used by the Lictor, for lighter

^b B. nigra, n. 2.

^c Lucan's Pharsalia.

faults, as now the gentler rods by our tyrannical pedagogues^a.

To this ample, and in some parts quaint account by our venerable planter, we may properly add the information of more modern times.

The wood of our Birch is very white: women's shoe-heels and pattens, and packing-cafes are made of it. It is planted along with hasef, to make charcoal for forges. In the northern parts of Lancashire they make a great quantity of besoms with the twigs for exportation^b.

The bark is of great use in dying wool yellow, and particularly in fixing fugacious colours. For this purpose it is best to use it dry, and to disbark trees of eighteen or twenty years growth, at the time when the sap is flowing. The trees should stand, and be cut down the following winter. The Black American Birch may be applied equally well to the same purpose^c.

The highlanders of Scotland use the bark for tanning leather, and for making ropes; and sometimes they burn the outer rind instead of candles. With the fragments dexterously braided, the Laplanders make themselves shoes and baskets; they use large thick pieces set out, with a hole in the middle to fit the neck, for a furtout to keep off the rain. The Russians, Poles, and Norwegians cover their houses with it, laying turf three or four inches thick over. In Kamtschatka they make hats and drinking cups of it.

The wood was formerly used by the Scotch highlanders for their arrows; but now by the wheelwright, and for most rustic implements; by the turner for trenchers, bowls, ladles, &c. and when of a proper size it will make tolerable gates, rails, &c. In France it is generally used for wooden shoes. It affords good fuel, some of the best charcoal; and the foot is a good lamp-black for printer's ink. The small branches serve the highlanders for hurdles, and side fences to their houses. Moxa is made of the yellow fungous excrescences of the wood, which sometimes swell out from the fissures. The leaves afford good fodder to horses, kine, sheep and goats. The seeds are the favourite food of the Siskin or Aberdevine; and this tree furnishes food to a variety of insects.

The vernal sap of the Birch tree is well known to have a saccharine quality, and to make a wholesome diuretic wine. In the beginning of march, while the sap is rising, and before the leaves shoot out, bore holes in the bodies of the larger trees, and put fossets therein made of Elder sticks with the pith taken out, setting vessels under to receive the liquor. If the tree be large, you may tap it in four or five places at a time; and thus from several trees you may draw several gallons of juice in a day. If you do not get enough in one day, bottle up close what you have, till you get sufficient for your purpose, but the sooner it is boiled the better. Boil the sap as long as any scum rises, skimming it all the time. To every gallon of liquor put four pounds of sugar, and boil it afterwards half an hour, skimming it well; then put it into an open tub to cool, and when cold tun it into the cask; when it has done working, bung it up close, and keep it three months; then either bottle it off, or draw it out of the cask when it is a year old^d.

The Birch, says our ancient Gerard, serveth well to the decking up of houses and banquetting rooms, and for beautifying of streets in the Croffe or Gang-week, and such like.

If this tree serves such purposes no longer, it deserves however to be planted in parks and ornamental woods, to increase the variety; and its fragrant smell after rain justly entitles it to a place in the wilderness^e. The stem being straight, the bark smooth and white, and the foliage neat, the Birch has a picturesque appearance when properly placed in ornamental plantations; either in the openings

here and there, to show the foliage and hanging down of the twigs; or within to display its silvery bark through the gloom^f.

But from what has been said, the Birch, though in the lowest esteem as a timber tree, may yet deserve to be cultivated, not merely as an ornament, but for its various uses; especially since it will grow to advantage upon barren land, where better trees will not thrive: it will flourish in moist springy land, or in dry gravel and sand, where there is little surface: upon ground which produced nothing but moss, these trees have succeeded so well as to be fit to cut in ten years after planting, when they have been sold for near ten pounds the acre standing, and the after produce has been considerably increased; and as the woods near London have been grubbed up, the value of these plantations has advanced in proportion: therefore those persons who are possessed of such poor land, cannot employ it better, than by planting it with these trees, especially as the expense of doing it is not great.

2. [The Black Virginia Birch has the larger serratures of the leaves deeper and more remote, and besides these it has very small, fine, crowded ones; the base from an obtuse angle is quite entire. The twigs are pubescent, and the petioles villose^g. The branches are spotted, and more sparingly set on the tree than in our common sort. The leaves are broader and grow on longer petioles. It arrives at a much greater size, for it grows upwards of sixty feet in height, and is equally hardy with the European white Birch. It has been hitherto propagated chiefly for ornamental plantations; but it is to be hoped that it will be admitted also among our forest trees^h. It was introduced in 1736, by Peter Collinton, Esq.ⁱ

There are several varieties of this species, as 1. Broad-leaved Virginian Birch. 2. Poplar-leaved Virginian Birch. 3. Paper Birch. 4. Brown Birch, &c.

3. The leaves of the Canada Birch are smooth, very finely and sharply serrate. The female catkins are ovate, sessile, with acuminate entire scales^j. It grows sixty feet and more in height. The liquor flowing from its wounds is used by the inhabitants of Kamtschatka without previous fermentation; with the wood they build sledges and canoes; and they convert the bark into food by stripping it off when green, and cutting it into long narrow pieces, like Vermicelli, drying it, and stewing it with their Caviar^k. It was cultivated in 1759, by Mr. Miller^l. Of this there are also several varieties.

4. The European Dwarf Birch is an upright shrub, seldom above two or three feet high. Trunk hard and stiff, with a roughish bark like that of the Elm, of a russet, or blackish purple colour. Branches slender spreading straight scattered tapering woolly somewhat gummy at the ends. Leaves commonly three from each bud, but frequently single and alternate, rather more in breadth than length, having from ten to fourteen notches about the edge, entire at the base, smooth, glossy, veined on both sides: petioles very short, smooth and compressed. Sometimes the leaves are sessile or nearly so. Stipules in pairs, ovate, concave, upright, ciliate, brown, permanent. Catkins oval erect sessile half an inch long. Styles purple^m.

Native of the northern parts of Europe; flowering in may.]

Mr. Miller says, it is preferred in some curious gardens for the sake of variety, but is of no use here. [It is however of signal use in the œconomy of the Laplanders. The branches furnish them with their bed and their chief fuel; and the seeds are the food of the Ptarmigan, which makes a considerable part of their sustenance. The Moxa also is prepared from it, which they consider as an efficacious remedy in all painful diseasesⁿ.

^a Silva edit. 4. 1706. fol. B. 1. c. 17. p. 89.

^b Dambourney.

^c Lightfoot.

^d Withering.

^e Boucher.

^f Gilpin's for. scen. 1. 66.

^g Linn.

^h Hunter.

ⁱ Hort. kew.

^j Linn.

^k Hunter.

^l Hort. kew.

^m Withering, Lightfoot.

ⁿ Hunter & Linn. lapp.

The leaves, according to Linneus, dye a better yellow than the common Birch.

5. This resembles the foregoing, but seems distinct in having leaves not orbiculate but obovate, more deeply notched, pubescent underneath. The female catkin has a different appearance from having wrinkled scales*. It is a native of North America; and was introduced in 1762, by Mr. James Gordon†.

6. The common Alder appears generally as a shrub; it will however grow to a considerable tree, thirty-five or forty feet in height. The bark is blackish, in old trees full of clefts. The wood is red and brittle. The leaves are of a dark green colour, and a roundish figure, resembling those of the Hazel, crenate, smooth, in the common sort viscid to the touch; the nerves on the under side have spongy balls at the angles of their ramifications, as in the leaves of the lime-tree; the petioles are grooved above, and near an inch long; at the base of these are lanceolate, blunt stipules. The male catkins are cylindrical, appear in the autumn, and continue to the spring. The females are of a short conical form, like a small fir cone‡.

Many botanists, and among others Linneus himself, have separated the Alder from the Birch; but Linneus, in his later works, has joined them in the same genus; convinced, as he says, by the second and third species, that nature has placed no limits between them. Gærtner however keeps them distinct, and says that they differ not only in the fruit, but in the flower. In the Birch, the male catkin has ternate scales, the middle one larger and ovate, the two side ones narrower, lanceolate, all concave. Corolla none. Stamens twelve, inserted in the middle of the scale. The female is also a catkin, composed of horizontal scales, widening outwards from a narrow beginning, three-lobed at the tip, two or three-flowered at the base. There is no calyx or corolla. Germ compressed, surrounded with a membranaceous wing, two-celled, with a single rudiment of a seed in each. Styles two. Seed (like that of the Elm) cordate, one-celled. In the Alder, the male catkin has the primary scales larger and cordate, to each of which three smaller, secondary ones are annexed, which bear the corolla; this is wheel-shaped and four-parted. Stamens four, with two-celled anthers. The female is a strobile, of an ovate-globular form, composed of suberose scales, from a narrow beginning widening into a retuse transversely oblong border, which is four-lobed on the upper edge; each has two flowers. There is no calyx or corolla. Germ compressed, two-celled. Styles two. Pericarp a compressed, two-celled nut, covered with a bony hard shell; in each cell a smooth, pale-coloured, lens-shaped, rounded seed, obliquely acuminate on the outside at top.

Native of Europe from Lapland to Gibraltar, and of Asia from the White Sea to mount Caucasus, in wet and boggy grounds, and on the banks of rivers; flowering with us in march and april.

Mr. Miller, probably intending to remove the article *Alnus* to that of *Betula*, has entirely omitted the former in the eighth folio edition of his dictionary. In the seventh edition he makes three species of the Alder.]

1. *Alnus obverse ovatis rugosis. Alder with obovate wrinkled leaves. A. rotundifolia glutinosa viridis. Bauh. pin. 428. Common, or round-leaved Alder.*

2. *A. foliis ovato-lanceolatis, marginibus dentatis. Alder with ovate-lanceolate leaves, indented on their edges. A. folio oblongo viridi. Bauh. pin. 428. The long-leaved Alder. See n. 11.*

3. *A. pumila folio rotundo serrato. Dwarf Alder with a round serrate leaf. A. montana, lato crispo glutinoso folio, serrato. Bocc. mus. 2. 138. (See the varieties under the next species.)*

1. The first is our common Alder. 2. The second is *B. oblongata*, n. 11. 3. The third grows

naturally on the Alps and Apennines; it is a very humble shrub, seldom rising more than a foot high, the branches always trailing on the ground.

[Other varieties are—4. The White. 5. The Black. 6. The Dwarf American.

There is a long-leaved Alder from America, which grows to thirty feet in height, and merits a place in all plantations. The branches are slender, smooth, numerous, and dark brown or purple. The leaves are long and free from the clamminess of the common sort: they sometimes continue on the tree even in december, and it has then the appearance of an evergreen‡.

The most common names of the Alder are in Greek *Κλῆδον*; in Latin *Alnus* (q. ab amne alatur, aut q. alat herbas); in German *Erle*, *Erlenbaum* or *Eller*; in Dutch *Els*, *Elzeboom*; in Danish *Ell*, *Elle*, *Elletræ*, *Eln*; in Swedish *Al*, *Abl*; in English *Alder*, *Aller*, *Oller*, *Owler*; in Scotch *Eller*; in Italian *Ontano*, *Alno*; in Spanish *Aliso*, *Alamo negro*, *Negrillo*; in Portuguese *Alemo*; in Russian *Olcha*; in Polish *Olza*.

The wood of the Alder is valuable for piles, pipes, pumps; sluices, and in general for all works intended to be constantly under water. It is said to have been used under the Rialto at Venice; and we are told that the morasses about Ravenna were piled with it, in order to lay the foundations for building upon‡. In Flanders and Holland it is raised in abundance for this purpose. It serves also many domestic and rural uses, as for cart-wheels, spinning-wheels, milk-vessels, bowls, spoons, small trays, trenchers, and other turnery ware, troughs, handles of tools, clogs, pattens, wooden heels. The roots and knots furnish a beautiful veined wood for cabinets. The Scotch highlanders often make chairs of it, which are very handsome, and the colour of mahogany. The wood which has lain in bogs is black like ebony. It is very generally planted for coppice wood, to be cut down every ninth or tenth year for poles. And the branches make good charcoal.

The bark is used by dyers, tanners, and leather-dressers; also by fishermen for their nets. Both this and the young shoots dye yellow, and with a little copperas a yellowish gray, very useful in the demi-tints, and shadows of flesh in tapestry. The shoots cut in march will dye a cinnamon colour; and a fine tawny, if they be dried and powdered. The fresh wood yields a dye the colour of rappee snuff. The catkins dye green. The bark is used as a basis for blacks: an ounce of it dried and powdered, boiled in three quarters of a pint of water, with an equal quantity of logwood, with solution of copper tin and bismuth, six grains of each, and two drops of solution of iron vitriol, will dye a strong deep *bouc-de-Paris*. The leaves have been sometimes employed in tanning leather. The Laplanders chew the bark, and dye their leathern garments red with their saliva. The whole tree is very astringent.

The Alder makes good hedges by the sides of streams and ditches, and in all wet morassy soils; and serves to keep up the banks: but if it be planted in a low meadow, it is said that the ground surrounding it will become boggy; whereas if Ash be planted, the roots of which penetrate a great way, and run near the surface, the ground will become firm and dry. The shade of Alder seems to be no material impediment to the growth of grass. The boughs cut in summer, spread over the land, and left during the winter to rot, are found to answer as a manure, clearing the ground in march of the undecayed parts, and then ploughing it. The fresh gathered leaves are covered with a glutinous liquor, in which fleas are said to entangle themselves, as birds do in birdlime. Linneus says, that horses, cows, sheep, and goats eat it, but that swine refuse it. The tongues of horses feeding upon it

* Linn. † Hort. kew. ‡ Lightf. & Pollich.

* Hunter's Evelyn.

‡ Ibid.

are turned black, and it is supposed by some persons not to be wholesome for them^a.

7. The hoary or silver-leaved Alder is totally distinct from the common sort, both in the structure of its parts, and its æconomical uses^a. It never attains the size of that, and is commonly shrubby: the trunk is scarcely thicker than the human arm: the wood is white and of a closer texture. Branches and twigs even, testaceous, hoary, diverging at half a right angle. Leaves not round but ovate, drawn out at the end, unequally ferrate with very sharp toothlets, sometimes doubly-ferrate with very obscure incisions, very smooth and somewhat glutinous even beneath, except at the divisions of the nerves, where they have a close thick pubescence. The male catkins are sessile at the ends of the branches, usually by threes; they are two inches long, the thickness of a swan's quill, and the scales ferruginous. Female catkins one on each side, having two or three bundles between the shining brown-testaceous scales, coming out with a leaf or two, alternate on the peduncles; when in flower they are of a brownish green colour, and of an oblong cylindrical form; when ripe they are smaller than those of the common Alder, not divaricate, and in other respects different^b.

Native of the alpine and subalpine parts of Switzerland, Dauphiné, in eastern Siberia, in the islands beyond Kamtschatka, &c. It was introduced here in 1780, by Mr. John Bush^c.

Varieties of the Hoary Alder are—1. The Cut-leaved. *Baub. hist. Dubam. Reich. Haller II.*—2. Dwarf Alpine. *Baub. pin. Bocc. mus. Reich. Miller, n. 3. Haller γ.*—3. Long-leaved. *Baub. pin. Haller δ.*—4. Rose-flowered; with petal-like bractes produced from the male catkin. *Haller β.*

8. Native of North America. Cultivated in 1750, by Archibald Duke of Argyle^d.

9. This is also a native of North America; and was cultivated at the same time by the same noble planter^e.

10. Native of the same country. Introduced about 1767, by Mr. James Gordon^f.

11. The leaves are longer, narrower, and not so glutinous as the common sort; they are also not so rough, and are of a thinner consistence. It is very common in Austria and Hungary, whence Mr. Miller received the seeds, [and cultivated it in 1759^g.

12. Native of Pennsylvania. Cultivated in 1759, by Peter Collinson, Esq.^h

13. Native of Newfoundland and Hudson's Bay. Introduced in 1782, by the Hudson's Bay Companyⁱ.

14. This species, when young, is scarcely to be distinguished from our common Birch, but by the leaves. It does not grow so tall, and the trunk does not exceed a foot in diameter. The bark is gray, cleft longitudinally, and divides into brown scales, that have the appearance of being burnt. The branches are more subdivided and more upright. The leaves are harder, commonly smaller, on shorter petioles, unequally ferrate. Stipules lanceolate, gray, subpubescent, deciduous. Male catkins at the ends of the twigs of the foregoing year, two or three together, larger than in the common Birch. Females from the same twigs, lateral, thicker; with larger and more rounded scales: the seed also is a little larger, but the membrane which furrounds it is narrower. It differs from the Black American Birch in having smaller stipules, and the leaves less frequently, and never doubly ferrate. The wood of this tree is hard, yellower than that of the common sort, and in old trees marbled with brown and gray towards the middle; it is tougher, and therefore more fit for cart timber and the use of the wheelwright; it is also used for making charcoal. Native of Dauria^k.

15. This is always shrubby, rising with several stems from the same root, in boggy places not an inch thick, nor higher than a man; but on mountains it attains the thickness of the human arm, and grows to a much loftier stature; it is however constantly much branched from top to bottom, and of a very different habit from the common Birch. The cuticle is ash-coloured with transverse stripes. The wood is not so white, and is waved transversely. The twigs are almost covered with the little resinous dots, which are found more or less in the other species. The buds are more copious, and always alternate. There are commonly two leaves from the same bud, they are lengthened out and entire towards the petiole, and towards the end, which is very sharp, unequally ferrate; they are softer than in the common sort, and decay sooner. The male catkins sessile at the ends of the twigs, frequently unaccompanied with any leaf, more than an inch in length, hanging down. Females lateral, from the leaf-buds, solitary, alternate, upright, small, commonly peduncled, and accompanied by a small leaf; form cylindric, and longer than those of *Betula nana*; scales narrowed at the base, three-forked at the end, the middle segment longest, the side ones obliquely truncate. There are three seeds to each scale, of the same size and form as in *Betula nana*.

Abundant in marshes, and on rocky mountains, and in the cold subalpine regions of Eastern Siberia, especially towards the lake Baikal^l.]

PROPAGATION AND CULTURE.

1. The best method to cultivate the Birch tree, is to furnish yourself with young plants from the woods where they naturally grow, and are generally found there in great plenty; but in places where there are no young plants to be procured near, they may be raised from seeds, which should be carefully gathered in the autumn, as soon as the scales under which they are lodged begin to open, otherwise they will soon fall out and be lost: the seeds being small, should not be buried deep in the ground; a quarter of an inch is sufficient.

Mr. Miller recommends autumn as the best season for sowing them: [but Mr. Boucher directs, that having spread the seeds thin on a loft floor till dry, they should be mixed with loose sand, and kept in an airy place till the beginning of march; when they should be sowing on fresh light land, trenched or dug the preceding autumn, made very loose, raked fine, and divided into beds three feet and a half wide. No earth should be thrown over them, but they should be clapped in with the back of a spade. If the weather be dry and frosty, a little peas-haulm may be thrown over the beds for three or four weeks, till the seeds begin to vegetate. Then, the ground being kept clean, three or four gentle waterings may be given at noon in april, which may be repeated to the middle of june in mild evenings. The following march they may be removed into the nursery, in rows two feet and a half distant, and ten or twelve inches asunder, to stand there two years; or three, if they have made little progress. In which case, after the second year's growth, cut such as are least thriving or crooked, close to the ground, in march.]

Mr. Miller recommends the seeds to be sown in the shade, and adds that in such a situation, the plants will thrive better than when they are exposed to the full sun; for in all places where there are any large trees their seeds fall, and the plants come up well without care; so that if the young plants are not destroyed by cattle, there is generally plenty of them in all the woods where there are any of these trees. These wild plants should be carefully taken up, so as not to destroy their roots. The ground where they are to be planted, will require no preparation; all that is necessary to be done, is to loosen it with a spade or mattock, in the places where the plants are to stand, making holes to receive their roots, covering them again when the plants are

^a Linn. Withering, Lightf. Dambourney.

^b Linn. suppl. Hall. Du Roy, Pallas. ^c Pallas, Hall.

^d Hort. kew. ^e Ibid. ^f Ibid. ^g Ibid. ^h Ibid.

ⁱ Ibid. ^j Ibid. ^k Pallas, ross.

^l Pallas, ross.

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placed, and closing the earth hard to the roots. If the plants are young, and have not much top, they will require no pruning; but where they have bushy heads, they should be shortened to prevent their being shaken and displaced by the wind. When the plants have taken root, they will require no other care, but to cut down the great weeds which would over-hang the plants; which may be done with a sickle, being careful not to cut or injure the young trees. This need not be repeated oftener than two or three times in a summer the two first years, after which time the plants will be strong enough to keep down the weeds, or at least be out of danger from them.

These may be planted any time from the middle of october till the middle of march, when the ground is not frozen; but in dry land the autumn is the best season, and the spring for moist. The distance which they should be planted, is six feet square, that they may soon cover the ground, and by standing close, they will draw each other up; for in situations where they are much exposed, if they are not pretty close, they will not thrive so well.

If the plants take kindly to the ground, they will be fit to cut in about ten years; and afterward they may be cut every seventh or eighth year; if they are designed for the broom-makers only; but where they are intended for hoops, they should not be cut oftener than every twelfth year.

The expense of making these plantations in places where the young plants can be easily procured, will not exceed forty shillings per acre, and the after expense of cleaning about twenty shillings a year more; so that the whole will not be more than three pounds, and if the land so planted be of little value, the proprietor cannot make better use of his money; for when the wood is cut, it will repay the expense with interest, and a perpetual stock upon the ground. I have seen several of these plantations made upon land which would not let for one shilling per acre, which has produced from ten to twelve pounds an acre, clear of the expense in cutting, and this every twelfth year. The broom-makers are constant customers for Birch, in all places within twenty miles of London, or where it is near water carriage; in other parts the hoop-benders are the purchasers; but the larger trees are often bought by the turners, and the wood is used for making ox-yokes, and other instruments of husbandry.

[When coppices of Birch are wanted for the broom-maker, the plants from the nursery or the woods should be set five feet asunder: in eight years they will be ready to cut, when an acre will be worth about ten pounds: after this they may be cut every six years. For hoops, &c. they may be cut every twelfth year, and will be worth twelve pounds and upwards. Where the land will admit of the plow, a crop of corn is the best preparation^m.]

2, 3, &c. The American sorts may be propagated by seeds in the same manner as the first, and are equally hardy. As these grow more vigorously than the common sort, and thrive on the most barren ground, they may be cultivated to great advantage in England.

[The varieties of the different species may be continued by layers. Cuttings also set in a moist shady border the beginning of october, will frequently grow; but this not being a sure method, and the other an easy one, this scarcely deserves to be put in practiceⁿ.]

4, 5. Being plants of no use here, are not cultivated, except in botanic gardens.

6. The Alder, delighting in a very moist soil, where few other trees will thrive, is a great improvement to such lands. It is propagated by layers, cuttings, or truncheons about three feet in length. The best time for planting truncheons is in february or the beginning of march; they should be sharpened at one end, and the ground must be loosened with an iron crow before they are thrust

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into it, that the bark may not be torn off. They must be planted at least two feet deep, to prevent their being blown out of the ground by strong winds, after they have made their shoots. The plantations should be cleared at first of tall weeds; but when the trees have made good heads, they will require no farther care.

If you raise them by layers, this operation must be performed in october, and by the october following they will have taken root sufficiently to be transplanted. They should be set at least a foot and half deep in the ground; and their tops must be cut off to about nine inches above the surface, which will occasion them to shoot out many branches.

[In other countries the Alder is raised from seeds, but I do not know that it is practised in England^o.]

The distance these trees should be placed, if designed for a coppice, is six feet square; [or they may be planted at first a yard square, and at seven years end, when they are felled for poles, every other stool may be taken away,] and if the small lateral shoots be taken off in the spring, it will very much strengthen the upright poles, provided a few small shoots be left at certain distances upon the body to detain the sap, for the increase of its bulk.

These trees will also thrive exceedingly on the sides of brooks; and may be cut for poles every fifth or sixth year. They may also be planted for hedges, in moist ground, where they thrive very fast, and may be trained into very thick close hedges, to the height of twenty feet and upwards. [They may also be used for securing the banks of rivers, by planting truncheons very close, or crosswise.] The leaves being large, and of a deep green, have a good effect, and the trees make a much better figure than most other aquatic trees; so that where the beauty of such plantations is considered, these should be preferred to other trees usually planted in swampy grounds.

[In planting Alders for coppices, it is much better to raise them from young trees than from truncheons. To obtain a quantity of these, plant suckers, and head them down for stools: lay the shoots the succeeding autumn, and in twelve months they will have taken root; then remove and plant them in rows: in one or two years they may be planted where they are to remain. If the coppice is to be on boggy or watery ground, they may be removed from the nursery, and planted three feet asunder in holes previously prepared. Here they may stand six or seven years, when half the trees may be taken away, and the rest cut down for stools. Every nine or tenth year will afford a fall for poles^p.

7. Hoary Alder, growing naturally in dry sandy soils, may perhaps be cultivated with the Birch, where land is of little value, as an underwood, and may be propagated either by layers or cuttings; as well as by seeds, where they can be obtained.

BETULA americana. See *Bursera*.

BETULUS. See *Carpinus*.

BEURERIA and BEURRERIA. See *Calycanthus* and *Ebretia*.

BICUCULLATA. See *Fumaria*.]

BIDENS. (So named from the seed being terminated by two teeth or awns.)

Lin. gen. n. 932. Reich. n. 1012. Schreb. 1267. Tournef. t. 262. Juss. 188. Dill. elib. 43. 47. Gært. t. 167. Ceratocephalus. Vaill. art. gall. 1720. f. 47, 48, 49.

Class. 19. 1. Syngenesia Polygamia Æqualis.

Nat. order of *Compositæ oppositifoliæ*.—*Corymbiferae* Juss.

GENERIC CHARACTER.

CAL. Common imbricate, erect; leaflets often equal, oblong, channelled-concave.

COR. Compound uniform, tubular: corollules hermaphrodite, tubular.—Proper one-petalled, funnel-form; border five-cleft, erect.

• Ibid.

• Ibid.

STAM.

^m Hunter's Evelyn.

ⁿ Ibid.

STAM. Filaments five, capillary, very short. Anther cylindric, tubular.
 PIST. Germ oblong. Style simple, the length of the stamens. Stigmas two, oblong, reflex.
 PER. none. Calyx unchanged.
 SEEDS solitary, obtuse, angular. Down with two or more awns, oblong, straight, acute, rough-hooked backwards.
 REC. flat, chaffy: chaffs deciduous, flattish.
 OBS. In most of the species an expanding five-leaved calycle surrounds the compound flower.
 Verbesina differs from Bidens only in having a ray. Sometimes the corolla has one or two radial florets. Reich.

ESSENTIAL CHARACTER.

Cal. imbricate. Cor. sometimes but seldom with a floscule or two in the ray. Seed crowned with erect, scabrous awns. Recept. chaffy.

SPECIES.

- [1. *Bidens tripartita*. Trifid Water-Hemp-Agrimony or Bur-Marygold.
 Lin. spec. 1165. Reich. 3. 703. succ. n. 726. lapp. 294. hort. cliff. 339. 1. Gært. fruct. 2. 412. Hudf. angl. 355. With. 882. Curtis lond. 4. 57. Lightf. scot. 461. Hall. belv. n. 121. Scop. carn. n. 1090. Pollich pal. n. 774. Gron. orient. 255. Blackw. t. 519. Mor. hist. f. 6. t. 5. f. 20. Pet. herb. t. 20. f. 7. Ger. emac. 711. 1. Park. 595. 7. Bauh. hist. 3. 1073. Raii hist. 360. n. 1. syn. 187. 1.
 β. *Conyza palustris*, fol. tripartito divis. Loef. pruss. 53. ic. 10.
 Leaves trifid, calyxes somewhat leafy, seeds erect.
2. *Bidens minima*.
 Lin. spec. 1165. Reich. 3. 703. Retz. obs. 1. 28. n. 94. fl. scand. n. 888. Hudf. angl. 1. β. Curtis lond. 3. 55. With. 883. γ. Lightf. 463. β. Fl. dan. t. 312. Pollich pal. n. 775.
 Verbesina minima. Dill. giff. 167. & app. 66. Raii syn. 188. t. 7. f. 2.
 Leaves lanceolate sessile, flowers and seeds erect.]
3. *Bidens nodiflora*. Sessile-flowered Bidens.
 Lin. spec. 1165. Reich. 3. 704. Dill. elth. t. 44. f. 52.
 Leaves oblong quite entire one-toothed, stem dichotomous, flowers solitary sessile.
- [4. *Bidens tenella*.
 Lin. spec. 1166. Reich. 3. 704. amæn. 6. afr. 47.
 Leaves linear, peduncles capillary, calyxes mostly four-leaved, seeds erect fivefold.
5. *Bidens cernua*. Drooping Water-Hemp-Agrimony, or Bur-Marygold.
 Lin. spec. 1165. syst. 732. Reich. 3. 704. succ. 727. Hudf. angl. 356. With. 883. Curtis lond. 3. 55. Lightf. scot. 462. Hall. belv. n. 120. Scop. carn. n. 1089. Lcers herborn. n. 635. Pollich pal. n. 776. Fl. dan. 841. Mor. hist. f. 6. t. 5. f. 22. Pet. herb. t. 20. f. 6. Loef. pruss. n. 54. f. 11. Ger. 574. Bauh. hist. 2. 1074. Raii hist. 361. n. 2, 3. syn. 187. 2.
 β. Hudf. angl. 356. With. 883. Fl. dan. t. 841. Barr. ic. 1209. Mor. 6. 5. 22.
 Coreopsis Bidens. Lin. spec. 1281.
 Leaves lanceolate stem-clasping, flowers nodding, seeds erect.]
6. *Bidens frondosa*. Smooth-stalked Bidens.
 Lin. spec. 1166. Reich. 3. 704. Gært. fruct. 2. 412. Berkh. diff. t. 5. f. 5.
 Chrysanthemum, &c. Mor. hist. 3. 17. f. 6. t. 5. f. 21.
 Leaves pinnate serrate marked with lines smooth, seeds erect, calyxes leafy, stem polished.
- [7. *Bidens pilosa*. Hairy Bidens.
 Lin. spec. 1166. syst. 732. Reich. 3. 705. hort. cliff. 399. 2. upf. 255. Dill. elth. t. 43. f. 51. Swartz obs. 296. Thunb. jap. 307. Gært. fruct. 2. 412. Lour. cochinch. 488.
 β. *B. chinensis*.
 Agrimonia Molucca. Rumph. amb. 6. 38. t. 15. f. 2.
 Leaves pinnate somewhat hairy, stem with bearded joints, calyxes with a simple involucre, seeds diverging.

8. *Bidens bipinnata*. Hemlock-leaved Bidens.
 Lin. spec. 1166. Reich. 3. 705. Lour. cochinch. 488.
 Chrysanthemum. Herm. par. t. 123. Mor. hist. 17. n. 24. f. 6. t. 7. f. 23.
 Leaves bipinnate gashed; calyxes involucre, corollas half-radiated; seeds diverging.]
9. *Bidens nivea*. Snowy Bidens.
 Lin. spec. 1167. Reich. 3. 706. Dill. elth. t. 47. f. 55. Swartz obs. 296.
 β. Dill. elth. t. 47. f. 55. 3.
 γ. Dill. elth. t. 46. f. 54.
 Leaves simple cordate-ovate, acuminate, branches trichotomous, serrate, flowers hemispherical, peduncles elongated.
- [10. *Bidens verticillata*.
 Lin. spec. 1167. Reich. 3. 706. hort. cliff. 399. 4.
 Leaves oblong entire, lower ones entire, upper ones opposite, flowers verticilled.]
11. *Bidens scandens*.
 Lin. spec. 1167. Reich. 3. 706. hort. cliff. 399. 5. Swartz obs. 297. Brown. jam. 317. 2.
 B. frutescens. Mill. dict. n. 4.
 Leaves opposite ovate acuminate serrate, stem climbing shrubby, flowers panicled, ovate.
12. *Bidens bullata*. Various-leaved Bidens.
 Lin. spec. 1167. Reich. 3. 706. Arduin. spec. 2. 37. t. 18. Mich. flor. 120. Hall. gott. 383.
 Leaves ovate serrate; lower ones opposite, upper ones ternate, the middle larger.
- [13. *Bidens hirsuta*.
 Swartz prodr. 110. Sloan. jam. 1. 257. Eupatorium.
 Leaves opposite ovate-lanceolate entire tomentose-hirsute, stem-climbing shrubby, peduncles opposite diverging many-flowered.
14. *Bidens odorata*.
 Cavan. hisp. 9. n. 12. t. 13.
 Stem four-cornered branching very much; leaves connate bipinnate, pinnules twedge-trifid smooth, seeds rugged.

DESCRIPTIONS, &c.

Most of the species are herbaceous annuals; some however are shrubs. Leaves generally opposite, some pinnate. Flowers axillary or terminating.

1. Root annual. Stem from one to three feet high, upright, branched; the branches opposite, roundish, moderately grooved, reddish, solid, smooth to appearance, but slightly rough to the touch. Leaves smooth, trifid and sometimes quinquefid, deeply serrate; the uppermost undivided, either indented at the edge or entire, and not unfrequently edged with hairs. Flowers yellow, terminating, drooping a little. Leaflets of the calyx in a double row, unequal; several small, lanceolate leaves, generally entire, but edged with hairs, surround the flowers like an involucre; the inner leaflets are ovate, pointed, streaked with blackish lines; the margins entire, yellow: they approach to the nature of the florets, which are sometimes surrounded with semiflosculous rays^a. Receptacle convex, much shorter than the calyx, covered with oblong blunt concave chaffs, similar and equal to the calycine leaflets. Seeds wedge-oblong, three-sided, flattened a little, smooth, livid, having two awns arising from two of the opposite angles, and generally a shorter one from the middle of the back; they are hooked or barbed downwards^b.

This species is obviously distinguished from the fifth by its trifid leaves, a character more to be depended on than the uprightness of its flowers. It is also much more common, with us at least. That is generally found in water; this more frequently occurs on the borders of ponds, rivulets, &c. where it flowers in august and september^c.

This plant dyes a deep yellow. The yarn or thread must be first steeped in alum water, then dried and steeped in a decoction of the plant, and afterwards boiled in the decoction^d.

^a Curtis, Lightf.

^b Gærtner, Lightf. Curt.

^c Curtis.

^d Linn. Hall. Lightf. &c.

Since it is found by a chemical analysis to possess much the same qualities as *Verbena Acmella*, it is probable that it might have the same good effects in expelling the stone and gravel.

The seeds have been sometimes known to destroy gold-fish, by adhering to their gills and jaws^o.

2. Dillenius first marked this for a distinct species. Haller thought it to be no more than a variety of the *cernua*, in which he has been followed by all our British botanists. Mr. Lightfoot observes that the flowers are sometimes nodding, and takes it to be either an autumnal seedling from an early plant of the *cernua*, or to be rendered dwarfish by accident. They appear to Dr. Stokes to run into one another, or rather to be the same species, differing only in size and the number and inclination of the flowers. Mr. Woodward has often seen it mixed abundantly with the *cernua*; and in the dry summer of 1779 many plants of this appeared in a pond then much dried up, and on the borders of which the *cernua* always grew in great plenty. Mr. Curtis observes, that sometimes in very dry seasons, the *cernua* is found in so dwarf a state as not to exceed two or three inches in height; that Dillenius finding it in that state, described and figured it in his edition of Ray's synopsis, as a distinct species, and that Linneus, relying probably on his authority, adopted it as such in his *Species Plantarum*.

Hence we may presume that our plant is nothing more than a starved variety of the fifth species: but Retzius cautions us not to take a dwarf variety of *B. tripartita* for *B. minima* of Linneus. He remarks, that the first, which has a tender undivided stalk terminated by a single flower, has a simple root, ferrate leaves, and a leafy calyx with several leaflets; whereas the true *minima* has a creeping root, leaves either entire or crenate only, and there are only two leaves under the calyx. Whether these distinctions are sufficient to constitute a specific difference must be settled by a more accurate examination. After all, varieties both of the *tripartita* and *cernua* seem to have been confounded together, and with this, if it be really distinct, which I much doubt.

3. This is an annual plant, rising with stems eight or nine inches high, roundish, rough with white hairs purple at the base. Branches divided, spreading. Leaves petioled, ovate (in the garden), angular-toothed, rather blunt, smooth above, hairy along the veins underneath; the petioles are broadish. Peduncles terminating, resembling the stem, the length of the leaves. Calyx cylindrical, surrounded with oblong leaves, longer than the calyx, spreading. Florets few, quadrifid, some quinquefid, yellow^f. Native of the East-Indies. It was cultivated at Eltham by Dr. Sherard, in 1732^g.

4. Stem filiform, purplish, subtrichotomous, six or seven inches in height. Leaves opposite or in threes, entire, rugged. Peduncles terminating, naked, one-flowered. Calyx oblong. Florets generally five. Awns of the seeds smoothish. It is an annual, and a native of the Cape of Good Hope^h.

5. Root annual. Stem from one to two feet high or more, upright, branched, a little hairy, purplish dotted with red, round at bottom, striated at top; the branches opposite, and nearly upright. Leaves opposite, moderately connate, undivided, or with distant serratures, spreading, smooth on both sides. Peduncles striated. Flowers yellowish-green, finally drooping, generally radiate. Calyx consisting of about seven leaves, linear-lanceolate, finely serrate at the edge, ribbed, turning back, and longer than the corolla. There are eight corollets in the circumference, hermaphrodite like the central ones, but with the tube more tumid and depressed: in places overflowed for a long time, they change into ligulate neutral corollets. Receptacle pyramidal, four-cornered. Seeds with four awns, two of which larger; the prickles pointing downwardsⁱ.

This flowers a month later than the *tripartita*, and in this state has a strong smell not very disagreeable^k.

Native of most parts of Europe.

β. Haller observes, that *Coreopsis Bidens* of Linneus differs in no respect from *Bidens cernua*, except in having radiate florets in the circumference, and that these are wanting in some species of *Senecio*. Hence Dr. Stokes concludes, that *Bidens* and *Coreopsis* form one genus. Mr. Woodward has frequently observed both naked and radiate flowers on the same plant^l.

Found at Ditchingham in Norfolk, and Tarporley in Cheshire: frequent in Ireland.]

6. This rises about three feet high, sending out many horizontal branches. [The lower pair of leaves ternate, or pinnate with five leaflets.] The flowers are produced at the ends of the branches in small clusters; they are yellow, [and flosculous with a conical disk. Peduncles longer than the leaves. Seeds not diverging, only half as wide as they are long^m; large, ovate-oblong, compressed, having callous dots thinly sprinkled over them, crenulate, cinnamon-coloured; crowned with two strong, divaricated awns with reversed pricklesⁿ.] It grows naturally in Virginia, Maryland, and Canada, where it is often a troublesome weed. [It was cultivated in 1752, by Mr. Miller^o.

7. The three outer leaflets are united in this. The disk of the flower is conical. The middle seeds are longest, and when they are ripening they diverge^p. The seeds are linear, compressed, striated, smooth, subglucid, black. Awns two to five, bristle-shaped, rugged, one-fourth of the length of the seeds^q. Native of America; and the island of Tongatabu in the South Seas.

β. The plant of China and other parts of the East resembles the American very much, but the leaflets are distinct, and the seeds have always four awns. The ray also of the flower is white and minute^r. The American sort was cultivated in 1732 at Eltham, by Dr. Sherard^s.

8. The flowers of this are sometime wholly destitute of ray, but sometimes there are one or two barren florets^t. The seeds have three awns, the middle one longest, according to Linneus; but Willich says, they have only two awns. It is an annual plant; a native of Virginia; and was cultivated here in 1699^u. According to Loureiro, it is also a native of China and Cochinchina.

9. Stem two feet high, branched very much, bluntly four-cornered, upright, somewhat rugged: branches opposite, decussated, patulous, four-cornered, rugged. Leaves opposite, nerved, wrinkled and rugged, on longish petioles. Terminating branches trichotomous, elongated; the final peduncles longer, with solitary hemispherical white flowers. Florets numerous. Scales of the calyx ovate, convex, pubescent, shorter than the chaffs of the florets, which are very many. Anthers blueish. Seeds oblong, acuminate at the base, truncate at the top, four-cornered, crowned with three very short bristles. Chaffs on the receptacle oblong, sharp, membranaceous, longer than the calyx, after flowering rigid, patulous. Native of Jamaica, in elevated pastures, and on the sea coast of the southern parts^x.] Mr. Miller says it grows naturally in South Carolina, and also at Campeachy. [It was cultivated at Eltham in 1732, by James Sherard, M.D.^y

10. Stems procumbent, a span long, simple, with alternate leaves on the lower half, and opposite leaves on the upper half. A solitary branch shorter than the stem issues from each axil of the alternate leaves, usually quite simple, leafed in the same manner with the stem. Alternate leaves lanceolate-ovate, blunt, ending gradually in the petioles, quite entire except that the lowest have sometimes a little notch or

^o Lightf. ^f Linn. ^g Hort. kew. ^h Linn. amæn.
ⁱ Curtis, Wither, Leers, Gærtner.

^k Curtis. ^l Withering. ^m Linn. ⁿ Gærtner.
^o Hort. kew. ^p Linn. ^q Gærtner. ^r Linn.
^s Hort. kew. ^t Linn. ^u Hort. kew. ^x Swartz.
^y Hort. kew.

two, beneath white with down, above smooth and green. Opposite leaves smaller, not ending in the petioles, but where they begin to contract they soon spread out again towards the base and become ventricose; they are sessile and embrace each other at the base, closely involving two equal flowers. Scales of the calyx equal, diaphanous, weak. Florets numerous. Seeds slender, compressed at top, attenuated towards the base, crowned with two bristles spreading horizontally. Native of Vera Cruz in South America².

11. This is a weakly branched shrub, generally rising to the height of five or six feet or more, but requires the support of the neighbouring bushes to keep it upright⁴. Stem round and somewhat rugged. Branches long, round, divaricate. Leaves petioled, somewhat angular at the base, nerved, wrinkled, dark green, smooth on both sides; nerves beneath subvillose. Peduncles terminating, opposite, decussated, shortish, subtriflorous; flowers peduncled, white, ovate or conical. Calyx conical, with ovate, acute, minute scales. Border of the corollas recurved. Anthers black: pollen fulvous. Seeds wedge-shaped, oblong, crowned with two awns. Chaffs of the receptacle arched at the tip, including the florets, keeled at the back. Native of Jamaica, on the cooler mountains^b; also of Vera Cruz^c.] Mr. Miller received it from Carthage in New Spain.

12. [Stem upright, two feet high. Leaves thick, villose, almost bullate; the lower ones simple, the upper subternate, subsessile. Flowers axillary and terminating, solitary, subsessile, yellow: calyxes furrowed at the base with ovate-oblong spreading leaves, five together. Seeds crowned with two awns, ciliate backwards^d. Native of America. Now found wild in Italy. Cultivated in 1759, by Mr. Miller^e. Annual.

13. Native of Jamaica. Annual.

14. Root annual. Stem four feet high, with opposite branches. Leaves opposite, smooth. Flowers terminating and axillary, solitary, sweet-smelling, on elongated peduncles. Calyx calyced; segments deep, lanceolate, with a scariose border, somewhat reflex; the outer ones shorter, ciliate at the tip. Corolla radiate, florets five ovate, three or five-cleft at the end, white, with purple veins underneath, commonly barren. Central florets numerous, yellow, with a brown anther, ending in five sharp segments. Receptacle flat, with short chaffs. Seeds blackish, with two teeth; the central ones long and four-cornered; those of the ray shorter, broader; all of them rugged at the corners. This ruggedness arises from very small tubercles disposed longitudinally; these end in minute prickles turned upwards, but they are too small to be seen by the naked eye. Native of Mexico. It flowered at Madrid in November 1791^f.]

PROPAGATION AND CULTURE.

1, 2, 5. The first, second and fifth sorts, being common weeds in many parts of Europe, are seldom cultivated in our gardens, but readily propagate themselves by seeds, in wet situations.]

3, 4, 7, 12. Must be sown upon a moderate hot-bed in the spring, and afterwards treated like other hardy annual plants, planting them into the full ground the latter end of May. They will flower in June, soon after which the plants will decay.

6, 8. Are easily propagated by seeds sown in the spring, in an open situation; where, if they be permitted to scatter, the plants will come up the following spring, and two or three of them may be transplanted where they are to grow, and after they are rooted will require no farther care. Being annual plants, they decay soon after the seeds are ripe.

9, 10, 11, 13, 14. Are propagated also by seeds, which should be sown on a hot-bed in the spring; and when the plants are fit to remove, they must be each planted into a separate small pot, plunged into

a fresh hot-bed, and treated as other tender plants from the same countries; in autumn they must be placed in the bark-stove. They will mostly abide some years with proper management.

BIDENS. See *Coreopsis*, *Elephantopus*, *Spilanthus*, *Verbena*, *Zinnia*.

BIDENTI similis. See *Siegesbeckia*.

BIFOLIUM. See *Ophrys*.

BIGARELLA. See *Prunus*.

BIGNONIA. (So named by Tournefort, in compliment to Ablé Bignon, librarian to Louis XIV.)

Engl. Trumpet-flower, or Scarlet Jasmine.

Lin. gen. n. 759. Reich. 817. Schreb. 1018.

Tournef. 72. Juss. 139. Gertn. t. 52.

Class. 14. 2. Didynamia Angiospermia.

Nat. order of *Personatae*.—*Bignoniæ* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, erect, cup-form, five-cleft.

COR. monopetalous, campanulate: tube very small, the length of the calyx; throat very long, ventricose beneath, oblong-campanulate; border five-parted, the two upper divisions reflex, lower patulous.

STAM. Filaments four subulate, shorter than the corolla; two longer than the other two. Anthers reflex, oblong, as it were doubled.

PIST. Germ oblong: style filiform, situation and form of the stamens: stigma capitate.

PER. Silique two-celled, two-valved: partition membranaceous, parallel, thickened at the sutures.

SEEDS very many, imbricate, compressed, membrane-winged on both sides.

OBS. *Catalpa* has only two perfect stamens, and three very small rudiments of stamens, with a five-leaved calyx. Four however, and even all five perfect, have been observed by Cyrilli. The form of the Silique in this genus is indeterminate. The seeds are always winged, though some on one side only.

ESSENTIAL CHARACTER.

Cal. five-cleft, cup-form. Cor. throat bell-form, five-cleft, ventricose beneath. Silique two-celled. Seeds membrane-winged.

SPECIES.

1. *Bignonia Catalpa*. Common *Catalpa*-tree.

Lin. spec. 868. Reich. 3. 155. hort. cliff. 317. 1.

Ait. hort. kew. 2. 346. Dubam. arb. 1. 104.

t. 41. Catesb. car. 1. 49. t. 29.

Leaves simple, cordate; stem erect; seeds winged with membranes.

[2. *Bignonia tomentosa*.

Lin. syst. 563. Thunb. jap. 252.

Leaves simple cordate tomentose beneath; flowers axillary panicled.]

3. *Bignonia sempervirens*. Carolina yellow Jasmine.

Lin. spec. 869. Reich. 3. 155.

Gelsemium. Park. 1465. n. 5. Raii hist. 1769.

Catesb. car. 1. t. 53.

Syringa. Pluk. alm. t. 112. f. 5.

Leaves simple lanceolate, stem twining.

4. *Bignonia unguis*.

Lin. spec. 869. Reich. 3. 156.

Apocyno affine. Sloan. jam. 1. 208. 5.

Clematis. Plum. amer. t. 94. Pluk. alm. t. 163. f. 2.

Leaves conjugate; tendril very short bowed three-parted.

5. *Bignonia æquinoctialis*.

Lin. spec. 869. Reich. 3. 156. Sabb. hort. 2. t. 85.

Plum. spec. 5. ic. 55. f. 1.

Leaves conjugate, cirrhose; leaflets ovate-lanceolate; peduncles two-flowered; siliques linear.

6. *Bignonia paniculata*.

Lin. spec. 869. syst. 563. Reich. 3. 156. Jacqu.

amer. 183. t. 116. pict. 91. t. 175. Plum.

spec. 5. ic. 56. f. 1.

Leaves conjugate, cirrhose; leaflets cordate-ovate; flowers racemed; peduncles three-flowered.

7. *Bignonia crucigera*.

Lin. spec. 869. Reich. 3. 157. vir. cliff. 60. hort.

cliff. 317. 3. Gron. virg. 1. 73. 2. 95. Plum.

ic. 48. t. 58.

Pseudo-Apocynum. Mor. hist. 3. 612. n. 6. f. 15. t. 3. f. 16.

Leaves

² Linn. cliff.

^a Browne.

^b Swartz.

^c Linn. cliff.

^d Linn.

^e Hort. kew.

^f Cavanilles.

- Leaves conjugate, cirrhose; leaflets cordate; stem mucronated.*
8. *Bignonia capreolata*. Four-leaved Trumpet-flower.
Lin. spec. 870. syst. 563. Reich. 3. 157. vir. cliff. 59. hort. cliff. 317. Brevn. ic. 33. t. 25. Dubam. arb. 1. 104. t. 40. Catesb. car. 2. 82. Clematis. Bocc. sic. 31. t. 15. f. 3. Zan. hist. 74. t. 2. ed. 2. 49. t. 33. Raii hist. 1329.
Leaves conjugate, cirrhose; leaflets cordate-lanceolate; bottom leaves simple.
9. *Bignonia pubescens*.
Lin. spec. 870. Reich. 3. 157.
Leaves conjugate cirrhose; leaflets cordate-ovate pubescent beneath.
10. *Bignonia triphylla*. Three-leaved Trumpet-flower.
Lin. spec. 870. Reich. 3. 157.
Leaves ternate; leaflets ovate, acuminate: stem shrubby, erect.
11. *Bignonia pentaphylla*. Hairy five-leaved Trumpet-flower.
Lin. spec. 870. Reich. 3. 158. hort. cliff. 497. 6.
Leaves digitate; leaflets quite entire, obovate.
12. *Bignonia Leucoxylon*. Smooth five-leaved Trumpet-flower, White-wood, or Tulip-flower.
Lin. spec. 870. Reich. 3. 158. Swartz obs. 233. Pluk. alm. t. 200. f. 4. Brown. jam. 263. n. 1. Sloan. jam. 2. 62. n. 47. Raii dendr. 114. 2.
Leaves digitate; leaflets quite entire, ovate, acuminate.
- [13. *Bignonia radiata*. Ray-leaved Trumpet-flower.
Lin. spec. 871. Reich. 3. 158. Feu. peruv. 2. 731. t. 22.
Leaves digitate; leaflets pinnatifid.]
14. *Bignonia radicans*. Rooting, or Ash-leaved Trumpet-flower.
Lin. spec. 871. Reich. 3. 158. hort. cliff. 317. 4. upf. 178. Gron. virg. 73. 94. Dubam. arb. 1. 103. 1. Sabb. hort. 2. t. 84.
Pseudo-gelsemium filiquosum. Riv. mon. 101. Pseudo-Apocynum. Mor. hist. 3. 612. n. 1. f. 15. t. 3. f. 1. Park. 1679. & 385. n. 6. Gelsemium hederaceum indicum. Corn. can. t. 103. Raii hist. 1768.
β. B. fraxini fol. coccineo fl. minore. Catesb. car. 1. t. 65. Mill. fig. 43. t. 65. Dubam. arb. 1. 103. 2.
Leaves pinnate; leaflets gashed: stem with rooting joints.
15. *Bignonia stans*. Branching-flowered Trumpet-flower.
Lin. spec. 871. Reich. 3. 159. Jacqu. amer. pict. 91. t. 176. Brown. jam. 264. 3. Plum spec. 5. ic. 54. Sloan. jam. 2. 63. n. 49.
B. frutescens. Mill. dict. n. 3.
Leaves pinnate; leaflets serrate; stem erect firm; flowers racemed.
- [16. *Bignonia grandiflora*.
Lin. syst. 564. Thunb. jap. 253. Kämpf. ic. sel. 21.
Leaves pinnate; leaflets ovate, acuminate, serrate; stem twining; calyx semiquinquesid.]
17. *Bignonia chelonoides*.
Lin. syst. 564. suppl. 282.
Padri. Rheed. mal. 6. 47. t. 26.
Leaves unequally pinnate; leaflets ovate quite entire acuminate pubescent, corollas bearded, with the rudiment of a fifth stamen.
18. *Bignonia spathacea*.
Lin. syst. 564. suppl. 283.
Nür Pongelion. Rheed. mal. 6. 53. t. 29.
Leaves unequally pinnate; leaflets ovate, rough with hairs, calyx one-leaved spathe, corolla salver-shaped.
19. *Bignonia peruviana*.
Lin. spec. 871. Reich. 3. 159. hort. cliff. 317. 5.
Leaves decompose; leaflets gashed; stem with tendrils at the joints.
20. *Bignonia indica*. Indian Trumpet-flower.
Lin. spec. 871. Reich. 3. 159. fl. zeyl. 236. Lour. cochinch. 379.
Palega pajaneli. Rheed. mal. 1. p. 77. t. 43. Raii hist. 1741.
β. Pajaneli. Rheed. 79. t. 44. Raii hist. 1741. n. 2.
Leaves bipinnate; leaflets quite entire ovate acuminate.]

21. *Bignonia cærulea*.
Lin. spec. 872. Reich. 3. 160. Catesb. car. 1. t. 42.
Leaves bipinnate; leaflets lanceolate entire.
22. *Bignonia longissima*. Wave-leaved Trumpet-flower.
Ait. hort. kew. 2. 347. Jacqu. amer. 182. t. 176. f. 78. Swartz prodr. 91. Brown. jam. 264. 2. Plum. ic. 47. t. 57.
B. Quercus. Lamarck encycl. 1. 417.
Leaves simple oblong acuminate, stem erect, seeds woolly.
23. *Bignonia echinata*.
Gært. fruct. 1. 240. t. 52. Jacqu. amer. 183. t. 176. f. 52. Aublet guian. 2. 648. t. 263, 264. Swartz prodr. 91.
Climbing; lower leaves ternate, upper bijugous cirrhose; fruits echinate.
24. *Bignonia pentandra*.
Lour. cochinch. 379.
Leaves bipinnate, stamens five with two anthers on each, calyx fleshy coloured five-toothed.
25. *Bignonia alliacea*.
Swartz prodr. 91. Aublet guian. 659. 14. Barr. gall. æquin. 23.
Leaves conjugate, leaflets elliptic entire coriaceous, peduncles five-flowered axillary, calyxes entire.
26. *Bignonia cassinoides*.
Vahl. symb. 2. 68. Lamarck encycl.
Leaves simple elliptic coriaceous, raceme terminating.
27. *Bignonia bijuga*.
Vahl. symb. 2. 69.
Leaves abruptly pinnate bijugous, leaflets elliptic quite entire.

DESCRIPTIONS, &c.

The Bignonias are trees or shrubs inhabitants of the hot climates of the East and West Indies, and eminently beautiful. The leaves are opposite, in some species unequally pinnate or ternate, in others conjugate, with a two-leaved petiole between the leaflets frequently furnished with a tendril for climbing. Flowers in panicles, large and handsome, of various colours, red blue yellow or white.

The calyx should be observed, whether it be simple or double; the corolla, whether it be regular or irregular; the stamens, whether they be fertile or barren; the fruit, whether it be bony or capsular, in form of a filique or ovate^a.

There are many species, particularly from Brasil, which are not yet sufficiently known to be settled here. *Bignonia sempervirens* does not belong to this genus, but to that of *Lisianthus*.]

1. The *Catalpa* is a deciduous tree, rising with an upright stem, covered with a smooth brown bark, to the height of thirty or forty feet: it sends out many strong lateral branches, having very large, heart-shaped (or ovate) leaves on them, placed opposite at every joint. The flowers are produced in large branching panicles towards the end of the branches; they are of a dirty white colour, with a few purple spots, and faint stripes of yellow on their inside: the tube of the corolla is much shorter, and the upper part more spreading than in the fourteenth sort; the segments also are deeper cut, and waved on their edges. [Two stamens have anthers, and two are without^b.] The flowers are succeeded by long taper pods; but these have not as yet been produced in England. Mr. Mark Catesby found it growing naturally on the back of South Carolina, at a great distance from the English settlements, and brought it into England about the year 1726. It is now not uncommon in our nurseries and plantations. [This tree has a good effect, when it stands in the middle of large openings, where it can freely send forth its side branches, and show itself to advantage. The leaves however come out extremely late in our climate;] and it requires a sheltered situation, for where it is much exposed to strong winds, the large leaves are often torn and rendered unsightly, and many times their branches are split and broken by the wind. It flowers in august, and is known in the nurseries by its Indian name *Catalpa*.

^a Jussieu.

^b Linn.

[The branches dye wool a kind of cinnamon colour. Thunberg mentions, that the Japonese lay the leaves on parts of the body affected with pains, supposing them to be beneficial to the nerves; and that a decoction of the pods is esteemed serviceable in the asthma.]

2. This is a tree, with opposite petioled leaves, the lower ones heart-shaped, the upper ovate, acute, five-nerved, entire, pubescent above, tomentose beneath, a hand or more in breadth; the upper ones less: petioles a finger's length or longer. Panicle first trichotomous, then dichotomous. Peduncles, pedicels and calyxes tomentose. Native of Japan^c.]

3. This rises with slender stalks, which twist themselves round the neighbouring plants, and mount to a considerable height; the leaves come out single and opposite to each other at every joint; they remain green through the year. The flowers come out from the wings of the leaves at every joint, sometimes but two, at other times four at each joint; these stand erect, are trumpet-shaped, yellow, and have a very sweet scent; and in the countries where they naturally grow, they are succeeded by short taper pods, filled with small winged seeds.

It grows naturally in South Carolina, where it spreads over the hedges, and at the season of flowering, perfumes the air to a great distance; it also grows in some parts of Virginia, but not in so great plenty. The inhabitants there call it Yellow Jasmine, I suppose from the sweet odour of its flowers.

[It was cultivated in 1640, by Parkinson^d. Catesby says, that the flowers smell like those of the Wall-flower; and that it always loses its leaves in winter.]

4. This has slender stems which require support. The leaves are small, ovate, entire, and placed opposite at every joint; at the same places come out the tendrils, by which the plants fasten themselves to whatever grows near them; the flowers are axillary, and shaped like those of the Foxglove. They are not succeeded by pods in this country. Native of the West-Indies.

5. This has very weak slender branches, which put out tendrils at the joints, with four leaves, two on each side opposite; they are waved on their edges, of a bright green, and continue through the year; the branches ramble very far where they have room; the flowers are large, yellow, and produced at the joints of the stalks, but they are succeeded by pods in this country. Mr. Miller received it from La Vera Cruz in New Spain.

6. This rises with woody stems, which put out tendrils at the joints. The leaves come out on each side the branches, upon pretty long footstalks, two at each joint opposite; they are entire, and have a fine hairy down on their under side. The flowers grow in loose spikes at the end of the branches; they are tubulous, and do not spread much at the top; their colour is violet, and they smell very sweet. [The calyx has a double border; the outer flat, white, slightly five-cleft, the inner erect, narrow^e.]

The seed-vessels are hard, woody, and open in four parts.

It was sent to Mr. Miller from La Vera Cruz, by Dr. Houstoun. [Observed about Carthage, by Jacquin.]

7. Stem twining, rugged, when cut transversely representing a cross, whence the trivial name^f.] It rises to the tops of the tallest trees, sending out many branches, which have four narrow borders or wings running longitudinally, so as to resemble a square stalk. The leaves are produced by pairs on each side the branches; they are smooth and on short foot-stalks. The flowers are in small clusters from the axils; they have pretty long tubes, spread open at the top, and are of a pale yellow colour: they are succeeded by flat pods a foot in length. It was sent to Mr. Miller from Campeachy.

8. This has woody stems which rise to a great

height, climbing on the trees which grow near it, fastening to their branches by its clasps, and sending out many branches, which have leaves on them growing by fours, two on each side, growing opposite at the joints, and covered on their under side with a soft hairy down, of a yellowish colour. The flowers are produced in loose panicles at the ends of the branches; they are shaped like those of the Fox-glove, are of a pale yellow colour, and are succeeded by flat pods, a foot long.

[Linneus says, that the peduncles are one-flowered, and heaped; the calyxes bell-shaped and entire.]

It was sent to Mr. Philip Miller from Campeachy, by Mr. Robert Millar. [Native of Virginia and Carolina, and cultivated here in 1730^g.]

9. This has very slender trailing stalks, which must be supported; the branches fasten themselves by their tendrils to whatever plants are near them, and extend to a great distance. The leaves are oblong, and green all the year; they are often single at bottom, but upwards are placed by pairs opposite at each joint. The flowers are axillary, yellow, and shaped like those of the Fox-glove. These appear in August, but are not succeeded by pods in this country. It grows naturally in Virginia, and several other parts of America.

10. This has a woody stem, covered with an ash-coloured bark, and rises to the height of ten feet; sending out many side branches, with trifoliate leaves placed opposite at each joint. The flowers come out at the extremity of the branches in loose panicles, and are of a dirty white colour. These are succeeded by flat narrow pods. It was sent to Mr. Miller from La Vera Cruz, by Dr. Houstoun.

11. This rises with an upright stem near twenty feet high, sending out many lateral branches, covered with a white bark. The leaves come out opposite at the joints upon long footstalks; they are composed of five oval stiff leaflets joined at their base, where they are narrow, but widen towards the top, where they are rounded and obtuse; they are of a pale green, inclining to white on their under side; the flowers are produced at the ends of the branches four or five together, on very short peduncles; they are narrow at bottom, but the tube enlarges upwards, and at the top spreads open wide; they are of a pale blueish colour, and smell sweet. The pods are taper and crooked, about four inches long, with wings of a silver colour. It was sent to Mr. Miller from Jamaica by Dr. Houstoun, [and therefore was introduced here before 1733^h.]

12. The trunk of this tree is of a middling size, with upright stiff branches. Leaves terminating, having five and sometimes seven or eight leaflets, which are broad-lanceolate, nerved, veined and smooth. Flowers solitary, terminating, large, rose-coloured. Calyx two-lipped; upper lip rounded; lower bifid, with ovate, sharp teeth. Corolla irregular; tube long, narrow, a little swelling at bottom; border two-lipped, upper lip shorter, bifid, lower larger, trifid; all the segments rounded, waved, somewhat villose. Anthers vertical, black. Silique very long, pendulous, cylindric-linearⁱ.

Sir Hans Sloane says, that this tree is as large as any in the island of Jamaica, having a very great straight trunk covered with a smooth whitish bark, and a very hard white wood. The petioles are three or four inches long. The leaves fall off for some weeks, and then the flowers come out of the ends of the twigs, several together on peduncles an inch in length: they are white, like those of Stramonium, and fall off very soon. The pod is five or six inches long, brownish, square, and marked with several eminent lines.

According to Browne, it grows to a considerable size, when raised in a kind soil, and is generally looked upon as a good timber-wood; but when its growth is not luxuriant, it is only fit for cattle-

^c Thunberg. ^d Hort. kew. ^e Linn. ^f Ibid.

^g Hort. kew. ^h Ibid. ⁱ Swartz.

yokes, and such other small conveniences as require a tough yielding wood. The juice and tender buds of this tree, are said to be an antidote against the poisonous juice of the Manchineel: they are indeed bitter, and may serve to prevent excoriations or blisters for a time, and thereby protract the operation of that caustic juice, until a part of its virulency wears off, or other assistance can be obtained; but emulsions and oily medicines will be always found to answer much better.]

Mr. Miller says, that it rises with an upright stem to the height of forty feet, in the natural country of its growth; and that the seeds are dispersed by the wind to the neighbouring lands, where the plants come up in great plenty. This and the foregoing sort have been generally confounded, but the growing plants are extremely different; for the under leaves of this are sometimes composed of five, at other times of four oval leaves; and on the upper part of the branches they come out single, placed by pairs opposite; these are as large as those of the Bay-tree, and of equal thickness, rounded at their end; each has a long foot-stalk, whereas those of the former join at their base to one centre. The flowers of this sort are produced single at the wings of the leaves, have a narrow tube near two inches long, but spread open very wide at the top, where they are cut into five unequal segments, which are fringed on their borders: the corolla is white, and has an agreeable odour.

[It was cultivated in 1759, by Mr. Miller^k,] who says that he received it from Barbadoes by the title of White Wood.

[13. Stem three inches high. Leaves composed of seven or nine leaflets, each segment of which is unequally crenate; the middle leaflet is three inches and a half in length, the lateral ones are proportionally shorter. Petioles from two to ten inches in length. The corolla is pale yellow, with red dots; the tube is two inches in length. Native of Peru, in very dry sand^l.]

14. This has rough stems, which send out many trailing branches, putting out roots at their joints, and thereby fastening themselves to the trees in their natural places of growth, and climbing to a great height: in Europe, where it is generally planted against walls, it strikes into the mortar of the joints so strongly as to support the branches, and will rise to the height of forty or fifty feet. Leaves opposite at every joint, composed of four pairs of leaflets, terminated by an odd one; they are ferrate, and end in a long, sharp point. The flowers are produced at the ends of the shoots of the same year, in large bunches; they have long swelling tubes, shaped somewhat like a trumpet, whence this plant has the appellation of Trumpet-flower. The corolla is of an orange colour, and opens at the beginning of August.

[It was cultivated here in 1640^m.

β. The seeds of this were sent from Carolina in 1724, by Mr. Catesby; and since that time, great numbers of plants have been raised, from seeds sent to England from the same country. All these retain their difference; and there is an old plant of each sort growing near together in Chelsea garden, and producing flowers every year, remarkably different in size and colour. The shape and size also of the leaves are very differentⁿ.

15. This is an upright shrub, from four to eight feet in height, little branched, with a slender, but firm and woody trunk. Leaves opposite, petioled; leaflets subsessile, elongate-lanceolate, acuminate, veined. Racemes terminating, upright. Flowers yellow with red lines on the inside of the tube. Siliques half a foot in length; with winged seeds^o.

Native of all the sugar islands in the West-Indies, chiefly in a dry, rocky or gravelly soil.]

Mr. Miller says, that he received this sort first in 1729, from La Vera Cruz, where Dr. Houstoun

found it in great plenty; since which time he received the seed from the island of Bermuda, by the title of Candle-wood.

[16. Stem shrubby, climbing, four-cornered, with joints swelling a little, smooth. Leaves sharply serrate, smooth. Flowers axillary and terminating, solitary, peduncled, large. Calyx five-cornered, cut half way into five segments, smooth: segments lanceolate, acute. Corollas purple, the size of a rose. It differs from the *radicans* in having a stem not at all rooting, a larger flower, and a semiquinquefid calyx. Native of Japan^p.

17. This is a large tree, with a whitish ash-coloured bark. Leaves spreading, petioled, with about five pairs of opposite, petioled leaflets. Panicle terminating; pedicels opposite, dichotomous. Flowers solitary, from the divisions. Calyx hoary. Border of the corolla a little arched, rough with hairs, red, five-cleft: the two upper segments reflex, two-parted, toothletted and curled, yellow with red dots; lower segments rough with hairs, curled at the edge; disk waved, white; veins red: throat rough with hairs. The rudiment of a fifth stamen inserted into the tube of the corolla, decurrent, barren: anthers two-parted. Siliques linear, flat, bent, streaked. The fresh flowers immersed in water give it a pleasant odour, and in the East-Indies, of which it is a native, they sprinkle it over the temples in a morning, to correct the stagnant air^q.

18. This is a large tree: Leaves scattered, often opposite, with three pairs of lobes; leaflets subcordate, the inner ones often cordate, quite entire. Flowers on the top of the stem, axillary, peduncled. Calyx opening longitudinally by its upper side, oblong, subcoriaceous, smooth, deciduous. Corolla white, border flat, five-folded, repand, and unequally toothed. The rudiment of a fifth stamen. Silique linear, flat, streaked, having small swellings on the surface. Seeds linear, waved, winged at the top.

The structure of the flower differs from that of the other species; but since it is a tree with four didynamous stamens, and has a pod filled with winged seeds, it is clearly of this genus.

The timber is ash-coloured, or red, smooth, and much used for a variety of utensils in India.

Native of Malabar, Java, and Ceylon, in woods near waters^r.

19. This climbs by tendrils which come out from the joints of the branches. Each petiole is trifid, and each division supports a pinnate leaf of fine leaflets on very small petioles. Each leaflet is ovate and unequally gash-serrate. Native of America^s.

20. This is a large tree, with ascending branches. Leaflets smooth, opposite. Flower large, red, in erect, terminating racemes. Calyx a crescent-shaped, thick, coloured, woolly spathe. Corolla ringent; with a large, curved, swelling tube; the upper lip truncate; the lower longer; three-parted; segments ovate, waved, almost equal. Anthers large and pendulous. Style longer than the stamens. Stigma spathulate. Silique very long, compressed, curved a little, woolly, four-celled, with a rectangular partition: Seeds two-lobed; lobes orbiculate, coalescent, having a membranaceous wing protended laterally: they are disposed in various strata in each cell, but are not imbricate^t.

Native of the East-Indies, and Cochinchina. Introduced in 1775, by Dan. Charles Solander, LL.D.^u

A variety occurs near Mozambique in Africa, which has a small arboreous stem, bipinnate leaves like the Indian, peduncles many-flowered, terminating, silique smooth, curved, compressed, a foot long; with oblong, two-lobed seeds, in three rows in each cell^x.]

21. The twenty-first sort grows naturally in the Bahama islands, from whence Mr. Catesby sent the

^k Hort. kew.

^l Feuillée.

^m Hort. kew. from Parkinson.

ⁿ Miller's figures.

^o Jacquin.

^p Thunberg.

^q Linn.

^r Ibid.

^s Linn. cliff.

^t Loureiro.

^u Hort. kew.

^x Loureiro.

feeds in 1724, and many of the plants were raised in the gardens near London. This, in the country where it grows naturally, rises to the height of twenty feet, sending out many lateral branches, with compound winged leaves, each having eleven alternate wings, with spear-shaped small lobes, which grow alternate, and are entire; at the ends of the branches the flowers are produced in very loose panicles; the foot-stalks branching into three or four, each sustaining a single blue flower, with a long swelling tube, cut into five unequal segments at the top, where it spreads open. The flowers are succeeded by oval seed-vessels, which are large, flat, two inches over.

[22. This is an elegant, upright tree, forty feet high and upwards. Leaves quite entire, waved, shining, opposite or ternate, two inches long, on a slender petiole an inch in length, mostly at the ends of the twigs. Racemes terminating, panicked, weak, with about forty flowers, smelling sweet, whitish; with two fertile, and three barren stamens. Siliques very slender, roundish, two feet long, frequently covering the whole head of the tree. Seeds linear, acuminate at both ends, cloathed with wool^y.

Native of the West-Indies. This beautiful tree is now cultivated in many parts of Jamaica, especially in the low lands and savannas, where it seems to thrive very luxuriantly. It grows to a considerable size, and is generally looked upon as an excellent timber tree. Its numerous flowers, and slender filiques, add a peculiar grace to its growth^z.

It is known in Jamaica by the name of *French Oak*; and in the French West-India islands, it is called *Chêne noir*.

23. This is a rambling shrub, climbing to the tops of trees by its very long and numerous branches. Leaves opposite; leaflets ovate, acuminate, smooth, quite entire, from four to six inches in length^a. Peduncles axillary, two inches long, corymbed, having several parcels which are opposite, and composed of three, four or five flowers. There is a scale or stipule at the base of each parcel and pedicel. Corolla flesh-coloured^b. Siliques elliptic-oblong, very slightly compressed, marked with an obscure longitudinal groove on the middle of the sides, and at each edge with the rounded, protuberant termination of the partition, mucronated all over with short, subulate prickles, confluent at the base. Partition flat, coriaceous, thickened at the edge. Seeds very numerous, flattened, with a very wide, membranaceous, diaphanous veiny wing surrounding them, in a double row within each cell^c. Native of the West-Indies, Carthage, Guiana.

24. This is a middle-sized tree, with ascending branches. Leaflets ovate, acuminate, quite entire, smooth. Flowers large, in upright, terminating racemes. Calyx tubular, five-cornered, obscurely five-toothed, permanent. Corolla of a red colour, ringent; tube thick, equal, short; upper lip concave, bifid, lower trifid; all the segments ovate, curled, almost equal. Filaments five, unequal, placed on the middle of the tube, with two oblong pendulous, equal anthers on each. Germ bluntly four-cornered; style subulate, longer than the stamens; stigma spathulate. Siliques two feet long, curved, attenuated to both ends. Seeds oblong, compressed, two-lobed, with a thin membranous wing on each side. Native of Cochinchina, near rivers^d.

Loureiro has another species, under the name of *B. longissima*, which he thus describes.—It is a small tree, nine feet in height, with spreading branches. Leaves ovate-lanceolate, quite entire, smooth. Flowers large, terminating. Calyx none. Corolla white, funnel-shaped; tube very long and slender; border wide, the segments ovate, curved, almost equal, but the upper one shortest. Filaments inserted into the mouth of the tube: anthers oblong, two-celled, two on each filament. Style almost equal to the corolla; stigma spathulate. Siliques long, compressed,

fed, hooked, two-valved, four-celled. Seeds very many, compressed, oblong, two-lobed, in several rows. Native of Cochinchina, by rivers.

This is not the *longissima* of Jacquin (n. 22.). Loureiro observes, that it agrees with the *Lignum equinum* of Rumphius (vol. 3. p. 73. t. 46.), or *B. spathacea* of the younger Linneus, in the length and form of the corolla, but not in the spathaceous calyx, and pinnate leaves: but Retzius has well observed, that Rumphius's plant is not the same with Linneus's. It is indeed very different from the Nür-Pongelion of the Hortus Malabaricus.

Loureiro also remarks, that the three Asiatic species which he has described can by no means be adapted to the generic character formed by Linneus from the American species, except in the fruit; and even that is not always two-celled in the Asiatic species.

25. The strong smell of Garlick betrays this plant from afar; hence its trivial title, and its name in French *Liane à l'Ail*^e. It is a native of the West-Indian islands, and the forests of Cayenne and Guiana.

26. This species has the appearance of an *Echites*. The branches are covered with an ash-coloured bark, are alternately compressed above, and dilated under the leaves. These are opposite, two inches long, very smooth, shining, marked with many nerves but without veins, a little reflex at the edge, ending in a short point, and quite entire. Petiole very short. Raceme upright, an inch long, containing five or six flowers. Calyx bifid, with oblong, smooth segments. Corolla large, smooth, two inches in diameter. Native of Rio Janeiro^f.

27. Branches alternately compressed above, covered with an ash-coloured bark and smooth. Leaves four inches long or more: leaflets an inch and half in length, the inner ones smaller, acuminate but not much, blunt, veined, somewhat coriaceous, smooth on both sides, shining. Common petiole channelled: partial very short, edged with the decurrent base of the leaf. Raceme terminating. Peduncle jointed, compressed, broader at top: pedicels filiform, very short. Calyx bell-shaped, with the edge almost entire, and broader than the tube of the corolla. Native of Madagascar^g.]

PROPAGATION AND CULTURE.

These are exotic trees or shrubs, and may be raised from seeds sown on a moderate hot-bed in the spring. They should be soon inured to the open air, to prevent their being drawn up weak. They may also be increased by cuttings, and some of them by layers.

1. The seeds of the Common Catalpa tree are annually brought over from South Carolina. The seedling plants should be placed abroad the beginning of June in a sheltered situation till autumn, when they should be placed under a common frame to screen them from frost in winter; but in mild weather they must be fully exposed to the open air. The following spring these may be taken out of the pots, and planted in a nursery-bed, in a warm situation, where they may remain two years, to get strength, and afterwards planted in the places where they are designed to remain. These plants, when young, are frequently injured by frost, for they shoot pretty late in the autumn, so that the early frosts often kill the extremity of their branches; but as the plants advance in strength, they become more hardy, and are seldom injured but in very severe winters. It is late in the spring before these trees come out, which has often caused persons to believe they were dead; and some have been so imprudent, as to cut them down on that supposition, before the tree was well known.

It may also be propagated by cuttings, which should be planted in pots in the spring before the trees begin to push out their shoots, and plunged into a moderate hot-bed, observing to shade them from the sun in the middle of the day, and refresh

^y Jacquin.

^z Browne.
^c Gærtner.

^a Jacquin.
^d Loureiro.

^b Aublet.

^e Aublet.

^f Vahl.

^g Ibid.

them occasionally with water, which must not be given to them in too great plenty. In about six weeks these will have taken root, and made shoots above, so should have plenty of air admitted to them constantly, and hardened by degrees to bear the open air, into which they should be removed, and treated in the same manner as the seedling plants, and the spring following planted out into a nursery-bed, as is before directed.

The Catalpa delights in a rich moist soil, where it will make great progress, and in a few years produce flowers.

3. The plants of this sort, when young, are impatient of cold, so must be sheltered in the winter until they have obtained strength, when they should be planted against a warm wall, and in winter protected from frost by coverings of mats, and the ground about their roots covered with tan. With this management I have had them flower very well in the Chelsea garden.

4, 5. Will live in the open air, if they be planted against a wall that has a south aspect, and sheltered in very severe frost.

6, 7, 8, 10, 11, 12. Are tender, and will not thrive in this country, unless they be kept in the bark stove.

9. When this sort is planted in the full ground against a wall, the roots should be covered in the autumn with some old tanners bark to keep out the frost in winter; and in very severe frost, the branches should be covered with mats, to prevent their being destroyed. With this management I have had the plants flower well in Chelsea garden.

12. Will take root from cuttings planted during summer in pots, and plunged into a bark bed. It has flowered several years in the Chelsea garden, in August.

14. This sort is so hardy, as to thrive in the open air; but as the branches trail, they must be supported, it is therefore usually planted against walls or buildings, where, if the branches have room, it will spread to a great distance, and rise very high; it is therefore very proper for covering of buildings, which are unsightly. It may also be trained up against the stems of trees, where it may be so managed, as to make a fine appearance when in flower.

It is propagated by seeds, but the young plants so raised do not flower in less than seven or eight years; therefore those which are propagated by cuttings or layers from flowering plants, are most esteemed, because they will flower in two or three years after planting. The old plants also send out many suckers from the roots, which may be taken off, and transplanted where they are to remain, for these plants will not transplant safely if they are old.

The necessary culture for these plants after they are established, is to cut away all the small weak shoots of the former year in winter, and shorten the strong ones to about two feet long, that young shoots may be obtained for flowering the following summer; these plants are of long duration. There are some in gardens which have been planted more than sixty years, which are now very vigorous, and produce flowers in plenty every season.

15. Is propagated by seeds sown on a hot-bed, and the plants afterward transplanted into separate small pots, filled with light fresh earth, and plunged into a fresh hot-bed; in the autumn they must be removed into the bark-stove, and during the winter should have but little water, but in summer they must be frequently refreshed with it, but not given in too great plenty. The plants should constantly remain in the bark-stove, and be treated in the same manner as other tender plants from hot countries. The third year from seed they will flower, but they do not produce seeds in England.

The other sorts have not yet been cultivated in England.

BIBAL. See *Strelitzia*.

BILANUS. See *Cratæva*.

BILBERRY. See *Vaccinium*.

BILIMBI. See *Averrhoa*.]

BIND-WEED. See *Convolvulus*.

BINDWITH. See *Clematis*.

BIPINNULA. See *Arethusa*.]

BIRCH-TREE. See *Betula*.

BIRD CHERRY. See *Prunus Padus*.

BIRD PEPPER. See *Capficum*.

BIRD'S-EYE. See *Adonis*.

——-FOOT. See *Ornithopus*.

——-TREFOIL. See *Lotus*.

BIRD'S-TONGUE. See *Senecio*.

BIRTHWORT. See *Aristolochia*.]

BISCUTELLA. (Dimin. from *bis* and *scutum*; the fruit resembling a double shield.) Buckler-Mustard, or Bastard Mithridate Mustard.

Lin. gen. 808. Reich. 872. Schreb. 1084. Juss.

239. Gært. t. 141. Thlaspidium Tournef. 101.

Class. 15. 1. Tetradymania Siliculosa.

Nat. order of *Siliculosæ*, *Cruciformes* or *Cruciferae*.

GENERIC CHARACTER.

CAL. Perianth four-leaved; leaflets ovate, acuminate, gibbous at the base, coloured, deciduous.

COR. Four-petalled, cruciform, Petals oblong, obtuse, spreading.

STAM. Filaments six, the length of the tube of the corolla; two opposite shorter. Anthers simple.

PIST. Germ compressed, orbiculate, emarginate. Style simple, permanent. Stigma obtuse.

PER. Silicle erect, compressed flat, semibifid with roundish lobes, two-celled: partition lanceolate, ending in a rigid style; cells two-valved, affixed to the partition, on its straight margin.

SEEDS solitary, roundish, compressed, in the middle of the cell.

OBS. The two outer leaflets of the calyx in some species have a tubular-concave melliferous prominent base.

ESSENTIAL CHARACTER.

Silicle compressed flat, rounded above and below two-lobed. Cal. leaflets gibbous at the base.

SPECIES.

1. *Biscutella auriculata*. Ear-podded Buckler-Mustard. Lin. spec. 911. syst. 592. Reich. 3. 240. hort. cliff. 329. 1. upf. 185. Gært. fruct. 2. 278.

Thlaspi. Baub. pin. 107. n. 3. prodr. 49. n. 8.

Raii hist. 837. n. 4.

Leucium montanum fl. pedato. Col. ecphr. 2. 59.

t. 61.

Iondraba. Barr. ic. 230.

Calyxes gibbous on each side with the nectary, silicles running into the style.

2. *Biscutella apula*. Spear-leaved Buckler-Mustard.

Lin. syst. 592. Reich. 3. 240. mant. 254. D'Affo.

aragon. n. 603. Gært. fruct. 2. 279.

B. didyma. Lin. spec. 911. hort. cliff. 329. 2. upf.

185.

Thlaspi. Raii hist. 837. n. 3.—clypeatum. Clus. hist. 2. 133.

Iondraba. Col. ecphr. 1. 283. t. 285. f. 1.

Silicles scabrous, leaves lanceolate sessile serrate.

[3. *Biscutella lyrata*.

Lin. syst. 592. Reich. 3. 240. mant. 254.

Thlaspi *biscutatum*, &c. Bocc. sic. 45. t. 23. Raii

hist. 837. n. 6.

Silicles scabrous, leaves lyrate.

4. *Biscutella coronopifolia*.

Lin. syst. 592. Reich. 3. 241. mant. 255. Allion.

pedem. n. 907.

Silicles smooth, leaves toothed rough with hairs.

5. *Biscutella lævigata*. Smooth Buckler-Mustard.

Lin. syst. 592. Reich. 3. 241. mant. 255. Jacq.

austr. 4. t. 339. Hall. helv. n. 501. D'Affo.

aragon. n. 602.

B. didyma. Scop. carn. n. 804.

Clypeola didyma. Crantz. austr. 20.

Leucium. Col. ecphr. 1. 283. t. 285. f. 2. Raii

hist. 836. n. 2.

Silicles smooth; leaves lanceolate serrate.

6. *Biscutella sempervirens*. Shrubby Buckler-Mustard.

Lin. syst. 592. Reich. 3. 241. mant. 255.

Thlaspi *biscutellatum*, &c. Barr. ic. t. 841. Bocc.

mus. 167. t. 122.

Silicles somewhat scabrous, leaves lanceolate tomentose.]

1. In a wild state this plant rises about a foot in height, but in a garden it generally grows near two feet high; dividing into several branches. At every joint there is one oblong entire leaf a little indented, those on the lower part of the stalk being broader and more blunt than those on the upper. The flowers are produced at the ends of the branches in loose panicles, and are of a pale yellow colour.

[Silicle transversely ovate, compressed, rugged with raised dots, two-lobed; lobes rounded, separate at bottom, uniting at top in the style, which is much longer than the filicle; these lobes are one-celled, close not gaping, but separating from the axis: there is properly no partition, but only the flattened style interposed between the doubled filicles. Seeds lens-shaped, ovate, with an inflex beak, smooth, ferruginous. Seed-lobes ovate, plano-convex, thin^a.

The nectareous gland is remarkably large, and consequently the calyx is bagged out very much at bottom, in this species^b.

Native of the south of France and Italy. It was cultivated here in 1683, by Mr. James Sutherland, and flowers in June and July^c.]

2. This sends out many oblong hairy leaves, which are slightly indented on their edges; from among these rises a hairy branching stalk two feet high, and at each joint is placed one oblong indented leaf, which half embraces the stalk at the base; each branch is terminated by a close spike of pale yellow flowers; with a shorter style than in the other sorts.

[The whole plant, stem and leaves are rough with scattered hairs. Stem upright a foot high, with two or three branches. Leaves lanceolate or oblong; the serratures very remote^d. Silicle only half the size of the foregoing, either wholly smooth, or rugged with raised dots. Lobes suborbiculate, not confluent with the style at top, seceding from the axis, valveless. The lobes of the filicle being close all round, except a hole in the inner margin, for the passage of the umbilical chord, the fruit in this genus is properly two-podded, or consists of two partial filicles^e.

Native of Italy. Cultivated in 1759, by Mr. Miller. It flowers in June and July^f.

3. Root-leaves lyrate, resembling those of Cardamine, small and hairy. Stem branching, almost leafless, naked, hispid at the base. Pedicels extremely divaricate, capillary. Silicles small, rather less than those of the foregoing sort, somewhat rugged, orbiculate^g. Native of Spain and Sicily.

4. Root-leaves lanceolate, resembling those of Coronopus, deeply toothed to the very middle with three or four teeth on each side, rough on both surfaces with distinct hairs. Stem-leaves clasping, cordate-lanceolate, less toothed, few. Silicles altogether smooth^h.

According to Allioni, this is a lower plant than the second; and has leaves that are hispid and much shorter, deeply pinnatifid-toothed, generally with two teeth on each side. He thinks that it is not specifically different from the second; but a variety, proceeding from a dryness of soil; for it is found in extremely dry barren places, in Spain, Italy, and Germany.

Gouan is of opinion, that this and the second, third and fourth are one species. According to Linneus, all these, with the fifth, though originally descended from the same mother, and sisters of the second sort, may fairly be divided into four.

5. Root-leaves lanceolate, petioled, acuminate, remotely serrate with small sharp upright serratures, naked or a little rugged, with a rugged edge. Stem a foot high, almost all leafless, smooth, towards the top forming a branched corymb. Silicles smooth, the size of those in the first species. Columna's

^a Gartner.
^c Gärtn.

^b Linn.
^f Hort. kew.
^h Ibid.

^e Hort. kew.
^g Linn. mant.

^d Linn.

plant has the stem and leaves more hairy, and the stem leafyⁱ.

According to Jacquin, the stems are upright, round, smooth or hirsute, commonly simple at bottom and branched at top. Leaves oblong, attenuated at the base, blunt or sharpish, thickish, either quite entire or with few serratures, rough on both sides with white hairs, but sometimes scarce observably hairy: root-leaves many; stem-leaves smaller, sessile, and more entire. Flowers at first in a kind of umbel, but afterwards in a raceme. Leaflets of the calyx smooth, yellow, oblong, blunt, very concave, patulous. Petals twice as long as the calyx, yellow; as are also the filaments. Pistil green. Silicle very smooth, sometimes in the Alps three or four-winged. The whole plant is acrid. The root is perennial; but according to others it is annual. It is a native of Italy and Austria. Being found at very different heights on the mountains, it varies much in stature, from half a foot to a foot and half. In lower situations it flowers in April and May, in higher ones in July and August; in our gardens in June and July. It was introduced here in 1777, by Monf. Thouin^k; and flowers in June and July.

6. Stems suffruticose, a hand's breadth in height, prostrate, simple, the thickness of a goose-quill, leafy at top. Leaves crowded, with a thick nap like *Cheiranthus incanus*, tooth-serrate, with the edge bent back. The flowering-stem springing up among the leaves, simple and almost leafless itself. Raceme terminating, compound, not much prolonged. Silicles of the same size and form as in the second species. This is the most distinct of any from the rest^l.

Native of Spain. Introduced in 1784, by Mess. Lee and Kennedy^m.]

PROPAGATION AND CULTURE.

They are all annual plants, except the last, which perish soon after they have perfected their seeds. These should be sown either in spring or autumn, upon a border of light earth, in an open situation, where they are to remain. Those which are sown in autumn will come up in about three weeks, and the plants will live through the winter without any protection, and flower earlier the following summer, whereby good seeds may always be obtained; whereas those which are sown in the spring, do, in bad seasons, decay before their seeds are ripe. The autumnal plants flower in June, and the spring plants in July, and their seeds ripen about six weeks after; if these are permitted to scatter, there will be plenty of young plants produced without any care.

They require no farther culture, but to keep them clean from weeds, and thin the plants where they are too close, leaving them eight or nine inches asunder. They are preserved in the gardens of those who are curious in botany, but they have no great beauty to recommend them.

BISERRULA. (So named from the fruit; *biserrato fructu*. Lin.)

Lin. gen. 893. Reich. 966. Schreb. 1209. Juss.

358. Gärtn. t. 154. Pelecinus. Tournef. 234.

Class. 17. 4. Diadelphia Decandria.

Nat. order of Papilionaceæ or Leguminosæ.

GENERIC CHARACTER.

CAL. Perianth one-leafed, tubular, erect, semiquinquefid; teeth subulate, equal, the two upper ones more remote.

COR. papilionaceous: banner larger, reflected on the sides, ascending, roundish: wings ovate-oblong, free, shorter than the banner: keel the length of the wings, obtuse, ascending.

STAM. Filaments diadelphous (simple and nine-cleft) ascending at their tips, inclosed within the keel. Anthers small.

PIST. Germ oblong, compressed. Style subulate, ascending. Stigma simple.

ⁱ Linn. mant.

^k Hort. kew.
^m Hort. kew.

^l Linn. mant.

B I X

PER. *Legume* large, linear, flat, two-celled: *partition* contrary to the valves.

SEEDS very many, kidney-form, compressed.

ESSENTIAL CHARACTER.

Legume two-celled, flat: *partition* contrary.

SPECIES.

1. *Biserrula Pelecinus*. *Bastard Hatchet-Vetch*.
Lin. spec. 1073. *Reich.* 3. 540. *hort. cliff.* 361.
Gärtn. fruct. 2. 340. *Riv. tetr.* 1. 101.
Astragalus. *Mor. hist.* 2. 107. *f.* 2. 1. 9. *f.* 6.
Securidaca. *Baub. pin.* 349. 3. *Clus. hist.* 2. 238.
Ger. emac. 1234. *f.* 6. *Park. theat.* 1089. *f.* 5.
Raii hist. 939. *n.* 16.
Lunaria radiata Robini. *Baub. hist.* 2. 348. *f.* 2.

DESCRIPTION, &c.

This is an annual plant, which grows naturally in Italy, Sicily, Spain, and the south of France. It sends out many angular stalks, which trail on the ground, subdivided into many branches, with long winged leaves, composed of many pairs of leaflets, terminated by an odd one; these are heart-shaped: toward the upper part of the branches come out the peduncles, which sustain several small purplish flowers.

[*Legume* oblong, serrate on both edges, with a longitudinal suture in the middle, four-valved: *partition* very narrow, simple. Seeds in each cell eight, round-kidney-shaped, smooth, yellowish. Seed-lobes semi-lunar. The legume is not simple but double, composed of two partial ones, placed side by side and coalescent^a. Cultivated here in 1640^b.]

PROPAGATION AND CULTURE.

It is propagated by seeds, which in this country should be sown in the autumn, on a bed of light earth, where the plants will come up in about three weeks, and will live in the open air very well. These should be sown where they are designed to remain, or transplanted very young; for when they are large, they will not bear removing. When the plants are come up, they will require no other care, but to keep them clean from weeds; and where they are too near, they should be thinned to about a foot distance from each other. They flower in June, and the seeds ripen in September.

The seeds of this plant may also be sown in the spring, and treated in the same manner as before directed; but these will not flower till the middle or end of July, so unless the autumn proves warm, they will not ripen seeds; for which reason I have directed their being sown in the autumn, as soon as they are ripe. Two or three of these plants may be allowed a place in gardens for the sake of variety, but they have not much beauty.

BISHOP'S-WEED. See *Ammi*.

BISTORTA. See *Polygonum*.

BITTER VETCH. See *Orob.*

BITTERWORT. See *Gentiana*.

BIXA. (*The Indian name used by Oviedo in his history of India, or Spanish America.*)

Lin. gen. 654. *Reich.* 710. *Schreb.* 887. *Juss.* 293. *Gärtn.* 1. 61.

Class. 13. 1. Polyandria Monogynia.

Nat. order of *Columniferae*. *Tiliaceae* Juss.

GENERIC CHARACTER.

CAL. *Perianth* five-toothed, very small, obtuse, flat, permanent.

COR. double: *outer* with petals five, oblong, equal, large, more rude—*inner*, with five petals like the outer, but thinner.

STAM. *Filaments* numerous, setaceous, shorter by half than the corolla. *Anth.* erect.

PIST. *Germ.* ovate. *Style* filiform, the length of the stamens. *Stigma* parallelly bifid, compressed.

PER. *Capsule* ovate-cordate, compressed, fenced with bristles, bivalve, gaping at the angles, one-celled, with an inner bivalve membrane.

SEEDS numerous, turbinate, with a truncated navel, berried.

REC. linear, longitudinal, fastened to the middle of the valves.

^a Gärtn.

^b Hort. kew.

B I X

ESSENTIAL CHARACTER.

COR. ten-petalled. CAL. five-toothed. CAPS. hispid, bivalve.

SPECIES.

1. *Bixa Orellana*. *Arnotto* or *Anotta*.
Lin. spec. 730. *Reich.* 2. 580. *hort. cliff.* 211.
mat. med. 135. *Gärtn. fruct.* 1. 292. *Brown.* *jam.* 254.
Bixa Oviedi. *L.* 8. *c.* 6. *Baub. hist.* 1. 440. *Clus.* *exot.* 74.
Orleana f. Orellana. *Pluk. phyt.* 1. 209. *f.* 4. *Comm.* *hort.* 1. 65. *t.* 33.
Rocu. *Merian. surin.* 1. 44.
Urucu. *Piso* 133. *Sloan. jam.* 2. 52. *t.* 181. *f.* 1.
Pigmentaria. *Rumph. amb.* 2. 79. *t.* 19.
Arbor mexiocana, fructu castaneæ, coccifera. *Baub.* *pin.* 419. *Raii hist.* 1771.
Achiotl. *Hernandez mexic.* 74.

DESCRIPTION, &c.

This shrub rises with an upright stem to the height of eight or ten feet, sending out many branches at the top; forming a regular head. These are garnished with heart-shaped leaves ending in a point, which have long foot-stalks, and come out without any order. The flowers are produced in loose panicles at the end of the branches, of a pale Peach colour, having large petals.

[*Capsule* ovate-cordate, turgidly lenticular, hispid all round with bristle-shaped prickles: the valves are clothed within with their proper membrane, and in the middle they have a prominent longitudinal groove, to which the seeds are fastened; these are about twelve to each valve, turbinate, with a depressed streak on one side, and a brown tubercle at the top, they are scarlet.

Native both of the East and West Indies. The capsules in the latter are ovate-acuminate, smaller, and the prickles not so close. Seeds subtrigonal, like grape-stones, with so deep a furrow as to appear two-lobed. Seed-lobes less flexuose, and the whole embryo relatively smaller^a. It was introduced here in 1690, by Mr. Bentick^b.

Linneus has adopted the South American vernacular name of *Bixa* from Oviedo; in Holland, Denmark, and other northern countries it is known also by that name. In Holland it is likewise called *Orleana*. In German, *Orleansbaum*, *Bischofsmutze*, *Anotta*. In England we have taken the latter of these names, spelling it variously, *Arnotto*, *Arnotta*, *Anotta*, *Anato*, *Anoto*, *Annoto*. The French have adopted the Brazilian name *Urucu*, or *Urucu*, spelling it *Roucouyer*, *Roucou*, or *Rocurier des Indes*. The Portuguese have also the same appellation *Urucu*, or *Urucueira*. In Spanish it is *Anato* or *Atolle*. In the Mexican language *Achiotl*. Scaliger calls it *Arbor finium regundorum*, because the Mexicans made plans, and marked the boundaries of their lands on tablets, with the colour prepared from the berries. Tournefort named it *Mitella*, from the resemblance of the capsule, when open, to a mitre.

The drug called *Terra Orellana* or *Orleana*, *Roucou* or *Arnotto* is thus prepared from the red pulp which covers the seeds. The contents of the fruit are taken out, and thrown into a wooden vessel, where as much hot water is poured upon them as is necessary to suspend the red powder or pulp; and this is gradually washed off with the assistance of the hand, or of a spatula or spoon. When the seeds appear quite naked they are taken out, and the wash is left to settle; after which the water is gently poured away, and the sediment put into shallow vessels, to be dried by degrees in the shade. After acquiring a due consistence, it is made into balls or cakes, and set to dry in an airy place, until it is perfectly firm.

Some persons first pound the contents of the fruit with wooden pestles; then covering them with water, leave them to steep six days. This liquor being passed through a coarse sieve, and afterwards through three finer ones, it is again put into the

^a Gärtn.

^b Hort. kew.

vat or wooden vessel, and left to ferment a week. It is then boiled until it is pretty thick, and when cool is spread out to dry, and then made up into balls, which are usually wrapped up in leaves. Arnotto of a good quality is of the colour of fire, bright within, soft to the touch, and dissolves entirely in water.

It is reputed to be cooling and cordial, and is much used by the Spaniards in their chocolate and soups, both to heighten the flavour and to give them an agreeable colour.

It is esteemed good in bloody fluxes and disorders of the kidneys. Mixed with lemon-juice and a gum, it makes the crimson paint, with which the Indians adorn their persons. It was formerly used by dyers to form the colour called *Aurora*; but at present it is not held in such estimation as a dye, though it still maintains its ground with painters^c.

Arnotto is well known to be the drug which is used for dying cheese in Gloucestershire, under the name of Cheese-colouring. It is used in Holland for colouring their butter.

The bark makes good ropes for the common plantation uses in the West-Indies: and pieces of the wood are used by the Indians to procure fire by friction.

PROPAGATION AND CULTURE.

This plant is propagated by seeds, may be cultivated with great ease, and is planted in many parts of Jamaica, Barbadoes, Cayenne, &c. in rich soils and shady situations, shooting luxuriantly near rivulets.]

Here also it is propagated by seeds which are annually brought from the West-Indies in plenty. These should be sown in a small pot, filled with light rich earth, and plunged into a hot-bed of tanners-bark; where, if the bed is of a proper temperature of heat, the plants will appear in about a month after: when these are about an inch high, they should be shaken out of the pot and carefully separated, so as not to tear off their tender roots, and each planted in a small pot filled with some rich light earth, and plunged into a fresh hot-bed of tanners-bark, observing to shade them every day until they have taken new root; after which they must be treated as other tender plants from the same country, by admitting fresh air to them in proportion to the warmth of the season; and when the heat of the tan declines, it should be turned up to the bottom, and, if necessary, some fresh tan added to renew the heat. The plants must be refreshed three times a week with water in summer, but they must not have it in great quantities, for their roots often rot with much wet. If the plants are raised early in the spring, and properly managed, they will be a foot and a half high by the autumn, when they should be removed into the bark-stove, and plunged into the tan-bed. During the winter, they must have but little water, and while the plants are young, they must have a good share of warmth, otherwise they are very subject to cast their leaves, and frequently lose their tops, which renders them unfitly. They must be constantly kept in the bark-stove, for those plants which have been placed in a dry stove, have never made much progress. I have had many of these plants seven or eight feet high, with strong stems and large heads, but have only had one produce flowers; nor have I heard of its flowering in any of the gardens in Europe, for in the Dutch gardens they have no plants of any size.

[BLACKBURNIA. (So named by Forster, in honour of John Blackburne, Esq. and his daughter Anna, of Orford in Lancashire.)

Lin. gen. Schreb. n. 199. Forster gen. 6.

Class. 4. 1. Tetrandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth very short, four-toothed, inferior: teeth short, acute, horizontal.

COR. Petals four, elliptic.

^c Browne and Long's Jamaica.

STAM. Filaments four, subulate, rather shorter than the petals. Anthers heart-shaped, erect.

PIST. Germ conic. Style filiform, erect, length of the stamens. Stigma simple.

PER. Berry?

SEED single.

ESSENTIAL CHARACTER.

Cal. four-toothed. Pet. four, elliptic. Anth. heart-shaped. Germ conic. Stigma simple. Per. Berry, with a single seed.

SPECIES.

1. Blackburnia pinnata.

Forst. gen. 6. t. 6. drawings t. 25. fl. austral. n. 53.

Ptelea pinnata. Lin. suppl. 126.

DESCRIPTION, &c.

Leaves alternate, abruptly pinnate, with two or three pairs of leaflets, which are opposite, oblique, ovate, quite entire, and very smooth. Panicles axillary, small.

It is in habit not unlike *Ptelea trifoliata*, and whether it ought to be separated from that genus cannot be determined till we are better acquainted with the fruit.

Native of Norfolk island^a. Found there in 1774.

BLACKSTONIA. See *Chlora*.]

BLADDER-NUT. See *Staphylea*.

[BLADDER-SENA. See *Colutea*.

BLADHIA. (So named by Thunberg, from Peter John Bladh, a Swede; supercargo to the East-India Company, and resident at Canton.)

Lin. gen. Schreb. n. 370. Thunberg. nov. gen. 6. fl. jap. 7.

Class. 5. 1. Pentandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth one-leaved, very short, permanent, five-parted: parts ovate, concave, spreading, torn-subferrate.

COR. one-petalled, wheel-shaped, five-parted: parts ovate, obtuse, spreading.

STAM. Filaments five, very short. Anthers heart-shaped, acute, converging into a cone, shorter than the corolla.

PIST. Germ superior. Style filiform, longer than the corolla. Stigma simple, acute.

PER. Berry globose, crowned by the permanent style, one-celled.

SEED single, globose, involved in a membrane.

ESSENTIAL CHARACTER.

Cor. wheel-shaped, deciduous. Berry containing one arilled seed.

SPECIES.

1. Bladhia japonica.

Lin. syst. 236. Thunb. jap. 95. t. 18. Kämpf. amæn. 5. 776. (Quackitz.)

Leaves serrate smooth.

2. Bladhia villosa.

Lin. syst. 237. Thunb. jap. 96. t. 19.

Leaves serrate villose.

3. Bladhia crispa.

Lin. syst. 237. Thunb. jap. 97. Kämpf. amæn. 5. 776. 2. ic. select. t. 7.

Leaves oblong curled smooth.

DESCRIPTIONS, &c.

1. Root perennial, creeping with small fibres. Stem shrubby, flexuose, erect, very thinly branched, from four inches to a foot high. Leaves frequent towards the top, opposite, petioled, ovate, acute, spreading, an inch long, the upper ones a little larger. Petiole linear, a line long. Flowers axillary, umbel-racemed, nodding. Peduncle streaked, smooth, erect, two inches long. Pedicels round, red, smooth, nodding. Corolla white, sweet-smelling.

2. Stem filiform, almost erect, tomentose, a finger's length. Leaves opposite, petioled, ovate, acute. Petioles half the length of the leaves. Flowers lateral, peduncled. Peduncles capillary, tomentose, with few flowers. It is much smaller than the foregoing, and entirely villose.

^a Linn. suppl.

3. Stem

B L A

3. Stem round, smooth, simple, upright, a span or more in height. Leaves alternate, petioled, very oblong, very finely curled, paler underneath, nerved, upright, the upper ones longer, a span in length. Flowers lateral, panicled. Berry red, the size of a pea^a.

Thunberg has another species among his obscure plants^b, which has ferrate, smooth, even leaves; opposite and aggregate on the top of the stalk, on short petioles, ovate, acuminate, an inch and half in length. Stem shrubby, low, jointed, simple. Berry red, the size of a small pea.

These are all natives of Japan.]

[BLÆRIA. (From Patrick Blair, M. D. He practised physic at Boston in Lincolnshire; and was author of *Miscellaneous Observations*. 1718. 8°.—*Botanick Essays*. 1720. 8°.—*Pharmacobotanologia, or a dissertation on the British indigenous and garden plants of the new London Dispensatory, in 7 decads*. 1723. 8°.—*Incomplete, extending no farther than the letter H*.—Some papers in the *Philosophical Transactions*.)

Lin. gen. n. 139. Reich. 145. Schreb. 183. Juss. 160.

Class. 4. 1. Tetrandria Monogynia.

Nat. order of *Bicornes*.—*Ericæ* Juss.

GENERIC CHARACTER.

CAL. Perianth four-parted: leaflets linear, erect, a little shorter than the corolla, permanent.

COR. monopetalous, campanulate: tube cylindric, the length of the calyx, pervious: border small, four-cleft; divisions ovate, reflex.

STAM. Filaments four, setaceous, the length of the tube, inserted into the receptacle. Anthers oblong, compressed, erect, obtuse, emarginate.

PIST. Germ four-cornered, short. Style setaceous, much longer than the corolla. Stigma obtuse.

PER. Capsule obtuse, quadrangular, four-celled, gaping at the angles.

SEEDS some roundish.

OBS. The anthers indeed are emarginate, but by no means horned, as in *Erica*, which is allied to this.

In *B. articulata* the corolla is cylindric; in *B. pusilla* it is funnel-form. Reich.

ESSENTIAL CHARACTER.

Cal. four-parted. Cor. four-cleft. Stam. inserted into the receptacle. Caps. four-celled, many-seeded.

SPECIES.

1. *Blæria ericoides*. Heath-leaved *Blæria*.

Lin. spec. 162. Reich. 316. mant. 331. hort. cliff. 49. Pet. gaz. t. 2. f. 10.

Anthers awnless standing out; calyxes four-leaved; bractes the length of the calyx; leaves in fours oblong-acrosc hairy imbricate.

2. *Blæria ciliaris*. Ciliated *Blæria*.

Lin. syst. 154. suppl. 122.

Flowers in a head, calyxes ciliate.

3. *Blæria articulata*. Jointed-leaved *Blæria*.

Lin. syst. 154. Reich. 317. mant. 198.

Penæa Sarcocolla. Berg. cap. 25.

Stamens protruded two-parted, corollas cylindric.

4. *Blæria purpurea*. Purple-flowered *Blæria*.

Lin. syst. 154. suppl. 122.

Stamens included two-parted, corollas oblong straight, flowers terminating aggregate, peduncles erect.

5. *Blæria pusilla*. Dwarf *Blæria*.

Lin. syst. 154. Reich. 317. mant. 331.

Flowers scattered, corollas funnel-form.

6. *Blæria muscosa*. Moss-leaved *Blæria*.

Ait. hort. kew. 1. 150.

Anthers awnless almost standing out, calyxes one-leaved hairy, corollas bell-shaped hairy in the upper part, flowers axillary, stigmas peltate.

DESCRIPTIONS, &c.

1. This has the stature of common Heath. Leaves in fours, ovate-oblong, gibbous, hairy-scabrous, pressed to the stem, the length of the internodes. Flowers terminating, white with a tinge of purple.

^a Thunberg.

^b Japon. p. 350.

B L A

Corollas tubulous, erect. Anthers two-parted, scabrous. Style capillary, longer than the anthers^a.

Introduced here in 1774, by Mr. Fr. Masson^b.

2. This resembles the foregoing; but the stamens are included, and it is readily known by its white calyxes, most distinctly ciliate^c.

3. This is a distorted shrub, the stature of common Heath. Leaves in fours, ovate, rugged, the length of the internodes, pressed to the branches, whence they appear as if jointed. Heads of flowers terminating, with white-villose calyxes. Corollas flesh-coloured. Anthers very narrow, black. It differs from the first, which has bell-shaped corollas, in having equal stamens, and leaves more imbricated. The fifth has smooth calyxes, and funnel-shaped corollas^d.

4. Is like the third; but in that the heads are nodding^e.

5. This has the stature of small Heath. Branches pubescent. Leaves in fours, linear, rugged, petioled, scored underneath with a line. Flowers minute, scattered, shorter than the leaves. Cautiously to be distinguished from the Heaths^f.

6. Found at the Cape of Good Hope by Mr. Francis Masson, and introduced in 1774. It flowers from June to August^g.

PROPAGATION AND CULTURE.

These are all shrubs, inhabitants of the Cape of Good Hope; require the same shelter and treatment with other Cape plants in the dry stove; and may be increased by cuttings, like the *Ericas* or *Heaths*, which they much resemble.]

[BLAIRIA. See *Verbena*.

BLAKEA. (So named by Dr. Patrick Browne, from Mr. Martin Blake of Antigua, a great promoter of useful knowledge, and a patron of the Dr.'s Natural History of Jamaica.)

Lin. gen. 593. Reich. 647. Schreb. 810. Brown. t. 35. Juss. 328.

Class. 11. 1. Dodecandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth of the fruit inferior, six-leaved; leaflets ovate, concave, expanding, the size of the flower.—Perianth of the flower superior; margin quite entire, hexangular, membranaceous.

COR. Petals six, ovate, expanding, equal.

STAM. Filaments twelve, subulate, erect. Anthers triangular, depressed, concatenated into a ring.

PIST. Germ inferior, obovate, crowned with the margin of the calyx. Style subulate, the length of the flower. Stigma acute.

PER. Capsule obovate, six-celled.

SEEDS very many.

ESSENTIAL CHARACTER.

Cal. inferior six-leaved; superior entire. Pet. six. Caps. six-celled, many-seeded.

SPECIES.

1. *Blakea trinervia*.

Lin. syst. 442. Reich. 2. 415. suppl. 246. Brown. jam. 323. t. 35. Swartz obs. 188.

Two-calycled; leaves nerveless, very finely striated acrosc.

2. *Blakea triplinervia*.

Lin. syst. 442. Reich. 2. 415. suppl. 246. Aubl. guian. 525. t. 210.

Uncalycled: leaves triple-nerved.

DESCRIPTIONS, &c.

1. Leaves oblong-ovate, petioled, quite entire, coriaceous, opposite; the three nerves underneath protuberant, blackish. Flowers opposite, solitary^b.

It grows generally to the height of ten or fourteen feet; but rises always higher when it remains a climber, in which state it continues sometimes. It is certainly one of the most beautiful productions of America. It supports itself for a time by the help of some neighbouring shrub or tree, but it grows gradually more robust, and at length acquires a pretty moderate stem, which divides into a thousand weakly declining branches, well supplied with

^a Linn. mant. ^b Hort. kew. ^c Linn. suppl. ^d Linn. mant.

^e Linn. suppl. ^f Ibid. ^g Hort. kew. ^h Linn. suppl.

beautiful rosy blossoms, on all sides. Native of Jamaica, in cool moist shady places¹.

2. This tree grows to the height of sixteen feet. Leaves opposite, petioled, six or seven inches long, ribbed underneath and having a nerve running along the edge. Peduncles three-flowered. Flowers the size of the Pomgranate, distinct, without any lower perianth. Upper perianth three or five-cleft, coriaceous, permanent; the receptacle streaked from the centre to the circumference. Petals about seven, ovate-oblong, inserted into the calyx, sessile, yellow without, white within, fleshy. Filaments twelve or fifteen, subcylindric, inserted into the calyx: anthers ovate, compressed, parallel, bent, flattish at the back, shorter than the corolla, truncate as it were, not concatenated, a continuation of the filaments, and not sitting on them as is usual. Style club-shaped, round, the length of the petals, bent down to the lower side of the corolla, out of the circle of the stamens: stigma capitate, streaked. Fruit a roundish, many-celled berry, crowned with the calyx, the disk concave, the ring notched, the centre umbilicate. Seeds minute. The fruit is of a yellow colour, and sapid.

Native of Surinam, where it was observed by Dalberg². Also of Guiana, where it flowers and fruits in may¹.

It has the habit of the genus, but the fruit is very different, as appears from the description.

PROPAGATION AND CULTURE.

These trees have not been yet cultivated in Europe. In the West-Indies the first species thrives best on the sides of ponds or rivulets; and when planted in gardens, where it makes a very elegant appearance, it ought to be supplied with some support whilst it continues young and weakly^m.

BLASIA. (From *Blasio Biagi*, an Italian monk.)

Lin. gen. n. 1199. Mich. gen. t. 7.

Cryptogamia Algæ,

1. *Blasia pusilla*.

Lin. spec. 1605. Hudf. angl. 519. Dill. musc. t. 31. f. 7. Fl. dan. t. 45.

The dwarf *Blasia* grows on the sides of ditches and brooks, and in moist shady places in a sandy soil, in many parts of Europe. With us, on Hounslow-heath; near Manchester and Halifax.]

BLATTARIA. See *Celsa*, *Lytbrum*, *Pentapetes*, *Verbascum*.

[BLATTARIÆ AFFINIS. See *Lyfimachia*.

BLECHNUM.

Lin. gen. n. 1175. Reich. 1292. Schreb. 1627.
Cryptogamia Filices, or Ferns.

GENERIC CHARACTER.

Fruetifications disposed in two lines approaching to the rib of the frond, and parallel.

SPECIES.

1. *Blechnum occidentale*. South American *Blechnum*.

Lin. spec. 1534. Reich. 4. 398. Pet. fil. t. 3. f. 9. Mor. 3. f. 14. t. 2. f. 16. Raii suppl. 66. Plum. fil. 62. amer. 20. t. 29. f. 3. Sloan. jam. 1. 87. t. 44. f. 2. Brown. jam. 91. 1.

Fronde pinnate; pinnae lanceolate opposite emarginate at the base.

2. *Blechnum orientale*. Chinese *Blechnum*.

Lin. spec. 1535. Reich. 4. 398. Forst. fl. austral. n. 422.

Fronde pinnate; pinnae linear alternate.

3. *Blechnum australe*. Cape *Blechnum*.

Lin. syst. 932. Reich. 4. 398. mant. 130.

Fronde pinnate; pinnae subsessile cordate-lanceolate quite entire, the lowest opposite.

4. *Blechnum virginicum*. Virginian *Blechnum*.

Lin. syst. 932. Reich. 4. 399. mant. 307.

Fronde pinnate; pinnae multifid.

5. *Blechnum japonicum*. Japanese *Blechnum*.

Lin. syst. 932. suppl. 445. Thunb. jap. 333. t. 35.

Fronde bipinnatifid; pinnules ovate, obtuse, serrated.

¹ Browne. ² Linn. suppl. ³ Aublet. ^m Browne.

6. *Blechnum radicans*. Rooted-leaved *Blechnum*.

Lin. syst. 932. Reich. 4. 399. mant. 307. Pluk. alm. 151. t. 179. f. 2.

Fronde bipinnate; pinnae lanceolate crenulated; the lines of fructification interrupted.

DESCRIPTIONS, &c.

1. This rises by a simple undivided stalk to the height of thirteen or eighteen inches. Leaves long and narrow^a. Pinnae many, with two small auricles at the base^b. Native of the West-India islands, and the continent of South America. Introduced here about 1777^c.

2. Frond three feet long. Stipe covered at the base before with large gray bristles; the anterior side of it scored longitudinally with three grooves. Leaflets linear-lanceolate, sessile, smooth, entire, streaked at an acute angle, the length of the finger^d. Found in China by Osbeck: also in the Society Isles.

3. Stipes a foot long, green. Fronds quite entire, rugged about the edge: the barren ones have broader pinnae, a little truncate at the base: the fertile fronds have lanceolate pinnae, heart-shaped at the base. There are only two lines of fructification, longitudinal, and distant both from the edge and rib^e.

Native of the Cape of Good Hope. Introduced here in 1774, by Mr. Francis Masson^f.

4. This has the stature of male Fern (*Polypodium Filix mas*). Frond smooth. Pinnae lanceolate, sessile, semipinnatifid, acute; divisions obtuse, quite entire^g.

Native of Virginia and Carolina. Cultivated in 1774, by John Fothergill, M. D.^h

5. Stipe convex at the back and smooth; before flat and streaked; the whole smooth, flexuose, erect. Pinnae oblong, acute, pinnatifid; the lower subpetioled, the upper sessile. It differs from the *orientale*, in having an erect frond, and blunt pinnules. Native of Japanⁱ.

6. Frond rooting. Pinnae sessile, slightly concurrent at the base, serrate with a very fine callus, acuminate, more veined beneath. The line of fructification is next the nerve, but interrupted as it were by long points^k.

Native of Virginia, and Madeira, where it was observed by Koenig. Introduced in 1779, by Mr. Francis Masson^l.

PROPAGATION AND CULTURE.

These are Ferns from warm or hot countries; the fourth alone will abide the open air in England. The first must be kept in the bark-stove: the rest require only the protection of the dry stove or conservatory. They are increased by parting the roots.]

BLIGHTS.

There is nothing so destructive to a fruit garden as blights; nor is there any thing in the business of gardening which requires more of our serious attention, than the endeavouring to prevent or guard against this great enemy of gardens.

1. Blights are often caused by a continued dry easterly wind for several days together, without the intervention of showers, or any morning dew, by which the perspiration in the tender blossoms is stopped, so that in a short time their colour is changed, and they wither and decay; and if it so happen, that there is a long continuance of the same weather, it equally affects the tender leaves; for their perspiring matter is hereby thickened and rendered glutinous, closely adhering to the surface of the leaves, and becomes a proper nutriment to those small insects, which are always found preying upon the leaves and tender branches of fruit-trees, whenever this blight happens; but it is not these insects which are the first cause of blights, as hath been imagined by some; though it must be allowed, that whenever these insects meet with such a proper

^a Browne. ^b Sloane. ^c Hort. kew. ^d Linn. ^e Ibid.
^f Hort. kew. ^g Ibid. ^h Ibid. ⁱ Thunberg. ^k Linn.
^l Hort. kew.

food, they multiply exceedingly, and are instrumental in promoting the distemper; so that many times, when the season proves favourable to them, and no proper care has been taken to prevent their mischief, it is surprising to think how whole walls of trees have suffered by this infection.

The best remedy for this distemper, that I have yet known succeed, is, gently to wash and sprinkle over the trees, from time to time, with common water (that is, such as has not had any thing steeped in it;) and the sooner this is performed (whenever we apprehend danger,) the better; and if the young and tender shoots seem to be much infected, wash them with a woollen cloth, so as to clear them, if possible, from all this glutinous matter, that their respiration and perspiration may not be obstructed; and if we place some broad flat pans or tubs of water near the trees, that the vapours exhaled from the water may be received by the trees, it will keep their tender parts in a ductile state, and greatly help them; but whenever this operation of washing the trees is performed, it should be early in the day, that the moisture may be exhaled before the cold of the night comes on; especially if the nights are frosty: nor should it be done when the sun shines very hot upon the wall, which would be subject to scorch up the tender blossoms.

2. Another cause of blights in the spring is, sharp hoary frosts, which are often succeeded by hot sunshine in the day-time; this is the most sudden and certain destroyer of fruits that is known; for the cold of the night starves the tender parts of the blossoms, and the sun rising hot upon the walls before the moisture is dried from the blossoms (which, being in small globules, collects the rays of the sun,) a scalding heat is thereby acquired, which scorches the tender flowers, and other parts of plants.

The method to prevent this mischief is to cover the walls carefully with mats, canvas or reeds, fastened so as not to be disturbed with the wind, and suffered to remain on during the night, but taken off every day, when the weather permits. Although this method is thought by some to be of little service; and may be really prejudicial, if the trees be too long covered, or incautiously exposed; yet when this covering is conducted properly, it frequently proves a great protection to fruit-trees; and if the covering be fixed near the upper part of the wall, and be fastened to pulleys, so as to be drawn up or let down occasionally, the operation will be easy, and the success will sufficiently repay the trouble.

3. But there is another sort of blight that sometimes happens later in the spring, namely in april or may, which is often very destructive to orchards, and open plantations, against which we know not any remedy. This is called a fire blast, which in a few hours has not only destroyed the fruit and leaves, but many times parts of trees, and sometimes entire trees have been killed by it.

This is supposed to be effected by volumes of transparent flying vapours, which among the many forms they revolve into, may sometimes approach so near to an hemisphere or hemicylinder, either in their upper or lower surfaces, as thereby to make the beams of the sun converge enough to scorch the plants or trees they fall upon, in proportion to the greater or less convergency of the sun's rays.

Against this enemy to fruits, there is no guard to our trees, nor any remedy to cure it: but as this more frequently happens in close plantations (where the stagnating vapours from the earth, and the plentiful perspirations from the trees, are pent in for want of a free air to dissipate and dispel them; which are often observed, in still weather, to ascend in so plentiful a manner, as to be seen by the naked eye, but especially with reflecting telescopes, so as to make a clear and distinct object become dim and tremulous,) than in those that are planted at a greater distance, or are not surrounded with hills or woods; this directs us, in the first planting of kitchen-gardens and orchards, &c. that we should allow a

greater distance between the trees, and to make choice of clear healthy situations, that the air may freely pass between the trees to dissipate those vapours before they are formed into such volumes, whereby the circumambient air will be clear, and less subject to injuries; as also the fruits which are produced in this clearer air, will be much better tasted than those that are surrounded with a thick rancid air; for as fruits are often in a respiring state, they consequently, by imbibing a part of these vapours, are rendered crude and ill-tasted, which is often the case with a great part of our fruits in England.

4. But that blights are frequently no more than an inward weakness or distemper in trees, will evidently appear, if we consider how often it happens, that trees against the same wall, exposed to the same aspect, and equally enjoying the advantages of sun and air, with every other circumstance which might render them equally healthy, yet very often are observed to differ greatly in their strength and vigour; and as often we observe the weak trees to be continually blighted, when the vigorous ones, in the same situation shall escape very well; which must, therefore, in a great measure, be ascribed to their healthy constitution. This weakness, therefore in trees, must proceed either from a want of a sufficient supply of nourishment to maintain them in perfect vigour, or from some ill qualities in the soil where they grow, or, perhaps, from some bad quality in the stock, or inbred distemper of the buds or cyons, which they had imbibed from their mother tree, or from mismanagement in the pruning, &c. all which are productive of distempers in trees, and of which they are with difficulty cured. Now, if this is occasioned by a weakness in the tree, we should endeavour to trace out the true cause; first, whether it has been occasioned by ill management in the pruning, which is too often the case: for how common is it to observe Peach-trees trained up to the full length of their branches every year, so as to be carried to the top of the wall in a few years after planting, when at the same time the shoots for bearing have been so weak, as scarcely to have strength to produce their flowers: but this being the utmost of their vigour, the blossoms fall off, and, many times, the branches decay, either the greatest part of their length, or quite down to the place where they were produced; and this, whenever it happens to be the case, is ascribed to a blight.

Others there are, who suffer their trees to grow just as they are naturally disposed, during the summer season, without stopping shoots, or disburdening their trees of luxuriant branches; by which means two, three, or four shoots shall exhaust the greatest part of the nourishment of the trees all the summer; which shoots, at the winter pruning, are entirely cut out; so that the strength of the tree was employed only in nourishing useless branches, while the fruit branches are thereby rendered so weak, as not to be able to preserve themselves. The remedies to this evil has been explained in the article of PRUNING Peach-trees, &c. under AMYGDALUS.

But if the weakness of the tree proceeds from an inbred distemper, it is the better way to remove the tree at first: and after renewing your earth, plant a new one in its place.

Or if your soil be a hot burning gravel or sand, in which your Peach-trees are planted, you will generally find this will be constantly their case, after their roots have got beyond the earth of your borders; for which reason, it is much more advisable to dig them up, and plant Grapes, Figs, Apricots, or any other sort of fruit, which may do well in such a soil, rather than to be annually disappointed of your hopes; for, by a variety of experiments, it has been found, that Apricots attract and imbibe moisture with a much greater force than Peaches and Nectarines; and consequently, are better able to attract the nutritive particles from the earth, than the others, which require to be planted in a generous soil, capable of affording them a sufficiency of nourishment

nishment without much difficulty: and it is in such places we often see Peaches do wonders; especially if assisted by art; but as for the Vine and Fig-tree, they perspire very slowly, and are very often in an imbibing state (so that a great part of that fine racy flavour, with which their fruits abound when planted in a dry soil, is probably owing to those refined aerial principles, which are collected when in a state of respiration;) and therefore, as these trees delight not in drawing much watery nourishment from the earth, so they will much better succeed in such a soil, than in one that is more generous: we should therefore always endeavour to suit the particular sorts of fruits to the nature of our soil, and not pretend to have all sorts of fruit good in the same.

BLITUM. (Βλίτον or Βλίπτον, from βλητόν, *abjiciendum*; fit only to be thrown away.)

Lin. gen. n. 14. Schreb. 18. Juss. 86.—Chenopodio-Morus. Boerb. Morocarpus. Rupp.

Engl. Blite. Fr. Bléte.

Class. 1. 2. Monandria Digynia.

Nat. order of Holoraceæ.—Atriplices Juss.

GENERIC CHARACTER.

CAL. *Perianth* three-parted, spreading, permanent: *divisions* ovate, equal, two more gaping than the other.

COR. none.

STAM. *Filament* setaceous, longer than the calyx, within the middle division, erect. *Anther* twin.

PIST. *Germ* ovate, acuminate. *Styles* two, erect, gaping, the length of the stamen. *Stigmas* simple.

PER. *Capsule* very thin (rather the crust of the seed) ovate, a little compressed, contained within the calyx now become a berry.

SEED single, globular, compressed, the size of the capsule.

ESSENTIAL CHARACTER.

Cal. trifid. *Pét.* none. *Seed* one, with a berried calyx.

SPECIES.

1. *Blitum capitatum.* *Berry-headed Strawberry Blite.*
Lin. spec. 6. Reich. 11. hort. upf. 3. vir. cliff. 1. hort. cliff. 28. 2. Hall. herb. n. 1571.

Morocarpus capitatus. Scop. carn. n. 3.

Atriplex. Baub. pin. 119. n. 7. prodr. 58. n. 2. Ger. emac. 326. n. 8. Park. 748. f. 1. Mor. hist. 2. 606. f. 5. t. 32. f. 11. Raii hist. 197. n. 5, 7.

Heads spiked terminal.

2. *Blitum virgatum.* *Slender-branched Strawberry Blite.*

Lin. spec. 7. Reich. 12. hort. upf. 3. cliff. 495. Gmel. sib. 3. 16. Mill. illustr. fig.

Atriplex. Baub. pin. 119. n. 6. Mor. t. 32. f. 10. Raii hist. 197. n. 6.

Heads scattered lateral.

3. *Blitum tataricum.*

Mill. dict. n. 3.

B. fragiferum maximum polyspermum. Amm. ruth. Leaves triangular sharply toothed, heads simple lateral.

- [4. *Blitum chenopodioides.*

Lin. syst. Reich. 12. mant. 170.

Heads in whorls juiceless.]

DESCRIPTIONS, &c.

1. This is an annual plant, with leaves somewhat like those of Spinach. The stalk rises about two feet and a half high, in gardens. The leaves on the lower part of it are of the same shape with the root-leaves, only smaller. The upper part of it has flowers coming out in small heads at every joint, and is terminated by a small cluster of the same. After the flowers are past, these little heads swell to the size of Wood Strawberries, and when ripe have the same appearance; being very succulent, and full of a purple juice, which stains the hands, [and was formerly much used in cookery, for colouring puddings, &c.]

In the wild plant, the stem grows upright and only about a foot high. Leaves triangular, frequently cut half way into three lobes, with a few

teeth, and standing on long petioles. Heads of flowers sessile, not only terminating, but along the whole upper part of the stem, from all the axils. Styles of the same colour with the calyx. Seed black when ripe.

It is commonly called Strawberry Blite, Strawberry Spinach, or Bloody Spinach; by some Berry-bearing Orach. Native of Switzerland, the Grisons, Austria, the Tyrol; Spain and Portugal. Cultivated by Parkinson, in 1633.]

2. This seldom grows more than one foot high, with smaller leaves than the first, but of the same shape. The flowers are produced from the axils, almost the whole length of the stalk. They are small, and collected into little heads, shaped like those of the first, but smaller, and not so deeply coloured. Native of the South of France, Spain, Italy, and Tartary.

3. This rises near three feet high; the leaves are triangular, ending in very acute points, as do also the indentures on the edges of the leaves. Flowers axillary in small heads. Fruits of the same shape and colour as those of the first, but smaller. This differs from that in the shape and indentures of the leaves; and in having leaves placed between the fruits the whole length of the stalk, which is not terminated by heads as the first, but has leaves above the heads.

The seeds were sent to Mr. Miller by Dr. Ammann, professor of Botany at Petersburg. [It is probably no more than a variety of the second sort.]

4. This is a very low plant, much resembling *Chenopodium*. Stem extremely simple, undivided, green. Leaves commonly opposite, lanceolate, subdeltoid, subpetioled, veinless, quite entire, having frequently an obscure angle on each side. Whorls two or three, also terminating heads, constantly green, juiceless. Calyx three-leaved, concave, converging, green. Styles two. Seed roundish, compressed, purplish-brown. Native of Tartary; now in Sweden.

This is omitted in the Systema, and is probably only a variety. Indeed the four sorts seem to be in reality but one.]

PROPAGATION AND CULTURE.

These are all of them annual plants, which will drop their seeds if permitted, and the plants will come up in plenty the following spring: or if the seeds of either of the sorts are sown in march or april, upon a bed of common earth, in an open situation, the plants will come up in a month or five weeks after; and if they are to remain in the place where they are sown, will require no other care but to keep them clear from weeds, and to thin them out, so as to leave them six or eight inches apart: and in july the plants will begin to show their berries, when they will make a pretty appearance. But many people transplant them into the borders of the flower-garden, and others plant them in pots, to have them ready for removing to court-yards, or to place upon low walls, among other annual flowers, to adorn those places.

When these plants are designed to be removed, they should be transplanted before they shoot up their flower-stems, for they will not bear transplanting well afterward: and if they are planted in pots, they will require to be duly watered in dry weather, otherwise the plants will stint, and not grow to any size; and, as the flower-stems advance, they should be supported by sticks; for if they are not, the branches will fall to the ground, when the berries are grown pretty large and weighty.

[**BLITUM.** See *Achyranthes*, *Amaranthus*, *Chenopodium*, and *Gunnera*.

BLOOD-FLOWER. See *Hemanthus*.

BLOODWORT or **Bloody Dock.** See *Rumex*.

BLUE-BOTTLE. See *Centaurea*.

BOBARTIA. See *Moræa* and *Rudbeckia*.

BOCCONIA. (From Paolo Boccone, M. D. a Sicilian, and Cistercian monk under the name of Sylvius; author of *Icones & descriptiones rariorum plantarum Siciliae, Melitae, Galliae & Italiae*; published by Morison. at Oxford, 1674. 4°.—*Museo di Pianta rare. Ven.* 1697. 4°. &c.)

Lin. gen. n. 591. *Reich.* 643. *Schreb.* 803. *Juss.* 236. *Plum.* 25. *Jacqu. amer.* 146. *Class.* 11. 1. *Dodécandria Monogynia.* *Nat. order of Rhoeadeae. Papaveraceae Juss.*

GENERIC CHARACTER.

CAL. *Perianth* two-leaved, ovate, obtuse, concave, caducous.

COR. none.

STAM. *Filaments* twelve, (six *Willich.*) very short. *Anthers* linear, very large, the length of the calyx.

PIST. *Germ* roundish, contracted both ways, large, pedicelled. *Style* one, bifid. *Stigmas* simple, reflex.

PER. subovate, attenuated to each end, compressed, one-celled, two-valved. *Valves* coriaceous, gaping from the base, the annular future continuing; crowned with the style.

SEED one, globular, the base involved in pulp, fixed to the bottom of the capsule.

OBS. *The capsule approaches in shape to a silicle, and in the permanent future terminated by the style.*

ESSENTIAL CHARACTER.

Cal. two-leaved. *Cor.* none. *Style* bifid. *Berry* dry, one-seeded.

SPECIES.

1. *Bocconia frutescens.* *Shrubby Bocconia, Tree Celandine, or Parrot-weed.*

Lin. spec. 634. *Reich.* 2. 412. *hort. cliff.* 202. *Jacqu. amer.* 146. *piet.* 72. *Willich obs. n.* 35. *Swartz obs.* 187. *Plum. gen.* 55. *Trew Ebret. t.* 4. *Brown. jam.* 244. *Sloan. jam.* 1. 196. *t.* 125. (*Chelidonium.*)

Cocoxihuitl. Hern. mex. 158.

DESCRIPTION, &c.

[This is a shrub rising to the height of ten or twelve feet, with a straight trunk, as large as a man's arm, covered with a white smooth bark, and branched towards the top^a. The trunk is hollow, filled with a pith like the Elder, abounding in a thick yellow juice, like Argemone and Celandine. Branches brittle, unequal, marked with scars from the fallen leaves. Leaves from six or seven inches to a foot in length, oblong, sinuate-laciniate, sub-ferrate, smooth, ash-coloured-tomentose beneath: petioles roundish, pubescent. Racemes terminating, panicled, a foot long, diffused, nodding. Peduncles one-flowered. Bractes under the flowers, small, lanceolate. Filaments ten, seldom more, longer than the leaflets of the calyx, hanging down, loose: anthers longer than the filaments. Germ ovate, compressed, glaucous^b. Jacquin says, that he has always reckoned from twelve to sixteen stamens in the flower when closed.

Native of Mexico and the West-India islands.

The juice is acrid, and is used in the West-Indies to take off tetters and warts^c.

It was cultivated in 1739, by Mr. Miller^d.]

PROPAGATION AND CULTURE.

It is propagated by seeds, which should be sown in a pot filled with light fresh earth, early in the spring, and plunged into a hot-bed of tanners-bark, observing to water it now and then gently, otherwise the seeds will not grow. When the plants are come up, they should be each transplanted into separate small pots filled with light sandy earth, and plunged into the hot-bed again, observing to shade the glasses in the heat of the day, until the plants have taken root. They must be also gently watered, but it should be done sparingly while they are young; for their stems being very tender, and full of juice, will rot, if they receive too much moisture; but after their stems are become woody, they will require it often, especially in hot weather; when also they should have a large share of air; by raising the glasses of the hot-bed. The plants,

in two months after transplanting, will have filled these small pots with their roots; therefore they should be shaken out of them, and planted into pots one size larger filled with light fresh earth, and plunged into the bark-stove, where they should have a good share of fresh air in warm weather. With this management I have raised these plants upwards of two feet high in one season, which were also very strong in their stems: they must be constantly kept in the stove, being too tender to thrive in this country in any other situation. This plant has flowered in the physic garden at Chelsea, and perfected seeds; but if it were not to flower, the singular beauty of the plant renders it worthy of a place in every curious collection of plants; and it seems the Indians were very fond of it, for Hernandez tells us, the Indian kings planted it in their gardens.—Cultivated 1739, by Mr. Miller.

BOEHMERIA. (So named by Jacquin, in honour of George Rudolph Boehmer, professor of anatomy and botany in the university of Wittenberg.)

Lin. gen. Schreb. n. 1421. *Jacqu. amer.* 246. *Swartz prodr.* 34. *Auct. D. D. Swartzio. Juss.* 403.

Class. 21. 4. *Monoechia Tetrandria.*

Nat. order of Scabridae.—Urticæ Juss.

GENERIC CHARACTER.

* *Male flowers* in the same plant with the females, either distinct or mixed.

CAL. *Perianth* one-leaved, four-parted to the base: parts lanceolate, acute, somewhat erect, coloured.

COR. none.

Nectary none.

STAM. *Filaments* four, longer than the calyx, subulate, upright. *Anthers* roundish, ovate.

PIST. a rudiment, or none.

* *Female Flowers.*

CAL. none, but numerous crowded ovate-acuminate scales.

COR. none.

PIST. *Germ* ovate, between each scale, compressed. *Style* filiform, erect, permanent. *Stigma* simple, pubescent.

PER. none.

SEED roundish, compressed, margined.

OBS. *This genus is as it were intermediate between Urtica and Parietaria. Sw.*

ESSENTIAL CHARACTER.

MALE. *Cal.* four-parted. *Cor.* none.

FEM. *Cal.* none, but crowded scales: between each, germ obovate; style single; seed single compressed.

SPECIES.

1. *Boehmeria caudata.*

Swartz prodr. 34. *Brown. jam.* 338. *n.* 11. (*Urtica.*) *Leaves* opposite ovate acute ferrate, racemes very long pendulous, flowers dioecous, stem suffruticose.

2. *Boehmeria littoralis.*

Swartz prodr. 34. *Leaves* opposite ovate-lanceolate ferrate, flowers conglomerate axillary monoecous mixed, stem herbaceous four-cornered.]

3. *Boehmeria cylindrica.*

Swartz prodr. 34. *Urtica cylindrica. Lin. spec.* 1396. *Reich.* 4. 131. *Mill. dict. n.* 6. *Gron. virg.* 187. 145. *Sloan. jam.* 1. 124. *t.* 82. *f.* 2. *Raii hist.* 3. 106. *Leaves* opposite ovate acuminate ferrate, racemes spiked axillary erect simple.

[4. *Boehmeria ramiflora.*

Swartz prodr. 34. *Jacqu. amer.* 246. *t.* 157. *Caturus ramiflora. Linn. mant.* 127. *syf.* *Reich.* 4. 329. *Brown. jam.* 337. *n.* 10. (*Urtica.*) *Leaves* alternate broad-lanceolate acuminate ferrate wrinkled, flowers aggregate axillary and lateral monoecous distinct, males three-flamened.

5. *Boehmeria hirta.*

Swartz prodr. 34. *Leaves* alternate ovate acute ferrate hirsute, flowers monoecous heaped axillary mixed.

DESCRIPTIONS, &c.

1. This is a shrub growing to the height of ten or twelve feet. The leaves are very broad. It is frequent

frequent in the cooler mountains of Liguanea, in Jamaica^a. Browne calls it the Nettle Tree.

2. Native of Hispaniola^b.]

3. This is an annual plant, with a lucid herbaceous stalk, dividing into several branches. The leaves have three longitudinal veins, and are placed on pretty long foot-stalks. Flowers in single catkins, which are not divided.

[Linneus observes, that the stipules are subulate and caducous.

Native of North America and Jamaica.

4. This is a shrub eight feet in height, with long branches. Leaves sickle-shaped, rugged, on very short petioles, hanging forward, placed alternately towards the ends of the twigs, very different in size, being two inches and a foot in length on the same twig. Male flowers small; yellowish, numerous, aggregate, on the leafless old branches. Females whitish on the younger twigs to the very ends^c.

Native of Jamaica, Martinico, and other islands of the West-Indies.

5. Native of Jamaica^c.

BOERHAVIA. (So named by Mons. Vaillant, in honour of the famous Boerhaave, professor of botany, chemistry and medicine, in the university of Leyden.)

Lin. gen. n. 9. Schreb. 13. Vaill. serm. Juss. 91.

Antanifophyllum. Vaill. aet. gall. 1722.

Class. I. 1. Monandria Monogynia.

Nat. order of Aggregatæ. Nyctagenes Juss.

GENERIC CHARACTER.

CAL. Perianth oblong, tubular and angular, placed beneath the corolla, with a contracted entire mouth, permanent.

COR. one-petalled, bell-shaped, upright, bluntly five-cleft, plaited, seated on the calyx.

NECTARY fleshy, subcylindric, with a toothletted mouth, surrounding the base of the germ.

STAM. Filaments one, two, or three, inserted into the edge of the nectary, between the toothlets, capillary, at bottom (within the calyx) more slender, upright, about the length of the corolla. Anthers twin, globular.

PIST. Germ roundish, pedicelled: the pedicel surrounded by the nectary. Style filiform, twisted, the height of the stamens. Stigma capitate.

PER. none. Calyx enlarged, closed, incrusts the seed.

SEED one, oblong, obtuse, angular.

OBS. It is nearly related to Mirabilis. The toothlets of the nectary are sometimes triangular and very small; sometimes obsolete.

ESSENTIAL CHARACTER.

Cal. none. **Cor.** one-petalled, bell-shaped, plaited. **Seed** one, naked, inferior. (Stam. one, two, or three.)

SPECIES.

1. Boerhavia erecta. Upright Hogweed.

Lin. spec. 4. syst. 52. Reich. 6. mant. 315. Gouan. hort. 2. Jacqu. hort. 1. t. 5, 6. Amm. herb. 241. Forst. escul. 41. florul. n. 4.

B. diandra. Burm. ind. 3. t. 1. f. 2.

B. solanifolia erecta glabra, flor. carnis laxius dispositis. Houtt. M. S. S. Mill. dict. n. 1. Stem erect smooth, flowers two-stamened.

2. Boerhavia diffusa. Spreading Hogweed.

Lin. spec. 4. syst. 52. Reich. 6. fl. zeyl. 10. hort. upf. 2. cliff. 17.

Valerianella. Sloan. cat. jam. 91. Raii suppl. 244. Herm. par. t. 237.

Talu-dama. Rheed. mal. 7. 105. t. 56.

Stem smooth and even, diffused; leaves ovate.

3. Boerhavia hirsuta.

Lin. syst. 52. Reich. 7. mant. 170. Jacqu. hort. t. 7.

B. diandra. Lin. spec. 4.

B. coccinea. Mill. dict. n. 4. — fol. procumbens & hirsuta, flor. coccineis compactis. Houtt. M. S. S. id.

Stem diffused pubescent, leaves ovate repand.

^a Browne.

^b Swartz.

^c Jacquin.

^d Swartz.

4. Boerhavia scandens. Climbing Hogweed.

Lin. syst. 52. spec. 4. Reich. 7. mant. 315. Gouan. hort. 2. Jacqu. hort. 1. t. 4. Forst. ægypt. 3. n. 5. Brown. jam. 123.

Solanum bacciferum, &c. Pluk. alm. 349. t. 226. f. 7.

Valerianella. Sloan. jam. 1. 210. Raii suppl. 244. Pluk. alm. 381. t. 113. f. 7.

Antanifophyllum scandens, alfinis majoris folio. Vaill. aet. 1722. p. 190.

B. alfinis fol. scandens, flor. pallide luteis majoribus in umbellæ modum dispositis, semine aspero. Houtt. M. S. S. Mill. dict. n. 3.

Stem erect, flowers two-stamened, leaves cordate acute.

[5. Boerhavia repens.

Lin. spec. 5. Reich. 8. Vaill. sex. 53.

β. Vaill. sex. 55.

Stem creeping.

6. Boerhavia angustifolia.

Lin. syst. 52. Reich. 8.

Leaves linear, acute.

7. Boerhavia tetrandra.

Forst. florul. n. 5. fig. M. S. t. 2.

Stem creeping; flowers four-stamened.]

DESCRIPTIONS, &c.

1. Stem two feet high. At each joint a pair of ovate pointed leaves, whitish underneath, on foot-stalks an inch in length. At these joints, which are far asunder, come out also small side branches, growing erect; they, as well as the stem, are terminated by loose panicles of flesh-coloured flowers, succeeded by oblong glutinous seeds.

[Stem with scattered atoms or very short hairs. Leaves waved, rugged about the edge. Corollas cylindric, white; segments acute, with toothlets interposed. Stamens two, (Fabricius says three)^a.]

This was discovered by Dr. Houstoun, at La Vera Cruz, in 1731. [Also in the Society isles.]

2. This sends out many diffused stalks, a foot and half or two feet long; with small roundish leaves at each joint. The flowers grow very scatteringly, upon long branching peduncles from the axils and at the ends of the branches; they are of a pale red colour, and are succeeded by seeds like those of the foregoing sort. [Linneus adds, that the leaves are whitish underneath; that the flowers are purple, have one stamen only, and a twin anther. Native of both Indies. Mr. Miller received the seeds from Jamaica by Dr. Houstoun: but it had been cultivated in the royal garden at Hampton Court in 1690^b.]

3. This sends out many trailing hairy stalks, which divide into smaller branches. At the axils come out naked peduncles, sustaining small close heads of scarlet flowers, which are very fugacious, seldom standing more than half a day before their petals drop: they are succeeded by short oblong seeds.

[According to Linneus, the stems are a foot high; and the flowers blood-red, with two stamens. It is distinct however from the first sort. Jacquin affirms, that he has always found one stamen only.]

This also was sent to Mr. Miller by Dr. Houstoun, from Jamaica, where it grows naturally.

4. This sends out several stalks from the root, which divide into many branches, and trail over whatever plants grow near them, rising to the height of five or six feet. Leaves by pairs at each joint, on long foot-stalks; of the colour and consistence of those of the greater Chickweed. The flowers grow in loose umbels at the extremities of the branches; they are yellow, and are succeeded by small, oblong, viscous seeds. [The stem is very stiff and smooth, with alternate branches: the leaves are smooth: the umbels six-flowered and green: the involucre five-leaved^c. Native of Jamaica, especially about Spanish Town. Cultivated in 1691, in the royal garden at Hampton Court^d.]

5. Native of Nubia, between Mocho and Tangos^e.

^a Linn. mant.

^b Hort. kew.

^c Linn.

^d Hort. kew.

^e Linn. spec.

B O L

6. The native place not known.

7. Native of the Society isles^f. Found in the island of Huaheine, may 18th, 1774^g.]

PROPAGATION AND CULTURE.

The first, second, and third sorts are annual plants, which decay in autumn; but the fourth sort is perennial: they are all tender plants, and will not thrive in the open air in England; they are propagated by seeds, which must be sown on a hot-bed in the spring, and when the plants are fit to be removed, they should be each planted in a small pot and plunged into the hot-bed, and treated as other tender exotic plants. When they are grown too tall to remain under a common frame, a plant or two of each sort should be placed in the stove; the others may be turned out of the pots, and planted in a warm border, where, if the season proves warm, they will perfect their seeds; these however are subject to fail in cold seasons, but those in the stove will always ripen their seeds in autumn; the fourth sort may be preserved in a warm stove two or three years.

BOG-RUSH. See *Schoenus*.

BOHADSCHIA. See *Peltaria*.

[BOLETUS. (*Βολιτης*, Gr. From its globular form.)

Characterized by Linneus as a horizontal Fungus, porous or punched with lobes underneath.

In the *Systema Naturæ* (edit. 14.) only twenty-one species are recited; eleven of which are parasitical and stemless; the rest are stipitated. Mr. Hudson has thirteen species, five of which are not in Linneus, but chiefly from Schæffer, who has a vast many other species not noticed by Linneus.

British species are figured by Bolton from t. 74 to 87. and in the Appendix, t. 138. and t. 159 to 170.

From *B. ignarius*, is prepared the *Amadou*, commonly used on the continent for tinder, to receive the spark struck from the steel by the flint; and the *Agaric* for stopping hæmorrhages in amputations, &c. For the manner of preparing it, see *Bomare dict. art. Agaric de Chêne*.]

[BOLTONIA. (So named in honour of Mr. James Bolton of Halifax, author of the history of British Ferns, and of Fungusses growing about Halifax.)

Lin. gen. Schreb. n. 1309. L'Herit. fert. p. 27.

Class. 19. 2. Syngenesia Polygamia Superflua.

Nat. order of Compositæ Oppositifoliæ.

GENERIC CHARACTER.

CAL. Common flattish, imbricate with somewhat equal, linear, sharp scales.

COR. Compound, radiate; corollæ hermaphrodite, tubular, numerous, in the hemispheric disk. Females several in the ray.

Proper of the hermaphrodite funnel-form, five-cleft. Female linear, entire.

STAM. Filaments five, capillary, very short. Anther cylindric, tubular.

PIST. in the hermaphrodites: Germ oblong. Style filiform; stigmas two.

In the females: Germ oblong. Style filiform, length nearly of the hermaphrodite. Stigmas two, revolute.

PER. none. Calyx unchanged.

SEED, in the hermaphrodites solitary, compressed, crowned with a five-toothed margin, (two-horned. *L'Herit.*) in the females extremely similar.

REC. naked, hemispheric.

ESSENTIAL CHARACTER.

Cal. common subimbricate, with linear scales. Cor. radiate. Germs compressed, vertical. Down obscurely toothed, two-horned. Recept. honey-combed.

SPECIES.

1. *Boltonia asteroides*. Starwort-flowered *Boltonia*. *L'Herit. fert. angl. t. 36.*
Matricaria asteroides. Lin. mant. 116.
Leaves quite entire.

^f Forster,

^g Id. fig. M. S.

B O M

2. *Boltonia glastifolia*. *Glaucous-leaved Boltonia*.

L'Herit. fert. angl. t. 35.

Lower leaves serrate.

DESCRIPTIONS, &c.

1. The plant is that of an *Aster* with the leaves of *Lactuca Scariola*. Stem upright, two feet high, stiff, even, scarcely angular, slightly streaked. Leaves alternate, remote, sessile, lanceolate, even, bent down at the base, rugged about the edge, vertical in the disk. Panicle thin, stiffish, with one-flowered peduncles. Disk of the corolla hemispherical, yellow: ray linear, entire, pale flesh-colour^a.

2. Both these are natives of America, flower late in the autumn, and were cultivated by Mr. Miller in 1758^b.]

BOMBAX.

Engl. Silk-Cotton. Fr. Fromager.

Lin. gen. n. 835. Reich. 901. Schreb. 1127.

Jacqu. amer. 191. Juss. 275. Xylon. Lin.

gen. edit. prior. Ceiba. Plum. 32.

Class. 16. 5. Monadelphia Polyandria.

Nat. order of Columniferae.—Malvaceæ Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, tubular-campanulate, permanent: mouth three or five-cleft, obtuse, erect.

COR. five-parted, spreading; segments oblong, concave.

STAM. Filaments five or many, subulate, the length of the corolla, connate at the base. Anthers oblong, bent in, incumbent.

PIST. Germ roundish. Style filiform, the length of the stamens. Stigma capitate, five-toothed.

PER. Capsule large, turbinate-oblong, five-celled, five-valved; valves woody.

SEEDS very many, round, woolly. Recept. columnar, five-cornered, forming the partitions.

OBS. *B. pentandrum* has a pentapetalous corolla, and five stamens. *Ceiba* & *heptaphyllum* have a funnel-form monopetalous five-cleft corolla and many stamens.

ESSENTIAL CHARACTER.

Cal. five-cleft. Stam. five or more. Caps. woody, five-celled, five-valved. Seeds woolly. Recept. five-cornered.

SPECIES.

1. *Bombax pentandrum*.

Lin. spec. 959. syst. 620. Reich. 3. 332. hort.

upf. 148. Jacqu. amer. 191. t. 176. f. 70.

piet. 94. t. 182. Brown. jam. 277.

Xylon caule inermi. Lin. hort. cliff. 175. fl. zeyl. n. 220.

Gossipium. Bauh. pin. 430. n. 4. Raii. hist. 1899. n. 6. Herm. lugdb. 294.

Lanifera arbor peregrina. Bauh. hist. 1. 347.

Eriophoros javana. Rumph. amb. 1. 194. t. 80.

Panja. Rheed. mal. 3. 59. t. 49, 50, 51.

Flowers five-stamened; leaves in sevens.

2. *Bombax Ceiba*.

Lin. spec. 959. syst. 621. Reich. 3. 333. Jacqu.

amer. 192. t. 176. f. 71. piet. 94. t. 261. f. 54.

X. caule aculeato. Lin. hort. cliff. 75. upf. 148. fl. zeyl. n. 221.

Ceiba viticis fol. caudice aculeato. Plum. gen. 42.

Gossipium. Bauh. pin. 430. n. 3. Sloan. jam. 2. 72.

Flowers many-stamened; leaves quinate.

[3. *Bombax heptaphyllum*,

Lin. spec. 960. syst. 621. Reich. 3. 333. Jacqu.

amer. 193. 3. piet. 95. t. 261. f. 55.

Goss. f. Xylon, &c. Pluk. alm. 172. t. 188. f. 4.

Moul-elavou. Rheed. mal. 3. 61. t. 52. Raii hist. 1899.

Flowers many-stamened; leaves sevenfold.]

4. *Bombax gossypinum*.

Lin. syst. 621. Reich. 3. 333. fl. zeyl. n. 222.

(Xylon.) Mill. dict. n. 3?

Ketmia. Burm. zeyl. 136. 1.

B. Conga. Burm. ind. 145.

Gossipium. Pluk. alm. 172. t. 188. f. 2?

Leaves five-lobed acuminate tomentose beneath.

^a Linn. mant.

^b Hort. kew.

1. This has smooth stems, which in the young plants are of a bright green, but after a few years they are covered with a gray or ash-coloured bark, which turns to a brown as the trees grow older: they seldom put out any side branches till they arrive at a considerable height, unless their leading shoot be broken or injured. The branches towards their top have leaves composed of five, seven or nine smooth, lanceolate leaflets, joined to one centre at their base, where they adhere to the long footstalk. These fall away every year, so that for some time the trees are naked; and before the new leaves come out, the flower-buds appear at the ends of the branches, and soon after the flowers expand: they are composed of five oblong purple petals, with a great number of stamens in the centre; when these fall off, they are succeeded by oval fruit larger than a swan's egg, having a thick, woody cover, which, when ripe, opens in five parts, and is full of a short dark cotton, inclosing many roundish seeds as large as small peas.

[Linneus affirms, that the stem when young is prickly, but not so when it is grown up; that the leaves are sometimes quite entire, sometimes serrate; and that the flowers are very numerous.

It was cultivated in 1739, by Mr. Miller*.]

2. The trunk of the second sort is closely armed with short, strong spines. This has been supposed, by many writers, to be the same with the first sort; but from many year's experience I can affirm, that the seeds which have been sent me of the two sorts have always produced different plants, and have continued the same at more than twenty years growth.

They arrive at a great size in both Indies, being one of the tallest trees in those countries; but the wood is very light, and not much valued, except for canoes. Their trunks are so large, as when hollowed, to make very large ones. In Columbus's first voyage it was related, that a canoe was seen at the island of Cuba, made of one of these trees, which was ninety-five palms long, of a proportional width, and capable of containing one hundred and fifty men; and some modern writers have affirmed, that there are trees of the Silk-Cotton now growing in the West-Indies, so large as not to be fathomed by sixteen men, and so tall that an arrow cannot be shot to their top.

[The canoes now made in the West-Indies from this tree frequently carry from fifteen to twenty hogheads of sugar, from six to twelve hundred weight each; the average about twenty-five tons burthen. When sawn into boards, and then well saturated with lime-water, the wood bears exposure to the weather many years; it is also formed into laths for roofs, curing-pots and hoghead heading.

When the tree decays, it becomes a nest for the Macaca beetle, the caterpillar of which, gutted and fried, is esteemed by many persons one of the greatest delicacies^b.]

The down which is inclosed in the seed-vessels is seldom used, except by the poorer inhabitants to stuff pillows or chairs; and it is generally thought unwholesome to lie upon.

[The second sort was cultivated in 1692, in the royal garden at Hampton Court^c.

3. This grows fifty feet high before it branches, and is eighteen feet in thickness. The bark has smooth, shining, sharp prickles, which fall off on the body, but remain on the branches, so as to prevent monkeys from climbing the tree. It grows every where in Malabar, bearing fruit at sixteen years growth, in february and march, till it is two years of age and upwards^d. It is also a native of America.

Linneus, in his earlier works, made Rheede's plant a synonym of his second species, but afterwards referred it to this, although he affirms the

trunk to be unarmed; whereas it is said by Rheede to be armed.

4. This resembles *Gossypium religiosum* so much, that Plukenet's figure may serve for both; it differs however, in the leaves being tomentose underneath, and the stamens distinct. The leaves are large and heart-shaped, with ovate lobes, that are quite entire, the hinder ones smallest. The corolla is very large, with emarginate petals. Stamens many, distinct, much shorter than the corolla, with oblong, upright anthers. Style filiform^e. Native of the East Indies.

Whether the third species of Miller (*Bombax villosum*) be the same with this I am uncertain. He says, that it] was sent him from the Spanish West-Indies; and that the plants which have been raised here, have soft herbaceous stalks very full of joints, and do not appear as if they would become woody, for the plants of several years growth have soft pithy stems. The leaves come out on long hairy foot-stalks, towards the top of the plants; they have the appearance of those of the Mallow-tree, but are larger, and of a thicker consistence; are covered on their under side with a short, brown, hairy down, and are cut on their edges into five angles. These plants have not as yet flowered in England, but by the pods and seeds they appear evidently to be of this genus. The down inclosed in the pods is of a fine purple colour, and the inhabitants spin it, and work it into garments, which they wear without dyeing.

Mr. Miller also says, that he received a few pods of another sort from Panama, which were not so large as those of the common sort, but were rounder. The down or cotton of these was red, but the plants raised from the seeds were so like the foregoing, as not to be distinguished from them. He also received seeds from Siam, which produced plants of the same sort; so that these trees are probably common to many of the hot countries.

A fine plant of another sort was also raised many years since, in the garden of the late Duke of Richmond at Goodwood, from seeds that came from the East-Indies. The stem of this was very straight, and smooth; the leaves were produced round the top upon very long foot-stalks, each being composed of seven or nine long, narrow, silky, small leaflets, joined at their base to the foot-stalk, in the same manner as the other sorts; but they were much longer, and reflex.

PROPAGATION AND CULTURE.

Silk-cotton is propagated by seeds, which must be sown on a hot-bed in the spring; if the seeds are good, the plants will appear in a month, and will be strong enough to transplant in a month after, when they should be each planted in a small pot, filled with fresh loamy earth, and plunged into a moderate hot-bed of tanners bark, being careful to shade them from the sun till they have taken fresh root; after which they should have a large share of air admitted to them when the weather is warm, to prevent their being drawn up weak; they must also be frequently refreshed with water, which must not be given in large quantities. In this bed they may remain till autumn (provided there be room for the plants under the glasses) but if the heat of the bed decline, the tan should be stirred up, and fresh added to it; and if the plants have filled the pots with their roots, they should be shifted into pots a little larger; but there must be care taken not to over-pot them, for nothing is more injurious to these plants, than to be put into large pots, in which they will never thrive. In the autumn they must be removed into the bark-stove, where they must constantly remain, being too tender to thrive in this country in any other situation. In winter they must have but little wet, especially if they cast their leaves; but in the summer they should be frequently refreshed with water, and in warm weather must have plenty of fresh air admitted to them.

* Hort. kew.

^b Long's Jamaica.

^d Hort. malab.

^c Hort. kew.

^e Linneus.

B O N

With this management the plants will make great progress, and in a few years will reach the glasses on the top of the stove.

The plants make an agreeable variety in a large stove where they have room to grow, their leaves having a different appearance from most other plants; but as they are several years old before they flower in the countries where they grow naturally, there is little hopes of their producing any in England.

[BON. See *Coffea*.

BONA. See *Vicia Faba*.

BONA NOX. See *Smilax*.

BONAROTA. See *Pæderota*.]

BONDUC. See *Guilandina*.

[BONDUCCELLA. See *Guilandina*.

BONNETIA. (So named in honour of Mons. Charles Bonnet of Geneva.)

Lin. gen. Schreb. n. 915. Mahuria. Aubl. 222. Fust. 434.

Class. 13. 1. Polyandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth one-leafed, five-parted; parts concave; acute: two larger.

COR. Petals five, ovate, somewhat obtuse, concave, longer than the calyx, of which the three smaller are upright: the two larger declinate; gaping.

STAM. Filaments very many, (170) inserted into the receptacle, shorter than the corolla, dilated at the tip. Anthers oblong tetragonal.

PIST. Germ oblong, superior. Style length of the germ, incurved. Stigma three-lobed.

PER. Capsule oblong, three-celled, three-valved: valves sharp-pointed.

SEEDS very many, very small, oblong, involved in a coloured membrane, affixed to the three-sided receptacle.

ESSENTIAL CHARACTER.

Cal. five-parted, two parts larger. Cor. five-petalled, three smaller upright, two larger declinate. Caps. oblong, three-celled, three-valved, many-seeded.

SPECIES.

1. Bonnetia Mahuria.

Aubl. guian. 222.

DESCRIPTION, &c.

Bonnetia, of which at present only one species is known, grows in marshy places in Cayenne and Guiana. It is a tree about fifteen feet high, branching chiefly towards the top: the branches are upright in their growth. The leaves are alternate, smooth, ovate, and entire. The flowers are borne on terminal spikes, and are of a purple colour.

In its native climate it flowers in august, and ripens its seeds in october.]

BONTIA. (So named from Jacobus Bontius, a physician at Batavia. He published, *de Medicina Indorum*, 1642. 12°. 1646. 4°. and printed with Piso, 1658. fol. also in English, 1679. 8°.)

Lin. gen. n. 791. Reich. 854. Schreb. 1062.

Plum. gen. t. 23. Dill. elth. 49. t. 57.

Class. 14. 2. Didynamia Angiospermia.

Nat. order of *Personatae*.

GENERIC CHARACTER.

CAL. Perianth one-leafed, five-parted: leaflets blunt, upright, permanent.

COR. one-petalled, ringent: tube long, cylindric; border gaping: upper lip upright, emarginate; lower revolute, semitrifid, the size of the upper.

STAM. Filaments four, subulate, bending to the upper lip, the length of the corolla: two higher. Anthers simple.

PIST. Germ ovate. Style simple; situation and length of the stamens. Stigma bifid, blunt.

PER. Drupe ovate, with the top oblique.

SEED. Nut oval, one-celled, germinating.

ESSENTIAL CHARACTER.

Cal. five-parted. Cor. two-lipped: lower lip three-parted, revolute. Drupe ovate, one-seeded, with the end oblique.

B O R

SPECIES.

1. Bontia daphnoides. Barbadoes Wild Olive.

Lin. spec. 890. syst. 579. Reich. 3. 200. Jacq.

amer. pict. 88. t. 161. f. 57. Plum. gen. 32.

Dill. elth. t. 49. f. 57. Pluk. phyt. 269. t. 209.

f. 3. Raii dendr. 47. n. 6. Labat. itin. 3. 84.

(Olea.)

Leaves alternate, peduncles one-flowered.

DESCRIPTION, &c.

[Leaves thickish, rather stiff, very smooth, green on both sides; the lower ones very slightly toothed. Corolla yellowish, with a line of dusky purple along the middle of the lower lip.

Birds grow fat upon the fruits, but unless the entrails are taken out as soon as the bird is killed, it becomes too bitter to be eaten. It flowered in Dr. Sherard's garden at Eltham, in June 1723^a: but it had been introduced into this country earlier, namely in 1690, by Mr. Bontick^b.]

PROPAGATION AND CULTURE.

It is greatly cultivated in the gardens at Barbadoes, for making hedges, than which there is not a more proper plant for those hot countries, it being an Evergreen, and of quick growth. I have been informed, that from cuttings (planted in the rainy season, when they have immediately taken root) there has been a complete hedge four or five feet high, in eighteen months. And as this will very well bear cutting, it is formed into a very close thick hedge, which makes a beautiful appearance. In Europe it may be raised from seeds, which should be sown on a hot-bed early in the spring (that the plants may acquire strength before winter.) When the plants are come up, they must be transplanted out each into a separate halfpenny pot filled with light fresh earth, and plunged into a moderate hot-bed of tanners bark, observing to water and shade them until they have taken root; after which they must have a large share of air in warm weather, and be often refreshed with water. In winter they must be placed in the stove, where they should have a moderate degree of warmth, and but little water during that season. In summer they must have a great share of air, but will not do well if exposed abroad, especially in cold summers; so that they should remain in the stove among plants which require a great share of air, which may be admitted by opening the glasses in very hot weather. With this management, these plants will produce flowers and fruit in three or four years from seed. They may also be propagated by cuttings, which should be planted in the summer. They must be put into pots filled with light rich earth, and plunged into a moderate hot-bed, observing to water and shade them until they have taken root; after which they must be treated as hath been directed for the seedling plants. These plants being evergreen, and growing in a pyramidal form, make a pretty variety in the stove amongst other exotic plants.

[BONTIA GERMINANS. See *Avicennia*.

BONTIA LUZONICA. See *Epidendrum*.]

BONUS HENRICUS. See *Chenopodium*.

[BOOTIA. See *Saponaria officinalis*.

BORAGE & BORAGINOIDES. See *Borago*.]

BORAGO. (q. Corago, from cor & ago; on account of its supposed cordial qualities.)

Lin. gen. n. 188. Reich. 200. Schreb. 248.

Tournef. 53. Boraginoides. Boerb. 1. 88. Cy-

noglossoides. Isnard. art. gall. 1718. t. 10.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Asperifoliae*.

GENERIC CHARACTER.

CAL. Perianth five-parted, permanent.

COR. monopetalous, rotate, length of the calyx: tube shorter than the calyx: border five-parted, rotate, flat: throat crowned with five emarginate, obtuse prominencies.

STAM. Filaments five, subulate; converging. Anthers oblong, fixed to the inside of the filaments in the middle, converging.

^a Dillenius.

^b Hort. kew.

Pist. Germs four. Style filiform, longer than the stamens. Stigma simple.

PER. none. Calyx larger, inflated.

SEEDS four roundish, wrinkled, keeled outwards at the top, globular at the base, inserted longitudinally into a hollowed receptacle.

OBS. The divisions of the calyx differ in their form, and the tube of the corolla differs in size.

ESSENTIAL CHARACTER.

Cor. rotated, throat closed with rays.

SPECIES.

1. *Borago officinalis*. Common Borage.
Lin. spec. 197. *syft.* 188. *Reich.* 397. *hort. upf.* 34. *cliff.* 44. *mat. med.* 57. *Huds. angl.* 82. *With.* 198. *Sowerby engl. bot.* t. 36. *Relb. cantabr.* n. 152. *Hall. helv.* n. 607. *Plenck, ic.* t. 77. *Blackw.* t. 36. *Sabb. hort.* 2. t. 20, 21. *Mor. hist.* 437. f. 11. t. 26. f. 1. *Ger.* 653. 1, 2. *emac.* 797. 1, 2. *Baub. hist.* 3. 574. *Raii hist.* 493.
All the leaves alternate, calyxes spreading.
2. *Borago indica*. Indian Borage.
Lin. spec. 197. *Reich.* 397. *hort. cliff.* 45. *fl. zeyl.* n. 71. *Murr. prodr.* 142.
Cynoglossoides. Isn. act. gall. 1718. 325. t. 10.
Anchusæ degeneris facie, &c. Pluk. alm. 30. t. 76. f. 3. bad.
Leaves of the ramifications opposite, stem-clasping; peduncles one-flowered.
3. *Borago africana*. African Borage.
Lin. spec. 197. *syft.* 188. *Reich.* 398. *hort. cliff.* 55. *Murr. prodr.* 142.
Cynoglossoides. Isn. act. t. 11.
Cynoglossum, &c. æthiopicum. Pluk. alm. 34.
Leaves opposite petiolate ovate, peduncles many-flowered.
- [4. *Borago zeylanica*. Ceylon Borage.
Lin. syft. 188. *Reich.* 398. *mant.* 202. *Burm. ind.* 41. t. 14. f. 2.
Anchusa buglossoides. Pluk. mant. 13. t. 335. f. 4.
Branch-leaves alternate sessile, peduncles one-flowered, calyxes earless.]
5. *Borago orientalis*. Oriental Borage.
Lin. spec. 197. *syft.* 188. *Reich.* 399. *hort. cliff.* 45. *Sabb. hort.* 2. t. 22.
B. constant. fl. reflexo cœruleo, calyce vesicario. Tourn. cor. 6. *itin.* t. 523. *Buxb. cent.* 5. 16. t. 30. *Mill. fig.* t. 68.
Calyxes shorter than the tube of the corolla, leaves cordate.

DESCRIPTIONS, &c.

1. [The whole plant of *Common Borage* is rough with white stiff prickly hairs^a. Peduncles terminating, many-flowered. Calyx divided to the very base, as is also the corolla, but it falls off in one piece; tube very short and white; segments acute. Filaments very short, white, springing from the claws of the petal, with a sharp blue process, where the anthers are inserted; these are dark purple or blackish, and form a kind of *umbo* in the middle of the flower, round the style. The common colour of the corolla is blue; but it varies to flesh-coloured, and white. It is a biennial plant; flowering from may to august. It came originally from Aleppo, but is now naturalized in most parts of Europe. We have it in England on dunghills and heaps of rubbish frequently.

Borage was formerly in great request, being reckoned one of the four cordial flowers. Very light surely, says an ingenious author, were those sorrows that could be so driven away. Yet Borage flowers are at least innocent, which is more than can be said of many other general remedies for care. The whole herb is succulent and very mucilaginous, having a peculiar faint smell when bruised^b. The juice affords a true nitre. The plant is now seldom taken inwardly, except as an ingredient in cool tankards. The young tender leaves may be used in salads, or as a pot-herb^c.

2. This is an annual plant, rarely rising a foot high. Stem branching, hispid, gibbous at the origin of the

leaves and branches. Leaves lanceolate, rugged; the lower opposite, the upper alternate. Branches spreading, alternate. Peduncles short, bowing, axillary. Leaflets of the calyx cordate-sagittate, five-angled, hispid. Corolla white or pale flesh-colour, a little longer than the calyx^d.

Native of the East-Indies. Miller, who cultivated it in 1759, says Africa.

3. This resembles the foregoing, but the whole plant is stronger and higher. Stem thicker, more divided, hispid with stiff fragile bristles. Leaves much broader and more hispid. Peduncles divided and almost racemed, dry and red, with bowing pedicels. Leaflets of the calyx lanceolate, the angles not so conspicuous, red and set with white hairs. Corolla nearly of the same length with the calyx, dirty white^e. Native of the Cape of Good Hope. It is an annual plant, and was cultivated in 1759, by Mr. Miller^f.

4. Stem branching, hispid. Stem-leaves opposite, sessile, lanceolate, hispid; branch-leaves more in number, smaller, and more acute. Peduncles at each branch-leaf filiform, solitary, one-flowered, longer than the leaves, hairy. Calyx the length of the corolla, erect, hoary, hairy, without the hinder apophyses. Seeds smooth, and like bone, as in *Cerinthæ*. It differs from the first and third sorts in having one-flowered peduncles; from the second, in the leaves not being stem-clasping, and the calyxes not spurred^g.

Native of the East-Indies.]

5. This is a perennial plant, with thick fleshy roots, spreading under the surface. Root-leaves many, oblong, heart-shaped, on long, hairy foot-stalks. Flower-stem more than two feet high, having at the joints a single, small, sessile leaf: the upper part branches out into several small foot-stalks, which are terminated by loose panicles of flowers, of a pale blue colour; the petal is turned back, so that the connected anthers and style are left naked. The seeds are smaller than those of common Borage. It flowers in march, and the seeds ripen in may. When the flower-stalk first appears, the flowers seem collected into a close spike, some of which often spread open before the stalk is six inches high; but as the stalks advance, they divide into many loose spikes. Native of the country about Constantinople.

PROPAGATION AND CULTURE.

1. This is an annual plant, which, if permitted to scatter its seeds, the plants will come up in plenty without care; the seeds may also be sown either in spring or autumn, but the latter season is preferable, on a spot of open ground where the plants are designed to remain; when the plants have obtained a little strength, the ground should be hoed to destroy the weeds, and the plants must be cut up where they are too near each other, leaving them eight or ten inches asunder. After this they will require no farther care, unless the weeds should come up again; then the ground should be a second time hoed over to destroy them, which, if well performed, and in dry weather, will clear the ground from weeds, so it will require no more cleaning till the Borage is decayed. The plants which are raised in the autumn, will flower in may, but those which are raised in the spring, will not flower till june; so that where a continuation of the flowers are required, there should be a second sowing in the spring, about a month after the first; but this should be on a shady border, and if the season should prove dry, the ground must be watered frequently, to bring up the plants; this latter sowing will continue flowering till the end of summer.

2, 3, 4. The seeds of these plants should be sown upon a hot-bed in march, and when the plants are strong enough to be removed, they should be each planted in a small pot filled with light earth, and plunged into a new hot-bed to bring them forward, otherwise they will not perfect their seeds in this

^a Withering.

^b English Botany.

^c With.

^d Murray.

^e Ibid.

^f Hort. kew.

^g Linn.

country; but in hot weather they must have a great share of air, otherwise they will draw up weak, and fail before the seeds are ripe.

5. Is easily propagated by the root, which may be parted in the autumn: it should have a dry soil and a warm situation, for as the flower-stalks appear early in the spring, when they are much exposed, they are often killed by the frost; if it be planted in dry rubbish, it will not grow too luxuriant, nor be in danger of suffering by frost. Some of the seeds of this have scattered into the joints of an old wall in the Chelsea garden, where the plants have grown without care for some years, and are never injured by cold or heat.

BORAGO. See *Cynoglossum*.

[BORASSUS. (*Βορᾶσσος* Dioscorides. Derivation uncertain.)

Lin. gen. n. 1220. Reich. n. 1336. Schreb. 1689.

Mus. cliff. 13. Ampana hort. mal. 1. 10. Carimpana hort. mal. 1. 9.

Class. 25. Appendix Palmæ. Lin.—Dioecia hexandria. Thunb. æt. Stockh. 1782. 286.

GENERIC CHARACTER.

* Male Ampana.

CAL. Spathe universal, compound. Spadix amentaceous, imbricate.

COR. Perianth proper three-leaved: leaflets ovate, concave.

STAM. Filaments six, thickish. Anthers thicker, striated.

** Female Carimpana: on a different plant.

CAL. Spathe and Spadix as in the male.

COR. Perianth proper three-leaved permanent: leaflets roundish, obtuse. Petals three, roundish, small, acute, permanent.

PIST. Germ roundish. Styles three, small. Stigmas simple.

PER. Berry (Drupe) roundish, obtuse, rigid, one-celled.

SEEDS three, subovate, compressed, distinct, filamentose.

ESSENTIAL CHARACTER.

Cor. three-parted. Male. Stam. six. Female. Styles three. Drupe three-seeded.

SPECIES.

1. Borassus flabelliformis.

Lin. spec. 1657. Syst. 784. Reich. 4. 632. fl. zeyl. n. 395.

Palma coccifera. Raii hist. 1366. n. 1, 2.

Lontarus domestica. Rumph. amb. 1. 45. t. 10.

Ampana. Rheed. mal. 1. 13. t. 10. mas. Carimpana. p. 11. t. 9. foemina.

Fronde palmate plaited corded, stipes serrate.

DESCRIPTION, &c.

The trunk is covered with a very dark-coloured bark; the wood is of a dark brownish red, and has a soft pith in the middle. Fronds decussate on the top of the trunk; stipe near six feet in length, flat and somewhat hollow, and rough with spines along the edges; below near a span in breadth, above not more than a palm. The leaf part is very large, wide, and folded like a fan or umbrella, for which purpose it is used; at the edges of the folds there are rough, prominent ribs, in front it is gashed, and the texture is close and thick. The male and female flowers are on different trees, which have been considered as distinct species.

This tree is twenty-five or thirty feet in height, two feet thick at bottom and one at top. The fruit is the size of a child's head. A wine and a sugar are made from the sap of this Palm.

It is a native of Ceylon, the coast of Coromandel, Java, &c.^b

BORBONIA. (So named from Gaston Bourbon, Duke of Orleans.)

Lin. gen. n. 857. Reich. 928. Schreb. 1165.

Class. 17. 4. Diadelphia Decandria.

Nat. order of Papilionaceæ or Leguminosæ.

GENERIC CHARACTER.

CAL. Perianth one-leaved, semiquinquefid, turbinate, half the length of the corolla: divisions lanceolate,

acuminate, rigid, pungent; subequal; the lowest longer than the rest.

COR. pentapetalous, papilionaceous; hirsute on the outside. Banner reflected, obtuse, claw the length of the calyx. Wings semicordate, a little shorter than the banner. Keel two-petalled, lunulate, obtuse.

STAM. Filaments nine, united into a cylinder gaping longitudinally above, rising at the ends. Anthers small.

PIST. Germ subulate. Style very short, ascending. Stigma obtuse, emarginate.

PER. Legume roundish, acuminate, one-celled, mucronate with a spine.

SEED kidney-form.

ESSENTIAL CHARACTER.

Cal. acuminate-spiny. Stigma emarginate. Legume mucronate.

SPECIES.

[1. Borbonia ericifolia.

Lin. spec. 993. Reich. 3. 398. amæn. 6. afr. 29.

Genista africana, &c. Raii dendr. 105. n. 36.

Leaves sublinear acute villose, beads terminal.

2. Borbonia lævigata.

Lin. syst. 643. Reich. 3. 398. mant. 100.

Leaves lanceolate nerveless smooth, involucre and calyxes rough with hairs.]

3. Borbonia trinervia.

Lin. spec. 994. Reich. 3. 398. hort. cliff. 494.

Berg. cap. 188.

Frutex æthiopicus, &c. Pluk. alm. 158. t. 297. f. 4.

Leaves lanceolate three-nerved quite entire.

4. Borbonia lanceolata. Spear-leaved Borbonia.

Lin. spec. 994. Reich. 3. 399.

Spartium africanum, &c. Raii dendr. 107. n. 63.

Comm. hort. 2. 195. t. 98.

Frutex æthiopicus, &c. Pluk. alm. 159. t. 297. f. 3.

Leaves lanceolate many-nerved quite entire.

5. Borbonia cordata. Heart-leaved Borbonia.

Lin. spec. 994. Reich. 3. 399. mant. 488. hort. cliff. 494.

Genista africana, &c. Seb. thes. 1. 38. t. 24. f. 3.

Breyn. cent. t. 28.

Leaves cordate many-nerved quite entire.

[6. Borbonia crenata. Notch-leaved Borbonia.

Lin. spec. 994. Reich. 3. 399. Berg. cap. 191.

Pluk. alm. 159. Breyn. cent. 69. t. 28.]

Leaves cordate many-nerved toothletted.

DESCRIPTIONS, &c.

These plants grow naturally at the Cape of Good Hope, where they rise to the height of ten or twelve feet; but in Europe they seldom are more than four or five; having slender stems, divided into several branches, with stiff leaves placed alternately.

[1. The first sort is a small subvillose shrub. Leaves small, ovate-linear, nerveless, smooth above, villose beneath, revolute. Heads sessile, with small flowers.

2. Branches round, subvillose towards the top. Leaves sessile, pointed. Umbellules terminating on very short peduncles. Involucre four-leaved, ovate, concave, erect. Pedicels in fours, shorter than the involucre. Calyx bell-shaped, flat at the base, five-cleft with the upper cleft smaller than the others, acute, shorter than the corolla, which is yellow. Germ hirsute. Within the calyx are some nectareous scales. It is named by others *Liparia umbellata*.]

3. This has stronger stalks than either of the two following sorts. They have stiff lanceolate leaves, with three longitudinal nerves, as have also the branches, almost their whole length; and they are placed closer together than in the others. The flowers are produced at the extremities of the branches, each on a separate peduncle: they are of the same shape and colour with the two following, but larger.

4. [Stem a foot high, smooth, round, and ash-coloured; divided into a few branches, which are red whilst young. Leaves stem-clasping,] long,

^a Ray. ^b Rumphius.

^c Linn. amæn.

^d Linn. mant.

^e Ray.

narrow, ending in a sharp point. The flowers come out from between the leaves at the ends of the branches in small clusters: they are yellow, and shaped like those of Broom. It flowers in august and september; [and was cultivated in 1748, by Mr. Miller^f.]

5. This has broader leaves than the foregoing sort. The stalks are slender, and covered with white bark. Leaves stem-clasping, and terminated by sharp points, like those of Knee-holm or Butcher's Broom. The flowers are produced in small clusters at the ends of the branches, and are of the same shape and colour as those of the foregoing sort, but larger. [Calyx five-cleft, nearly regular, hirsute, with spiny segments. The whole corolla is tomentose on the outside^g.]

6. Leaves stem-clasping, net-veined, and pointed. Flowers in racemes^h. It was introduced here from the Cape in 1774, by Mr. Fr. Massonⁱ.]

PROPAGATION AND CULTURE.

As these plants do not perfect their seeds in this country, they are with difficulty propagated here. The only method by which I have yet succeeded, has been by laying down their young shoots; but these are commonly two years before they put out roots fit to be separated from the old plant. In laying these down, the joint which is laid in the ground should be slit upward, as is practised in laying Carnations, and the bark of the tongue at bottom taken off. The best time is the beginning of september; and the shoots most proper for this purpose, are those which come out immediately, or very near the root, and are of the same year's growth, not only from their situation being near the ground, and thereby better adapted for laying, but these are also more apt to put out roots than any of the upper branches.

But where good seeds can be procured, that is the more eligible method of propagating the plants; for those raised from the seeds make the straightest plants, and are quicker of growth. They should be sown in pots filled with light loamy earth, as soon as they are received; if it happens in the autumn, the pots should be plunged into an old bed of tanner's bark, under a frame, where they may remain all the winter, being careful that they are secured from frost, and have not much wet. In the spring, the pots should be plunged into a hot-bed, which will bring up the plants in five or six weeks. When these are fit to remove, they should be each planted into a separate small pot, filled with the like loamy earth, and plunged into a moderate hot-bed, observing to shade them until they have taken fresh root, as also to refresh them with water, as they may require it. After this they must by degrees be inured to the open air, into which they should be removed in june, and placed in a sheltered situation, where they may remain till autumn, when they must be removed into the green-house, and placed where they may enjoy the air and sun; during the winter season, these plants must be sparingly watered; but in summer, when they are placed abroad, they will require to be frequently refreshed, but must not have too much water given them each time.

These plants make a pretty variety in the green-house in winter, and as they do not require any artificial heat to preserve them, they are worthy of a place in every garden where there is conveniency for keeping them.

[BORBONIA tomentosa. See *Liparia*.

BORECOLE. See *Brassica*.

BORRAGO. See *Borago*.]

BOSEA. (From *Bose*, a Senator of *Leipsic*. Lin.)

Lin. gen. n. 315. Reich. 344. Schreb. 442.

Class. 5. 2. Pentandria Digynia.

GENERIC CHARACTER.

CAL. Perianth five-leaved, equal: leaflets roundish, concave, erect, thinner at the edge.
COR. none.

^f Hort. kew.

^g Linn.

^h Ibid.

ⁱ Hort. kew.

STAM. Filaments five, subulate, longer than the calyx. Anthers simple.

PIST. Germ ovate-oblong, cuspidate. Style none. Stigmas two.

PÉR. Berry globular, one-celled.

SEED one, round, acuminate.

OBS. There is a very great affinity therefore between this genus and those of *Celtis* and *Ulmus*.

ESSENTIAL CHARACTER.

Cal. five-leaved. Cor. none. Berry one-seeded.

SPECIES.

1. *Bosea Yervamora*. Golden-rod tree.

Lin. spec. 326. Reich. 631. hort. cliff. 84. Pluk.

alm. 42. Sloan. jam. 2. 19. t. 158. f. 3. Raii

dendr. 88. n. 2. Walth. hort. 24. t. 10.

DESCRIPTION, &c.

It is a pretty strong woody shrub, with a stem as large as a middling person's leg; the branches come out very irregularly, and make considerable shoots in summer, which should be shortened every spring, to preserve the heads of the plants in any tolerable order: these branches retain their leaves till towards the spring, when they fall off, and new leaves are produced soon after.

[Bark reddish-brown, smooth; wood white. Leaves two inches long, and one and a half broad, roundish, broader at the base, blunt at the end, white underneath, on short petioles; ribs purple. The flowers come out of the ends of the twigs, on alternate pedicels, at the base of which is a stipule. Calyx purplish, six-leaved. Seed black^k.]

It is a native of the Canary islands, whence it was first brought into England, and cultivated by Mr. Miller before 1728. It has also been found since in some of the British West-India islands.]

PROPAGATION AND CULTURE.

It may be propagated by cuttings in the spring; and the plants must be housed in winter.

BOTRYS. See *Chenopodium* and *Teucrium*.

[BOURRERIA. See *Ebretia*.

BOVISTA. See *Lycoperdon*.

BOX-THORN. See *Lycium*.]

BOX-TREE. See *Buxus*.

BRABEIIUM. (From *Bpaeiov*, a sceptre, Lin.)

Lin. gen. n. 160. Reich. 1262. Schreb. 1580. mant. 137. 332.

Class. 23. 1. Polygamia Monoecia.

GENERIC CHARACTER.

CAL. Ament with ovate, obtuse, three-flowered, pubescent scales.

COR. one-petalled, funnel-form, four-parted; divisions linear, obtuse, rolled back at top, deciduous.

STAM. Filaments four, capillary, inserted into the base of the segments of the corolla, and scarcely so long as that. Anthers small, gaping on the sides.

PIST. Germ very small, villose. Style filiform, the length of the stamens, somewhat thicker at top. Stigma simple.

PÉR. Drupe very dry, roundish, villose.

SEED. Nut globular.

* Male in the same tree.

CAL. Ament as in the hermaphrodites.

COR. one-petalled, funnel-form, four or five-cleft; clefts oblong, revolute.

STAM. Filaments four or five, inserted into the throat, of a middling length. Anthers oblong, fastened to the inside of the filaments, except the tip.

PIST. Germ none. Style filiform, of a middling length. Stigmas two, erect.

ESSENTIAL CHARACTER.

HERM. Scales of the ament. Cor. four-parted, revolute above. Stam. four. Pist. one. Drupe roundish. Seed globular.

MALE. Scales of the ament. Cor. four or five-parted. Stam. four inserted into the throat. Style bifid, abortive.

SPECIES.

1. *Brabeium Stellulifolium*. African Almond.

Lin. syst. 910. Reich. 4. 327. mant. 332.

^k Sloane.

- B. stellatifolium*. *Lin. spec.* 177. *hort. cliff.* 36. *Mill. dict.*
Amygdalus æthiopica, fructu holofericeo. *Breyn. cent.* 1. t. 1. *Pluk. alm.* 47. t. 265. f. 3.
Brabyia capensis. *Mant.* 1. 137.

DESCRIPTION, &c.

This tree rises with an upright stem, which is soft and full of pith, and covered with a brown bark. Horizontal branches are sent out at every joint, the lower ones being longest, and every tier diminishing to the top, so as to form a sort of pyramid. There are leaves at each joint, from four to five inches long, and half an inch broad in the middle, of a deep green on their upper side, but of a pale russet colour on their under, indented on their edges, standing on very short foot-stalks. The flowers are produced towards the ends of the shoots, coming out from between the leaves quite round the branches: they are of a pale colour, inclining to white: appear early in the spring, and fall away without any fruit succeeding them in this country.

[It is an amentaceous tree, with thick branches. Leaves in whorls with large serrations. Aments pubescent, with ovate, obtuse, three-flowered scales. Stamens and style the length of the corolla.*]

Brabyia capensis, described in *Mant.* 137. is probably the same tree bearing hermaphrodite flowers. The branches are rigid, purple, streaked, subvillose. Leaves in whorls of seven, petioled, lanceolate, rather rigid, with remote serrations, a hand's breadth long, smooth above, netted beneath: petioles erect, pubescent. Aments oblong, cylindric, petioled, round, erect, lateral, often two between each leaf, shorter than the leaves, rather rigid, two inches long, imbricate: scales ovate, acute, many-flowered. Corollule funnel-shaped, five-cleft. Stamens five. Style one.]

It is a native of the country about the Cape of Good Hope, where it becomes a tree of middling growth; but in Europe it seldom grows above eight or nine feet high.

PROPAGATION AND CULTURE.

This tree is with difficulty propagated by layers, which are often two years before they make roots strong enough to be taken from the old plants: when the branches are laid down it will be a good method to slit them at a joint, as is practised in laying Carnations, which will promote their taking root.

These must have but little water given them, especially in winter, for as the young shoots are chiefly pith within, they are very apt to rot with much moisture. The best time to make the layers is in april, just as the plants are beginning to shoot; and they must always be made of the former year's shoots.

The plants must have a good greenhouse in winter; but in summer they should be set abroad in a sheltered situation, where they will thrive, and annually produce flowers in the spring, making a pretty variety among other exotic plants.

[BRABYLA. See *Brabeium*.

BRACHYLOTTIS. See *Cineraria*.

BRADLEJA. (So named from Richard Bradley, F.R.S. the first professor of botany at Cambridge.)

Lin. gen. Schreb. n. 1474. *Gertn. Glochidion. Forst. gen.* 57.

Class. 21. 8. Monœcia Monadelphica.

GENERIC CHARACTER.

* Male flowers.

CAL. none.

COR. Petals six, ovate, concave, spreading, nearly equal.

STAM. Filaments three, extremely minute. Anther cylindric, erect, formed of three united twin anthers, tipped at the point with a cusp or spearlet.

* Female flowers.

CAL. none.

COR. one-petalled, six-parted, inferior: three of the parts interior.

* *Lin. mant.* 332.

- PIST. Germ globose, six-furrowed, superior. Style none. Stigmas six to eight, very small, converging.
 PER. Capsule depressed, round, twelve-furrowed, six-celled, six-valved, gaping.
 SEED solitary, somewhat globose.

ESSENTIAL CHARACTER.

MALE. Cal. none. Cor. Petals six, nearly equal. Filaments three, with three twin anthers.

FEM. Cal. none. Cor. six-parted, three parts interior. Germ superior, with six to eight stigmas. Caps. six-celled, six-valved. Seed solitary.

SPECIES.

1. *Bradleja sinica*. Chinese *Bradleja*, is a shrub with leaves resembling the *Annona*, but not of a lucid surface: The fructifications proceed from the axils of the leaves. The fruits, or seed-vessels, are compressed, small, orbicular, striated, and hard.

2. *Bradleja Zeylanica*, is a Ceylonese shrub.

3. *Bradleja Glochidium*, is a shrub which grows in the islands of the Southern or Pacific ocean.]

BRANCA URSINA. See *Acanthus* and *Heracleum*.

BRASSICA. (From *ῥαβδος*, *ebullio* *Lin.*—others *a præsecando*—or *q. Passica*—or *q. πασιων* a garden herb. See more in *Vossius*.)

Lin. gen. 820. *Reich.* 884. *Schreb.* 1096. *Tournef.* 106. *Raii meth.* 95. *Rapa. Tourn.* 113. *Raii meth.* 95.

Class. 15. 2. Tetradynamia Siliquosa.

Nat. order of *Siliquosa* or *Cruciformes*. *Cruciferae* *Juss.*

GENERIC CHARACTER.

CAL. Perianth four-leaved, erect; leaflets lanceolate-linear, concave-channelled, gibbous at the base, erect, parallel, deciduous.

COR. tetrapetalous, cruciform. Petals subovate, flat, expanding, entire, gradually lessening into claws nearly the length of the calyx.

Nectareous glands four ovate; of which one on each side between the shorter stamen and the pistil, and one on each side between the longer stamens and the calyx.

STAM. Filaments six, subulate, erect: of these two opposite ones are of the length of the calyx; and four longer. Anthers erect, acuminate.

PIST. Germ columnar, the length of the stamens. Style short; the thickness of the germ. Stigma capitate, entire.

PER. Siliqua long, somewhat like the shaft of a column, but flattened on both sides: partition with a prominent columnar top, two-celled, two-valved; valves shorter than the partition.

SEEDS many globular.

OBS. *Napus* T. scarcely differs in appearance from *Rapa*.

Rapa T. has the calyx of the same colour with the corolla.

Brassica T. has a greenish calyx.

ESSENTIAL CHARACTER.

Cal. erect, converging. Seeds globular. A gland between the shorter stamens and the pistil, and between the longer and the calyx.

SPECIES.

* Style bluntish.

1. *Brassica orientalis*. *Perfoliate Cabbage*.

Lin. spec. 931. *yst.* 601. *Reich.* 3. 276. *Huds.*

angl. 290. *With.* 706. *Jacqu. austr.* 3. 45.

t. 282. *Pollich pal. n.* 639. *Allion. pedem.*

n. 964. *Mill. dict. n.* 7.

Eruca. Hall. helv. n. 457. *B. campestris. Lin. sec.*

Hallerum. B. Turrita. Wiggers.

B. campestris. Bauh. pin. 112. *n.* 4. *Clus. hist.* 2. 127.

Segu. ver. 1. 380. *Raii syn.* 293. *n.* 2. *hist.* 797.

n. 20. & 3. 410. *n.* 9.

Perfoliata. Siliquosa. Bauh. hist. 2. 835. 3. 4.

Ger. 430. 2. *emac.* 536. 2. *Park.* 580. 9.

Leaves cordate, stem-clasping, smooth; root-leaves scabrous, quite entire; siliques four-cornered.

2. *Brassica austriaca*. *Austrian Cabbage*.

Lin. syst. 601. *Jacqu. austr.* 3. t. 283.

Leaves cordate, stem-clasping, smooth, all quite entire; siliques four-cornered, striated, erect.

3. *Brassica*

3. *Brassica campestris*. Yellow Field Cabbage.
Lin. spec. 931. *syft.* 601. *Reich.* 3. 276. *suec.*
n. 608. *hort. cliff.* 339. *Fl. dan.* t. 550? *Huds.*
angl. 290. *With.* 707.
B. camp. perfoliata fl. luteo. *Loef. pruss.* 29. *Lin.*
lapp. 265.
Root and stem slender; stem-leaves uniform cordate ses-
file.]
4. *Brassica arvensis*. Purple Field Cabbage.
Lin. syft. 601. *Reich.* 3. 277. *mant.* 95. 568.
Ger. prov. 368.
B. purpurea. *Mill. dict.* n. 6.
B. campestris perfoliata fl. purpureo. *Baub. pin.* 112.
Clus. hist. 2. 127. *Raii hist.* 798.
B. sylvestris, fabariæ foliis. *Bocc. sic.* 49. t. 29.
f. 3, 4.
Perfoliata filiquosa purpurea. *Baub. hist.* 2. 836.
Leaves stem-clasping spatulate repand; the upper cor-
date quite entire.
- [5. *Brassica alpina*. Alpine Cabbage.
Lin. syft. 601. *Reich.* 3. 277. *mant.* 95. *Pollich*
pal. n. 640. *Allion. pedem.* n. 968. *Vill. prosp.* 40.
t. 20. *f.* 1.
Turritis. *Hall. belv.* n. 454. *Grim. nov. act. nat.*
cur. 3. 77.
T. pauciflora. *Grim. isen. nov. act. cur.* 3. app. 348.
T. Brassica. *Leers herb. n.* 518.
Br. alpina perennis. *Mapp. alfat.* 42.
Br. sylvestris alpina. *Baub. prodr.* 54.
Stem-leaves cordate-sagittate stem-clasping; radical
leaves ovate: petals erect.]
6. *Brassica Napus*. Wild Cabbage, Rape, or Navew.
Lin. spec. 931. *Reich.* 3. 278. *suec.* 609. *mat.*
med. 162. *hort. cliff.* 339. *Huds. angl.* 290.
With. 707. *Lightf. scot.* 359. *Dalib. par.* 199.
Gmel. sib. 3. 267. *Crantz. austr.* 38. *Blackw.*
t. 224.
B. gongylodes. *Mill. dict.* n. 8.
Napus sylvestris. *Baub. pin.* 95. *Baub. hist.* 2. 843.
Mor. hist. 2. 214. *f.* 3. t. 2. *f. ult.* *Raii hist.*
802.
Bunias. *Ger.* 181. 2. *emac.* 235. 2. *Park.* 865.
Pet. brit. t. 45. *f.* 9.
β. N. fativa. Coleseed, or Rape.
Baub. pin. 95. *Mor. f. penult.* *Raii hist.* 801.
Ger. 181. 1. *emac.* 235. 1.
Root caulescent fusiform.
7. *Brassica Rapa*. Turnep.
Lin. spec. 931. *Reich.* 3. 278. *mat. med.* 163.
hort. cliff. 339. *ups.* 190. *Huds. angl.* 289.
With. 708. *Blackw. t.* 231.
Rapa rotunda. *Mill. dict.* n. 1.
R. fativa rotunda. *Baub. pin.* 89. *Mor.* 2. 213.
f. 3. t. 2. *f.* 1. *Petiv. brit.* t. 47. *f.* 7. *Raii*
hist. 800. n. 1 & 3.
Rapum majus & minus. *Ger.* 177. 1, 2. *emac.* 232. 1.
Fuchs. 212. *Trag.* 728. *Matth.* 346. 1. *Lob.*
kruidb. 235. *obs.* 98. 1. *ic.* 197. 1. *Cam. epit.*
218.
β. R. fat. oblonga. *Baub. pin.* 89. *Raii hist.* n. 2.
Baub. hist. 2. 838. *Mor.* n. 2. *Ger. emac.* 232. 2.
Matth. 346. 2. *Petiv. brit.* t. 45. *f.* 8.
R. oblonga. *Mill. dict.* n. 2.
γ. Rapa Napus. French Turnep.
Mill. dict. n. 3.—*Root fusiform.*
Root caulescent orbicular depressed fleshy.
8. *Brassica oleracea*. Common Cabbage.
Lin. spec. 932. *Reich.* 3. 278. *hort. cliff.* 338.
ups. 189. *mat. med.* 163. *Huds. angl.* 289.
With. 708.
α. B. oler. sylvestris. Sea Cabbage. Wild Colewort.
Mor. hist. 2. 208. n. 15. *Raii hist.* 796. n. 13.
Mill. dict. n. 4. *Petiv.* 45. 6.
β. B. oler. viridis. Green Colewort.
Baub. pin. 111. 1. *Raii hist.* 796. 10. *Ger.*
emac. 313. 6.
γ. B. oler. capitata rubra. Red Cabbage.
Baub. pin. 111. 4. *Raii hist.* 795. 2. *Ger. emac.*
313. 5.
δ. B. oler. capitata alba. Heading white Cabbage.
Baub. pin. 111. 1. *Raii hist.* 794. 1. *Mill. dict.*
n. 1. *Ger. emac.* 312. 4.
- B. oler. fabauda.* Savoy Cabbage.
Baub. pin. 111. 1. *alba crispa.* *Raii hist.* 795. 3.
Ger. emac. 315. 12.
ζ. B. oler. laciniata. Purple Borecole.
B. lacin. rubra. *Baub. hist.* 2. 832. *Raii hist.* 796.
n. 8.
η. B. oler. selenisia. Green Borecole.
Baub. pin. 112. 2. *angusto apii fol.* — *Raii hist.*
797. n. 17. *Ger. emac.* 315. 13.
θ. B. oler. fabellica. Siberian Borecole, or Scotch
Kale.
B. fimbriata. *Baub. pin.* 112. 3. *Raii hist.* 796:
n. 12. *Renalm. spec. t.* 133.
ι. B. oler. botrytis. Cauliflower, and Broccoli.
Mill. dict. n. 3.
B. cauliflora. *Baub. pin.* 111. *Renalm. spec. t.*
133. Ger. emac. 314. 9.
κ. B. oler. Napobrassica. Turnep-rooted Cabbage.
Mill. dict. n. 2.—*rad. napiformi.* *Tourn. inst.* 219.
Napobrassica. *Baub. pin.* 111. *prodr.* 54. *Raii*
hist. 797. n. 19.
Root caulescent columnar fleshy.
- [9. *Brassica chinensis*. Chinese Cabbage.
Lin. spec. 932. *syft.* 601. *Reich.* 3. 279. *amen.*
4. 281. *act. petrop.* 1761. 331.
Leaves oval, almost quite entire; the floral ones stem-
clasping, lanceolate: calyxes longer than the claw of
the petals.]
10. *Brassica violacea*.
Lin. spec. 932. *Reich.* 3. 279. *hort. ups.* 191.
Mill. dict. n. 5.
Leaves lanceolate-ovate smooth undivided toothed.
- [11. *Brassica polymorpha*.
Lin. syft. 601. *Murr. in. comm. gott.* 1776. 35.
t. 6.
Inferior leaves linear-lanceolate pinnatifid-toothed; up-
per subulate entire.
*** Erucas, with an ensiform style to the siliques.*
12. *Brassica Erucastrum*. Wild Rocket.
Lin. spec. 932. *Reich.* 3. 279. *hort. cliff.* 337.
(Sisymbrium.) Crantz. austr. 38. n. 4. *Pollich*
pal. n. 641. *Vill. prosp.* 40. t. 20. *f.* 5.
Eruca. *Hall. belv.* n. 459. *Baub. hist.* 2. 862. 3.
Raphanus Erucastrum. *Crantz. crucif.* 111. n. 15.
Erysimum Erucastrum. *Scop. carn.* n. 828.
Leaves runcinate, stem hispid, siliques smooth and even.]
13. *Brassica Eruca*. Garden Rocket.
Lin. spec. 932. *Reich.* 3. 280. *hort. ups.* 190.
mat. med. 163. *Crantz. austr.* 38. *Blackw.*
t. 242. *Allion. pedem.* n. 970.
Sisymbrium. *Lin. hort. cliff.* 337.
Sinapi. *Hall. belv.* n. 464.
Eruca fativa. *Mill. dict.*
Eruca. *Baub. pin.* 98. n. 1. *Baub. hist.* 2. 859.
Raii hist. 806. n. 1. *Ger. emac.* 246. n. 1.
Raphanus Eruca. *Crantz. crucif.* 111. n. 14.
Leaves lyrate, stem hirsute, siliques smooth.
- [14. *Brassica vesicaria*.
Lin. spec. 933. *Reich.* 3. 280. *hort. ups.* 191.
D'Affo. aragon. n. 627. t. 4.
Eruca. *Mor. hist.* 2. 28. n. 2. *Raii hist.* 807. n. 3.
Leaves runcinate; siliques hispid, covered with a swell-
ing calyx.]
15. *Brassica muralis*. Wall Rocket.
Huds. angl. 290. *Curt. lond.* 3. 38. *With.* 709.
Eruca. *Hall. n.* 461. *Matth.* 531. *fig.* *Baub.*
hist. 2. 861. *fig.* *Raii hist.* 807. n. 4. *syn.* 296.
n. 1. *Mor. hist.* 2. 230. n. 16. *Ger.* 191. 2.
emac. 246. 2. *Park.* 818. 1. *Mill. dict.* n. 4.
Leaves lanceolate sinuate-ferrate, smoothish; stem erect,
smooth.
- [16. *Brassica Richerii*.
Allion. pedem. n. 967. t. 58. *f.* 1. & t. 76. *f.* 2.
Vill. prosp. 40. t. 20. *f.* 3. *Laugh.* 2. 331. *Ger.*
prov. 367.
Root caulescent; leaves petiolate subserrate, upper
linear-lanceolate entire; siliques four-cornered.
1. Petals white. All the leaves smooth. Stem-
leaves ovate, blunt at the end, heart-shaped at the
base,

base, smooth, glaucous, perfectly entire. Petals white with a tinge of straw-colour. Siliques slender pointing upwards, and approaching the stem^b. Root fusiform. Stem erect, from four inches to a foot high and more, round, very smooth, dividing from the bottom into alternate branches. Root-leaves smaller, obovate, obtuse, sessile; stem-leaves alternate, clasping, perforated as it were by the stem, ovate, obtuse, quite entire, all glaucous-green, very smooth, thickish, fleshy. Raceme loose, terminal. Corollas small, white^c. Mr. Hudson affirms that this is very nearly allied to the *campestris*; and Dr. Stokes thinks it probable, that the plant of *hort. upf.* supposed to be the *B. orientalis* of Tourn. cor. and our European species, are distinct. There is certainly great confusion in the three first species of *Brassica*, and in a genus so subject to vary, perhaps mere local differences may have been exalted into species.

Native of corn fields and cliffs, in the Levant, about Montpellier; in Germany, Switzerland, Austria, Carniola, Piedmont, &c. In England near Harwich; Bardsey near Orford, Suffolk; Godstone, and Maresfield, Suffex. Annual, flowering in June.

2. Native of Austria, a biennial. Root white, rather woody, sometimes branched, about half a foot long, very thin, with an acrid smell. Stem in the wild plant commonly single; in the cultivated or garden ones generally more: about two feet high. Leaves entire, rounded at the ends, thick, glaucous, embracing the stalk, very smooth. The radical ones are obversely ovate, the stem ones ovate with round bases. The flowers are yellow, and open in small numbers at once. The siliques are about three inches long, smooth, sharp, and parallel or nearly so with the stalk; standing in an upright manner. It is a plant which naturally grows in rough uncultivated places and in fields.

3. Root annual. Root-leaves lyrate, slightly hispid; stem-leaves smooth and even. Corolla yellow, never white. It grows among summer corn, in the north of Europe; and in some parts of Sweden it is a common weed^d. The only places of growth given by Hudson are from Ray, and they belong to *B. orientalis*^f.

4. Stem a foot high, smooth and even, flexuose, branched, perennial at bottom. Leaves smooth, quite blunt, rather fleshy. Calyx closed, smooth, with a double protuberance at the base. Borders of the petals spreading, obovate, emarginate, violet-coloured with red veins. Anthers yellow, standing out^e. Native of the south of Europe, in moist fields.

5. This differs from the foregoing sort in having a narrower stem; the leaves more tender and longer; those next the ground on long petioles: but it differs principally in having almost upright, white petals, and the small flower of a *Turritis*. Native of Germany and Sweden^h.

6. Root biennial. Stem somewhat branched, cylindrical, smooth, from a foot to two feet in height. Root-leaves lyrate, almost smooth, divided into deeply pinnate lobes, which are again irregularly indented or sinuated on the edges. Stem-leaves smooth, glaucous, sessile, stem-clasping, of an oblong heart-shaped figure, very slightly toothletted on the edges. Calyx yellowish green, spreading as in *Sinapis*. The silique has frequently three or four warty excrescencesⁱ.

β. The roots, when cultivated, may be eaten, but have a stronger taste than the Turnep.] Under the title of Rape or Cole-seed, it is much cultivated in the isle of Ely, and some parts of England for its seed, from which the Rape Oil is drawn; and for feeding cattle. [What remains after the oil is expressed, is called oil-cake or rape-cake. It is a very efficacious manure, and is sold from four to six pounds a ton^k. It is not this, but the lint-cake,

or residuum of flax-seed, used in making lint-seed oil, that is used in fattening beasts^l.

Linneus puts down *Napus sativa* as a variety of *Napus sylvestris*; and Miller's *Brassica gongylodes*, that is the *Coleseed*, as a variety of *Brassica oleracea*. Miller says that the *Coleseed* is the *Wild Navew*, or *Napus sylvestris* of Caspar Bauhin; and that it is totally different from *Garden Navew*, or *Napus sativa*, which approaches nearer to the Turnep than the Cabbage; and is accordingly treated of by him under the article *Rapa*, and called *French Turnep*. Ray keeps them distinct, and affirms that the *Garden Navew* is cultivated for the roots, and the *Wild Navew* for making Rape-oil. He distinguishes the *Napobrassica* from both these, making it to be a sort of Cabbage. These authors seem to intend by *Napus sativa* what we call *Turnep-rooted Cabbage*, and by *Napobrassica* the *Turnep-Cabbage*. *Coleseed* is now commonly considered as the *Brassica Napus* of Linneus; and the *Garden Navew* as a variety only of the *wild*. The specific distinctions are very insufficient; the confusion of names is inextricable; and the species of this genus vary with wonderful facility.

Linneus says that the Navew grows wild on the sandy shores of Gotland, Holland, and England. With us it is found among corn, and on ditch banks.

7. The Turnep, now so common in cultivation, is sufficiently known by its round fleshy roots. These however vary exceedingly in their form, size, and colour, in a cultivated state, in which only we are apt to view them. The leaves which arise immediately from the root are very large, of a full green colour, rough, and jagged or gashed almost to the midrib. From the midst of these, early in the second season of its growth, springs a stalk, four or five feet high, in good ground reaching the human stature. The leaves on this are very different from the root-leaves; being oblong, pointed, embracing the stem, smooth and glaucous. The flowers are yellow, and placed on long, slender, smooth peduncles. The siliques or pods are cylindric; and the seeds are of a reddish brown colour, not unlike those of Cabbage.

The variations of Turnep are chiefly in the root, and arise from the different soils, situations, and modes of cultivation.] The varieties enumerated by Mr. Miller are, 1. *The round red or purple-topped*. 2. *The green-topped*. 3. *The Yellow*. 4. *The black-rooted*. 5. *The early Dutch*. He allows that these may be varieties accidentally obtained from seeds, although he has sown them several years, and has always found them to retain their differences. The *Yellow Turnep* seems most unlikely to have been an accidental variety, because the roots are yellow within, whereas the others have white flesh, notwithstanding they are of different colours on the outside.

β. He thinks that the *long-rooted Turnep* is a distinct species; the form of the root, and its manner of growth, being totally different from those before enumerated. The roots are sometimes as long as those of the Parsnep, and nearly of the same shape.

[This only seems to have receded less from a state of nature, wherein the root only swells out a little, is of a stringy texture, and has something of acrimony in the taste.

The general use of this root for the table and feeding of cattle is well known: and it has been a considerable improvement of light lands, particularly in the county of Norfolk, whence other counties have derived the culture.] The red-rooted Turnep was formerly more cultivated in England than at present; but since the large green-topped Turnep has been introduced, all skilful farmers prefer it to the others, because the roots grow to a large size, and continue much longer good: it also grows above ground more than any of the others, which renders it preferable for feeding cattle; and being the softest

^b Woodward in With. ^c Pollich. ^e Linn. ^f With.
^g Linn. ^h Ibid. ⁱ Linn. With, Lightf.
^k With.

^l Young's Irish tour, 1. 507.

and sweetest, even when very large, it is most esteemed for the table. In very severe winters however this is in greater danger of suffering by frost than those whose roots lie deeper, especially if the ground be not covered with snow; for when the roots are alternately frozen and thawed, they rot sooner than those which are more covered, and less tender. I have known roots of this sort, which were more than a foot in diameter, boiled, and were as sweet and tender as any of the smallest roots.

[Pliny among the ancients, and Tragus among the moderns, speak of Turnep roots as weighing each forty pounds; Amatus of some amounting to fifty or sixty; and Matthiolus of many exceeding fifty pounds, and of some approaching to an hundred. Yet we are told that four pounds is now reckoned an extraordinary weight for a Turnep-root in Italy, and that they usually weigh only from a quarter to half a pound. Whether the old accounts be exaggerated, or the modern produce misrepresented, or the culture now neglected, I cannot ascertain. The greatest weight I am acquainted with in England is thirty-six pounds. At Stow in Gloucestershire a farmer produced four Turneps weighing an hundred weight; and offered to produce, from a small given space, eighty Turneps which should weigh a ton.]

The next in goodness to the green-topped is the red or purple-topped Turnep, which will also grow large, and be extremely good for some time; but the roots will become stringy much sooner than the others. The long-rooted, the yellow, and the black-rooted Turneps are now rarely cultivated, except for the sake of variety, none of them being so good for the table or for feed as the red and green-topped sorts.

The early Dutch Turnep is chiefly sown in the spring, to supply the table before the others can be procured; and when drawn off young, this sort is tolerably good; but if the roots be left to grow large, they become stringy, rank, and unfit for use.

The French Turnep is not much cultivated in England; but in France and Holland it is in great esteem, especially for soups; in which, being small, the roots are boiled whole: they must be used whilst they are young, otherwise they are rank and stringy.

[Turnep-roots are reputed to relax the bowels, and to sweeten the blood; to be hurtful to pregnant and hysterical women, and to all who are subject to flatulencies. The juice well fermented affords by distillation an ardent spirit. The rind is acrimonious^m. The tender tops boiled are frequently eaten in the spring as greens with meat.]

It is not many years since the practice of sowing Turneps for feeding cattle, has been of general use; how it happened that this improvement should have been so long neglected in every part of Europe is not easy to determine; since it is very plain, that this piece of husbandry was known to the ancients. For Columella, intreating of the several kinds of vegetables which are proper for the field, recommends the cultivating *Rapa* in plenty; because, says he, those roots which are not wanted for the table, will be eaten by the cattle. Yet Turneps have not been generally cultivated in the fields till lately; nor is the true method of treating them practised even now in some distant counties.

[Whatever skill the ancients might possess in the culture of Turneps, it cannot be a matter of surprise if it were neglected in the confusion consequent upon the fall of the Roman empire. It is however certain that it was practised as far back as we have any records in the Low Countries, and in some parts of Germany. This most useful root indeed does not seem to have found its way into England, for the purpose of feeding cattle, till about the middle of the last century. Sir Richard Weston, in his *Discourse of Husbandry used in Brabant and Flanders*, 1645, affirms that Turneps were then cultivated for feeding kine in many parts of England. He adds however, that "there is as much difference between what

^m Withering.

"groweth in Flanders and here, as is between the same thing which groweth in a garden, and that which groweth wild in the fields." Mr. Worlidge, who writ in 1668, says that flies are the greatest enemies to Turnepsⁿ. And Mr. Ray, in 1686, informs us, that they are sown every where in fields as well as gardens, for the sake of their roots, in England as well as in foreign countries^o. Mr. Lisle also mentions the growth of Turneps in Hampshire, Berkshire, and Leicestershire, in the years 1698 and 1699: and says that the Newtown men who hoed his Turneps in 1707, had made this their business for many years^p. Lastly, Mortimer at the beginning of the present century, says, that Turneps are of a very great advantage to be sown in fields, as food for cattle in winter. He adds, that in Suffolk they commonly give them to their cattle in the house, and that hogs will also eat them, if they are first boiled^q. Hence the common story that the culture of Turneps was first introduced by Charles Lord Viscount Townshend cannot be true; nor did he lead the way even in Norfolk itself: for Mr. Lisle, whose observations in agriculture were made between the years 1693 and 1722, informs us, that he was assured by Mr. Heron of Norfolk, that they dung their turnep-land so much, that their dry-land meadows are quite impoverished by it. That he discoursed also with Mr. Gooch, a Norfolk gentleman, about the turnep-husbandry of that county; particularly on a distemper to which the root is subject called the *banbery*^r. The truly patriotic nobleman however abovementioned was probably the occasion of this culture being carried to that extent and perfection in which we now see it; and that most likely about the year 1730, when his Lordship retired to Rainham from public business; or perhaps earlier, for he was ambassador extraordinary to the States General in 1709, when he might have become acquainted with the Turnep culture on the Continent^s.

The improvement in this piece of husbandry was undoubtedly gradual. The culture was practised in the middle of the last century, but was not well understood till the end of that and the beginning of this: nor did it arrive at its present perfection till it was encouraged by the precept and example of the late Lord Viscount Townshend.

Turneps were certainly not in cultivation, except for the table, at the end of the sixteenth, and the beginning of the last century. Barnabe Googe indeed says (1586), "we use to sowe Rapes for the sustenance both of man and beast." But we are to recollect that his work is a translation from the German^t, and the above passage refers to that country. So little was known of them in 1588, that Cogan, in his *Haven of Health*, affirms, "that although many men love to eat Turneps, yet swine by nature doe abhorre them^u." Neither Gerard in 1597, nor Parkinson in 1629, give the smallest hint of this root being then in field-culture for cattle. The former of these says only that "the small Turnep groweth by a village near London, called Hackency, in a sandie ground, and brought to the Crosse in Cheapside by the women of that village to be solde, and are the best that I have ever tasted^v."

8. The Cabbage, as it is found in its wild state on the sea shores of Britain, has the stem leaves very much waved, and variously indented, the colour sea-green frequently with a mixture of purple; the lower ones somewhat ovate and sessile, the upper almost linear. The flowers are large. The leaflets of the calyx ovate, broad and yellow. The siliques short and swelling^w.

Early in the spring, the Sea Cabbage is preferable to the cultivated sorts; but when it is gathered on the coast, it must be boiled in two waters, to take away the saltiness. When old it is said to occasion

ⁿ p. 26. ^o hist. p. 800. ^p 233—238. ^q p. 122. edit. 2. 1708. ^r p. 233 & 239. ^s Young's annals, 5. 120. ^t Of Conrad Heresbach, p. 59. ^u p. 64. ^v Herball, p. 178. ^w Woodw. in With.

giddiness. The roots may also be eaten, but they are not so tender as those of the Turnep and Navew. All the different varieties of Garden Cabbage originate from this^z.

These varieties may, it should seem, be reduced to three general divisions: the first comprehending those which grow in the natural way, without forming the leaves or stalks into a head. This section or division, besides the Sea Cabbage or Wild Colewort, would comprehend the Green Colewort, the Borecoles, and Turnep Cabbage. Secondly, those which form the leaves into a head, as the White Cabbage, the Red, the Savoy, &c. Thirdly, those which form their stalks into a head, as the Cauliflower, and the different varieties of Broccoli. The first section might be subdivided into the Wild, with broad leaves, and an even stem; the Turnep Cabbage, with broad leaves and a protuberant stem; and the Borecoles, with fine-cut leaves and an even stem. The second section contains the Cabbages commonly so called: as the Red; the numerous varieties of the White, such as the Sugar-loaf, the Early, the foreign Musk, the small Russia, the large-sided, the flat-topped, the Yorkshire, Scotch, American, &c. &c.; and those with wrinkled leaves, as the common Savoy, the green Savoy, &c. Of the Borecoles in the first, and the Broccoli in the third section, there are also variations in colour—the purple and the white.

Mr. Miller seems to confound the *Napobrassica* or Turnep Cabbage with the Sea Cabbage: he says] it grows naturally on the sea shore, near Dover; that it has a perennial branching stalk, in which it differs from all the others; that the leaves are inclining to a purple colour, and are placed alternately on the branches; that the flower-stalks grow from the ends of the branches, and spread out horizontally, but that those which arise from the centre of the plant grow erect, and seldom put out branches. He insists that it is a distinct species, having always found the seeds to produce the same plant, with this difference only, that in good ground the stalks will be much larger than in poor land. The young shoots, after they are much frozen, are very sweet and good; but at other times they are very strong and stringy. In very hard winters, this is a necessary plant, for the most severe frosts do not injure it.

The common Colewort, or Dorsetshire Kale is now almost lost near London, where the markets are usually supplied with Cabbage plants instead of them; these being more tender and delicate. The common Colewort indeed is better able to resist the cold in severe winters; but it is not good till it has been pinched by frost, and our winters being generally temperate, Cabbage plants are now constantly brought to market; which, if they be of the Sugar-loaf kind, are the sweetest greens from December to April yet known. Indeed, where farmers sow Coleworts to feed their milch cattle in the spring, when there is a scarcity of herbage, the common Colewort is to be preferred, as being so very hardy that no frost will destroy it.

The curled Coleworts or Borecoles are more generally esteemed than the common one, being like that so hardy as never to be injured by cold, and at the same time much more tender and delicate; these however are always sweeter in severe winters than in mild seasons.

Of the heading Cabbages, the Red is chiefly cultivated for pickling; the common white, flat, long-sided, and Savoy for winter use. The Musk Cabbage is almost lost, though for eating it is one of the best we have; but being tenderer than many other sorts, it is not so profitable for market gardeners. Such however as cultivate for their own tables should make choice of this rather than any of the common Cabbages, for it is always looser, the leaves are more crisp and tender, and it has a most agreeable musky scent when cut.

The Early and Sugar-loaf Cabbages are generally sown for summer use, and are commonly

^z St. in With.

called Michaelmas Cabbages. The Russian Cabbage was formerly in much greater esteem than at present, it being now only to be found in particular gentlemen's gardens, and rarely brought to market. [The other heading Cabbages, together with many others, for it would be endless to enumerate all the varieties which are perpetually rising into fame, and falling into oblivion, are cultivated chiefly for feeding cattle: for which they are certainly well adapted on strong lands; but they are undoubtedly a very exhausting crop.

When the Cabbage was first introduced into field culture, I am not enabled, from my researches, to state; but it has not long prevailed to any considerable extent. Mr. Houghton, in his *Collections*^a, relates; that a beast was lately (1694) sold near Bury for thirty pounds, which was fattened with Cabbage leaves.

For the table it has been used time immemorial; having been in so much favour with the Romans, it could hardly fail of being introduced by them, during their residence in our island. And our Saxon ancestors certainly had some sort of Cabbage, since they called the month of February *Sproutcale*^b.

The Germans cut Cabbages in pieces, and with some aromatic herbs and salt, press them close in a tub, where they soon ferment, and are then eaten under the name of *Sour Croul*^c. In this state they are much recommended against the sea scurvy. Cabbages indeed in general are esteemed a salubrious aliment in the putrid scurvy: they are laxative and produce flatulencies; but the laxative matter is extracted by long boiling. The white Cabbage is the most putrescible, and the red most emollient^d.]

Mr. Miller insists that the Cauliflower is specifically distinct from the common Cabbage; because, from more than fifty years experience in cultivating these plants, he could never find the least appearance of one approaching to the other: because they are so different in their leaves, as to be easily distinguished when the plants are young: and because the common Cabbage puts out one upright stem from the centre, which afterwards divides into several branches; whereas the Cauliflower sends out many flower-stems from the part which is eaten; which is a compact collection of the heads of these stalks, dividing afterwards into so many stems, and branching out into many spreading shoots, so as to form a large spreading head when in flower, but never rising pyramidically like the Cabbage.

The Cauliflower was first brought to England from the island of Cyprus, where it is in great perfection at present; but it is supposed, it was originally brought thither from some other country: most of the old writers mention it to have been brought from that island, to the different parts of Europe. Although this plant was cultivated in a few English gardens long since, yet it was not brought to any degree of perfection till about the year 1680, at least not to be sold in the markets. Since the year 1700 the Cauliflower has been so much improved in England, that such plants as before would have been greatly admired, are at present little regarded. It has indeed been much more improved in England than in any other parts of Europe. In France they rarely have Cauliflowers till near Michaelmas; and Holland is generally supplied with them from England. In many parts of Germany they were not cultivated till within a few years past; and most parts of Europe are supplied with seeds from hence.

Purple and White Broccoli are only varieties of the Cauliflower; for although with care they may be kept distinct, yet if they were to stand near each other for seed, they would probably intermix. I am the rather inclined to believe this, from the various changes which I have observed in these plants; for I have frequently had Cauliflowers of a green colour, with buds regularly formed at the ends of the shoots, like those of Broccoli, though the colour

^a Vol. i. p. 294.

^b White's Selborne.

^c St. in With.

^d Lewis.

was different; and the white Broccoli approaches so near to the Cauliflower, as to be with difficulty distinguished from it. When however these are cultivated with care, they may be kept distinct. The variations are not occasioned by soil, but by the mixture of the farina of the anthers in the flowers; those persons therefore who are curious to preserve them distinct, never suffer the different sorts to stand near each other for seed.

9. Leaves oblong or oval, very like those of Hound's-tongue, blunt but smooth; stem-leaves embracing, oblong, quite entire. Flowers as in the common Cabbage, yellow. Calyx longer than the claws of the petals, whence it gapes and is prominent between them. Stamens longer. Siliques a little compressed. Native of China^c.

Introduced in 1770, by Mons. Richard^f.]

10. This is an annual plant, which, if sown in april, will flower in july, and perfect the seeds in october. It never closes the leaves to form a head, but grows open and loose, more like the wild Navew. This sort came from China, where it is cultivated as an esculent plant. There are two or three varieties of it, and it is as changeable as our common Cabbage: [of which indeed, or perhaps of the Navew, it seems to be a variety.

11. This species is a native of Siberia, and is an annual plant. The root is thin and fibrose. The stems numerous, growing oblique, two feet or more in length, smooth, and branching upwards. The leaves are of dissimilar forms, but in general are linear-lanceolate, thick, and alternate; those on the stalk generally dentated: the denticles nearly subulate. The shoots are leafy, proceeding from the axillas of the branches, so as to cause a kind of clustering appearance. The flowers are pale-yellow. It is a plant which varies extremely in the appearance of its leaves.

12. Root annual, fusiform. Stems many, from a foot to eighteen inches high and more, round, smooth, sometimes having a few hairs and small red dots, bright or glaucous green: branches alternate. The root-leaves form a tuft, prostrate on the ground: stem-leaves alternate, one to each branch, subdecurent, from upright spreading, lanceolate, obtuse, pinnatifid, above six inches long and two broad, bright green or glaucous, smooth, frequently having a few hairs; pinnae alternate and opposite, decurrent, linear-lanceolate, obtusely toothletted, the outmost leaflet trifid: petioles furrowed above, sometimes an inch long: rib smooth, often with a few hairs. Flowers in a long, loose, terminating raceme. Peduncles alternate, round, smooth, one-flowered. Corollas yellow, with dark yellow and green veins. Siliques spreading, obtusely quadrangular^b. Native of the southern countries of Europe, in sandy fields, by way sides, and on walls; flowering from june to august.

13. Root annual. Stem angular, upright, branching, two feet high and more. Leaves smooth, pulpy, with a leafy nerve and three or four pairs of pinnae, larger as they approach the nerve, confluent, oblong, acute, toothed; the outer largest, ovate or rhomboidal, often semibifid and semitrifid. Calyx erect, livid, with the leaflets, especially two of them, gibbous. Claw of the petals erect, long: border broad, roundish, lemon-colour with black veins, sometimes white. Siliques on short peduncles, pressed to the stem, subhirsute, round, with four lines, two of which are a little elevated; and terminated by a thick strong triangular horn, which is the style. Seeds round on one side, and flat on the other^l.

Native of Switzerland, Austria, and Piedmont. It was formerly much cultivated in the gardens as a salad herb, but at present is little known, having been long rejected on account of its strong ungrateful smell. It also stood in the list of medicinal plants, but is now seldom used, though it is reckoned a strong diuretic.

^c Linneus.

^f Hort. kew.
^l Haller.

^b Pollich.

[14. Root annual, spindle-shaped. Leaves lanceolate, pinnatifid-toothed, smooth above. Stem hairy, branching. Racemes erect, terminating. Corollas yellow, with darker veins. Calyx cylindrical; but in the fruit it becomes inflated and permanent. The belly of the silique is not longer than the calyx, with the lanceolate pistil permanent. It differs therefore from the foregoing, in having a calyx under the fruit, inflated like a bladder; leaves not lyrate but lanceolate; siliques hispid backward, not smooth; calyxes permanent till the fruit is ripe, not deciduous^k. Native of Spain and Aleppo, whence it was sent to Morison by Robert Huntington.

15. Root perennial, somewhat woody, penetrating deep into walls. Stem a foot and half high, branched, round, at bottom somewhat woody and perennial. Leaves pinnatifid and jagged, smooth, spreading, having a disagreeable smell. The calyx, before the flower opens, has two short processes like horns, furnished with one or two hairs. Petals rather large, twice the length of the calyx, yellow. The two glands on the outside of the filaments are unusually long, externally bent in at the top; the other two shorter and roundish. Silique an inch and half long, round, marked on each side with a prominent line^l.

It grows on old buildings and walls in many parts of England, as at Yarmouth, Chester, Taunton castle, Lichfield close, Bristol, Exeter, Berwick, and plentifully in and about London, as about the Tower, the back of Bethlem hospital, about Dean's-yard, Westminster, Hyde Park, Chelsea, &c. flowering the greatest part of the summer.

16. Root woody, perennial. Root-leaves elliptic, obtuse, obscurely sinuate-angular; petiole channelled, the length of the leaves. Stem round, striated, hollow, a cubit and half high, simple or a little branched. Stem-leaves few, distant, like the others, but on shorter petioles, and scarcely angular. Flowers in umbels: petals ovate, yellow, scarcely emarginate; veins darker. Siliques torulose, subquadrangular, drawn to a point at both ends. The whole plant is very smooth, tender, juicy, and glaucous. Native of the south of France, and the mountains of Piedmont^m.]

PROPAGATION AND CULTURE.

1—5. The five first species are cultivated merely for curiosity. They may be propagated by sowing their seeds on a bed of light earth, early in the spring, in the place where they are designed to remain, for they do not bear transplanting well. When the plants are come up pretty strong, they should be thinned, so as to leave them four or five inches apart, and they must be constantly kept clear from weeds. In june they will flower, and their seeds will ripen the beginning of august. If these be permitted to fall, the plants will come up, and maintain themselves without any farther care except weeding.

COLESEED, OR RAPE.

The Cole seed when cultivated for feeding cattle, should be sown about the middle of june. The ground for this should be prepared in the same manner as for Turneps. The quantity of seeds for an acre of land, is from six to eight pounds, and as the price of the seeds is not great, it is better to allow eight pounds; for if the plants are too close in any part, they may be easily thinned when the ground is hoed. When the plants have put out six leaves, they will be fit to hoe, which must be performed in the same manner as is practised for Turneps, with this difference only, of leaving these much nearer together; for as they have fibrous roots and slender stalks, they do not require near so much room. These plants should have a second hoeing, about five or six weeks after the first, which, if well performed in dry weather, will entirely destroy the weeds, and they will require no farther culture. By the middle of november these will be grown

^k Linn.

^l Curtis.

^m Allioni.

large enough for feeding, when if there is a scarcity of fodder, this may be either cut or fed down; but where there is not an immediate want of food, it had better be kept as a reserve for hard weather, or spring feed, when there may be a scarcity of other green food. If the heads are cut off, and the stalks left in the ground, they will shoot again early in the spring, and produce a good second crop in april, which may be either fed off, or permitted to run to seed, as is the practice where this is cultivated for the seeds: but if the first is fed down, there should be care taken that the cattle do not destroy their stems, or pull them out of the ground. As this plant is so hardy as not to be destroyed by frost, it is of great service in hard winters for feeding ewes; for when the ground is so hard frozen, as that Turneps cannot be taken up, these plants may be cut off for a constant supply. In several places where I have sown this seed, I have found that one acre of land will produce as much food, as almost two acres of Turneps; and this will afford late food after the Turneps are run to seed; and if it is afterward permitted to stand for feed, one acre will produce as much as, at a moderate computation, will sell for five pounds, clear of charges.

Partridges, pheasants, turkeys, and most other fowl, are very fond of this plant; so that wherever it is cultivated, if there are any birds in the neighbourhood, they will constantly lie among these plants.

The seeds of this plant are sown in gardens for winter and spring salads, this being one of the small salad-herbs.

[Cole or Rape is sometimes sown on fallow, like Turneps, sometimes on the stubble of an arable crop; it requires good land, very stiff clay does not suit it, and poor land is wholly unfit; but on the sward of old grazing grounds, on fen and marsh land, it generally turns out the most profitable crop for feed, either immediately or after flax. On old pastures the turf is pared and burnt, the ashes are spread, generally with a mixture of lime. The seed is sown in july, early enough to get a strong leaf, and late enough to prevent its running up to stem the first autumn; the quantity of one gallon to an acre, generally on one plowing, and brushed in with a thorn-harrow. The crop is seldom hoed or weeded. The vacant patches are filled up in october with plants from those parts which are overstocked; this work is done by women, the plants seldom fail, but they ripen later than the others. When a large piece fails, the plough is sometimes used in transplanting; the expense four shillings an acre; namely eight women, at six-pence a day. Would it not therefore be better to transplant the whole crop?

In the common method of culture, the whole tribe of biennial weeds have time to establish themselves before winter; and the crop not being reaped until july or august following, they have time to mature and shed their seed. The grasses and strong-rooted weeds of every kind, gain possession of the soil; which also gets out of tilth, by lying so long without ploughing.

One ploughing in autumn would extirpate the biennial weeds, check the grasses and strong-rooted weeds, and preserve the soil in tillage. Draw from the first land sufficient plants for the last land, and bury the roots in a vacant place until wanted. Plough the first land, burying the weeds and the refuse rape; and stock it at the same time with plants, drawn from the second land. The first land being finished, supply the second with plants from the third, and so on; furnishing the last land with the plants in reserve. Thus the entire piece would have prime plants, equal in strength, and regular in distance; the soil would be evenly occupied, and the crop would ripen equally; the hoe, and even the horse-hoe might be used between the rows; and the foulest crop which farmers have to deal with, might, at a small expense, be rendered a fallow crop of the first estimation.

In this management, the first or seed-ploughing

ought to be very shallow across the ridges; and the second or transplanting ploughing should be across the first; gathering up the ridges dry against winter. A manured fallow, a rich wheat stubble, or other land sufficiently clean and in heart, might be planted in a similar manner; raising plants for this purpose in a detached seed-bed.

Rape is generally ripe in july, and is considered as fit for cutting when the forwardest of the seed has begun to turn black. It is cut with sickles, and laid in broad thin reaps upon the tops of the stubble, which is generally cut about a foot high, or as high as the lower branches will allow. It lies until the sap is pretty well dried out of the greenest pods, and the ripest are ready to open; and is commonly thrashed in the field upon a cloth. It would be far better however to bind, shock, and carry it into the barn; threshing it when markets and convenience required^a.

When Rape succeeds flax, the ground is cleared of weeds as soon as convenient; the ground is ploughed four or five inches deep, and from half a peck to a peck of seed, according to the richness of the soil, is sown from a week before to a week after michaelmas; it is usually well harrowed in, and if it grows into rough leaf before winter it is considered as better than growing more, which would render it in danger of being damaged or destroyed by frost: no weeding takes place, and the crop will be ripe about the middle of july. It is reaped and laid on the ground in single handfuls, and when dry it is carried to the threshing-floor on sledges covered with sail-cloth. The crop is from three to seven quarters on an acre. The seed lost in reaping and getting produces a crop of green food for sheep, which is fed off early enough to prepare the ground for a second crop of flax. The straw is sold at two shillings an acre, to persons who burn it on the spot for the ashes^b.

For immediate profit, and on old pastures broken up, Rape or Cole may be thus cultivated for seed; but on stubbles or fallows it answers better to feed it off with sheep; the fat ones going over it first, and afterwards the lean or store sheep following; in the autumn, but particularly in the spring, when there is frequently a scarcity of green feed. This is an excellent preparation either for Wheat or Barley. It succeeds best on a deep soil, with good manure and deep ploughing; and does best after Beans, Barley, Oats, or Wheat. It is sometimes sown after Turneps or Cabbages, which cannot be a right practice. When sown on a fallow the land should be ploughed up soon after christmas, and lie till the end of march. It should then be ploughed a second time, harrowed down, and a coat of manure laid on as for Turneps. When this is spread, the land should be cross-ploughed and got into fine tilth by the end of june. The first rain after this, the seed should be sown; from two to four quarts an acre according to circumstances, in the same manner with Turneps; and the land should be lightly harrowed and rolled. The crop should be hoed, as above directed; and the vacant places filled up in october. Many persons omit the hoeing entirely, when it is intended only for feeding. Coleseed being an exhauster of land, should not be repeated oftener than every seventh year, and not so often when cultivated for the seed.]

T U R N E P.

Soil.

The Turnep delights in a light, sandy, loamy soil: in a rich soil the roots grow rank and are sticky; but if it be moist, they will thrive better in summer, especially in fresh land, where they are always sweeter than upon an old worn out, or a rich soil.

[The right soil for this root, in field culture, is a deep sand, such as has adhesion enough to make it of the value of from 5s. to 10s. an acre. L. J.

^a Marshall's Yorkshire, 2. 29, &c.

^b Middleton, in Young's ann. vol. 14. p. 94.

of 14s. or 15s. has generally too great a mixture of loam. If the land be wet or stiff, such as yields good wheat crops, the culture may not be advantageous, especially if used, as it should be, as a preparation for Barley: on such soil it would shorten the crop, at least two or three combs (from eight to twelve bushels) an acre. Even blowing sands of 3s. 6d. or 2s. 6d. an acre are to be preferred; for these, when folded, if the season should happen to be wet, yield profitable crops: indeed such lands can be farmed no other way; for if no Turneps are gained, no Corn can be had; and a mere sheep-walk is then the only use that can be made of them. Where a farmer has no proper soil for Turneps, it is more prudent to give up the winter feeding of more cattle than his hay and straw will do for, unless he can depend on buying Turneps, which may sometimes be advantageous, and sometimes the contrary^p.

Tillage.

The first earth (or ploughing) for Turneps should be given before christmas, or certainly not later, and should be of a common staple depth^q; unless the land is foul, in which case it should be ploughed very fleet (shallow) in two furrow ridges, and the second time to the full depth; but it should never be ploughed in wet weather^r. This second earth, for which frequently the farmer has not leisure, should be given before the spring feed-time, and will be very useful; for if there should be any spire or spear-grass (quick, quich or couch) in the land, that pernicious weed is apt to get too great a hold before barley-sowing is over. Immediately after the Barley is in the ground, the third earth should be given, this will be in may; the fourth about the second week in june; and the fifth, or feed-earth the latter end of the same month, unless the soil be subject to the mildew, in which case old midsummer (the first week in july) will be full soon enough. And let it be observed, that harrowing with every earth is very necessary, for the surface should always be kept in fine friable order, that the seed-weeds may grow; whereas, if this be omitted till the feed-earth, they will then be grown so powerful, as to smother many of the young plants^s.

On a light dry soil, the Turnep crop is in a degree necessary; but where land will remain in grass, and where other arable crops are more certain and productive, it is less essential to good husbandry: in particular situations however, under proper management, it may frequently be useful, and may be occasionally practised, on a small scale, in almost every situation. It may not be amiss therefore to give the proper tillage of the turnep-crop on rich retentive soils.

If the land be foul, or if early sowing be proposed, break up in autumn, by a ricebalk or half-ploughing, across the lands; gathering a bout in each interfurrow, and opening the cross trenches, in order to lay the soil as dry as possible during the winter. But if the land be tolerably clean, and early sowing be not wanted, break up in the spring; in order that the roots and stems of grasses, &c. may remain in an undigested state, and assist in rendering a closely textured soil loose and fit to receive the weakly fibres of the seedling Turneps.—Cross, and give the first stirring (the third ploughing) without previous harrowing: and, if the root-weeds be not yet subdued, give a fourth ploughing, before the harrows be suffered to come upon the land.

Spread dung, which is in a middle state, on the rough plit: if too long and strawy, it is pulled up by the harrows, and if wholly digested, it loses the valuable quality of rendering this retentive soil loose and open. As the dung is spread harrow and roll, until the surface be perfectly reduced; and in this state let it lie until the seed-weeds have vegetated.

Turn under the weeds and manure, by a mean-depth^t somewhat shallow ploughing; and if the

soil be in a proper state, and the season of sowing be arrived, sow on this ploughing: if not, harrow and roll, letting another crop of seed-weeds spend themselves; remembering that the stronger the seed-weeds are before they are ploughed under, the fitter the soil will be for the reception of the seedling Turneps, especially if it be of a tenacious quality.

Harrow immediately the plit of the feed ploughing with rough harrows, in order to give a uniform looseness to the surface, as well as that the seed may be buried at a uniform depth. Sow, and immediately cover with one full tine of a pair of light harrows; and, if possible, with the horses trotting.

For a crop to be eaten off in autumn, sow in june, the *tankard* or *pudding* Turnep, which has a rapid growth, but standing high above the ground, cannot bear the winter. For winter and spring feed, sow the common *white-loaf*, in july. If these miscarry, or if stubble Turneps be attempted, sow in august, the *stone* Turnep, a small hard, sweet root, which stands the winter with singular hardiness.

In a common season, sow two pounds of seed on an acre, all upon the same surface; for perhaps the nearer the plants come up, the less danger there is of their being wholly cut off by insects; but if these are known to be in force, or if any doubt arise, either as to the quality of the seed or the season, sow at least three pounds of seed to an acre.

If the soil lie in broad round lands, plough one, two, or even three bouts in each interfurrow, according to the width, height and wetness of the lands, as soon as the seed-weeds have done vegetating; and if any root-weeds appear to be alive on the surface, or being dead, if any are likely to impede the hoe, pick them off, and cast them upon the intervals.

If the first sowing miscarry, and the failure be fully ascertained before the weeds have got too strong to be got out with rough harrows, harrow only before re-sowing; but if the weeds have got fast hold of the soil, or if the season be too moist to obtain the intention by harrowing alone, plough a mean-depth, and harrow, sow, and cover as before^u.

On such soils the Turneps cannot be fed on the land without injury, even by sheep; nor can they well be carted off, except in light broad-wheeled carts or on sledges: they may however be useful in stall-feeding bullocks, or given to sheep on a sound piece of pasture.

Drilling.]

Another method has been practised lately in cultivating Turneps; which is, by sowing the seed in rows with the drill plough. In some places the rows have been sown three feet asunder, in others four, in some five, and some six. The latter has been commended by skilful persons as the most proper distance; for although the intervals are so large, yet the crop produced on an acre has been much greater than upon the same quantity of land where the rows have been but half this distance; and upon all the fields which have been cultivated for Turneps, the crops have greatly exceeded those which have been hand-hoed. The late Lord Viscount Townshend was at the expense of making the trial of these two different methods of husbandry, with the greatest care, by equally dividing the same fields into different lands, which were alternately sown in drills and broad-cast. The latter were hoed by hand, in the common method, and the other cultivated by the hoeing plough; and when the roots were fully grown, his Lordship had an equal quantity of land, which had been sown in different methods, measured, and the roots drawn up and weighed; and those roots which had been cultivated by the plough, were so much larger than the other, that the crop of one acre, weighed a ton and a half more than that of an acre in the other husbandry.

But when the Turneps are sown in drills, they will require to be hoed by hand, to separate and cut out

^p M Young's ann. vol. 3. p. 298.

^r Kent's report for Norfolk.

^q Ibid.

^s Macro.

^t Marshall's midland, 2. 192, &c.

the plants where they are too near together in the rows, as also to cut up the weeds between the plants, where the plough cannot reach them. If this is carefully performed, the ploughing of the intervals will encourage the growth of the roots, by thus stirring the ground, and prepare it much better for the crop of Barley, or whatever else is sown the following spring. This method of culture may be supposed to be more expensive than that commonly practised, by those unacquainted with it; but those who have made trials of both, find the horse-hoeing to be much the cheapest, and by far the best. For the country people, who are employed in hand-hoeing Turneps, are very apt to hurry over their work, so that half the weeds are left growing, and the plants are seldom singled out so well as they should be; nor are they curious enough to distinguish the Charlock (which is one of the most common weeds in arable land) from the Turneps; so that about the middle of September, it is very common to see the fields of Turneps full of the yellow flowers of the Charlock. Now, in the horse-hoeing, all the weeds in the intervals will be entirely destroyed; or if a few plants of Charlock in the rows should be overlooked, they may be easily drawn out afterwards; and by this method the land will be sooner and better cleaned from weeds.

[The above advantages of drilling Turneps have been confirmed by subsequent observations and experiments. The spaces between the rows will be hoed in half the time that would be required if they were sown in the common way; and when they come to be set out at proper distances in the rows, the superfluous plants may be cut out in one-third of the time usually required, and that by women and children; which is a considerable advantage, when the hoeing is to be done in the busy time of harvest^u. It is not the practice, nor does it seem to be any advantage, to set out the rows at so great a distance as is recommended by Mr. Miller; the common intervals between the rows are from seven or eight to ten or twelve inches.

The difference in weight on a given quantity of land appears also to be considerable, to the advantage of the drill culture, to the amount of one ton, three, four, or twelve hundreds; two tons five hundred; and even three tons^x. But the principal advantage seems to consist in depositing the seed at a proper depth in the soil, namely about two inches, where there is moisture even in a dry season to send the plants up in a few days; whereas when they are sown broad-cast in a time of drought, the seed may remain several weeks waiting for rain to make them vegetate; and the seed being all deposited at the same depth will vegetate at the same time; and by getting into the rough leaf sooner, will stand a better chance of escaping the fly^y.

Manuring.

No Turneps, and consequently no Barley after them, can be had without dung; and the crop in great measure depends upon the quantity of it. The dependance for manure is chiefly on the fold or farm-yard, usually both. Of farm-yard dung, or else muck, that is, dung mixed with mould, marl, &c., not less than twelve loads should be spread on an acre, such as was made the preceding winter, and once turned over. In respect to the length of dung, it should neither be long, nor quite rotten; the best condition is, when it is in such a state that the labourers say it will neither spit nor fork. When the dung is rather long, and ploughed in with the seed-earth, the seed should be only rolled in^z.

It is the custom with some farmers to turn in the dung very shallow at the last ploughing but one, harrowing well to mix it with the soil; and they think it will begin to ferment by the time the seed-earth is given to the land. It seems however to be the better method to turn in the dung by the last

ploughing or seed-earth; because it is then turned down, not by a shallow furrow, but covered as soon as possible from the sun; and deposited where the roots will be sure to find it, and where the immediate action of the sun and wind is excluded: whereas in mixing the manure with the soil by the harrow, much of it is pulled out, and left exposed on the surface^a.

Rough dung is in general preferred to such as is rotten; a better crop however has been obtained, by mixing dung with earth or other manure in the winter, and getting it rotten enough to lay at top, and harrow it in with the seed, than by ploughing in long dung^b.

Rape-cake, in a pulverized state, is also recommended for turnep-manure. Being reduced to powder by two mills, it is put into the drills. The quantity used to an acre is a quarter of a ton; which has never exceeded 11. 5s. in price^c. Others use malt-coombs, foot, soapers-ashes, lime, crag, &c. but none of these manures are very general, or so effectual as farm-yard dung.

Seed and Sowing.

Mr. Miller recommends two pounds of Turnep-seed as fully sufficient for an acre of any land; one pound being the common allowance. [Some sow but a quart, nay but a pint, whilst others allow half a gallon to an acre. Half the quantity that is sown broad-cast will do when the seed is sown in drills.

But the quantity of seed depends much on the soil: upon a naturally good Turnep sand a pint an acre, evenly delivered by a good hand, or sowing engine, will be enough; but in general two pints are allowed. No soil requires so much seed as chalky lands, when the chalk comes quite to the surface: upon such soil, a quarter of a peck will seldom be too much for an acre, because the fly is sure to attack the plants more voraciously and with greater certainty on this soil than on any other. The sowing engine, though with care a good tool, yet is liable to have the holes stopped by two seeds sticking in them, so that if the sower is not very attentive, he may go some distance, without a regular delivery^d.]

The common season for sowing Turneps, is any time from the beginning of June till the middle of August, or a little later, though it is not advisable to sow them much after; because, if the autumn should not prove very mild; they will not have time to apple of a proper size before winter; nor will the roots of those which are sown after the end of July grow very large, unless the frost keeps off long in autumn. But, notwithstanding this is the general season in which the greatest part of Turneps are sown in the country, yet about London they are sown successively from March to August, by those who propagate them to supply the markets with their roots; but there is a great hazard of losing those which are sown early in the year, if the season should prove dry, by the fly, which will devour whole fields of this plant while young; so that where a small quantity for the supply of a family is wanted, it will be absolutely necessary to water them in dry weather; and where a person sows those seeds in April and May, it should always be upon a moist soil, otherwise they seldom come to good, the heat of the weather at that season being too great for them upon a dry soil; but those which are intended for the general crop, are sown towards the end of June, when they commonly receive some refreshing showers to bring them forward; without which it is very common to have them all destroyed.

[The season for field-sowing extends from a week before midsummer, the 17th or 18th of June, to the middle or end of July. This variation is necessary for two reasons; first, because the land cannot be all manured to sow early; and secondly, because the late sown will last much longer than the early ones, which are subject to the blight or mildew, and

^u Boote in trans. arts, vol. 6. for 1783, p. 95.

^x Dann, Ibid. vol. 10. for 1792, p. 61, &c.

^y Boote, Ibid. vol. 6. p. 93, 94.

^z Macro, in Young's ann. 3. 299.

^a Young's ann. 12. p. 14.

^c Kent's report for Norfolk.

^b Macro, ibid. 7. 188.

^d Macro in Young's ann. 3. 300.

consequently

consequently are more likely to be rotted by hard frosts afterwards; for which reason, all farmers should take care to have some late sown. Sometimes a crop sown the first week in august has proved the most profitable; this having escaped, whilst the rest have been killed by the frost^e. An active farmer therefore, will, in cases where it is necessary, as soon as he has set up or sowed his wheat, plough up the intervals, and sow them immediately with Turneps, for the chance of a late crop, which will furnish spring feed, although they should fail of applying well.

Where a farmer has many Turneps, it does not seem a bad plan to sow a fourth part at the end of june or the beginning of july to come early; half in the middle of july for the main crop, and the remainder at the end of the same month to come late^f. This however must depend upon his business, the weather, and other contingencies. At any rate the main crop should not be sown too soon, nor allowed too much room; because large roots will not stand the frost near so well as smaller ones^g.

What is ploughed for the last earth should always be sown the same day, else, unless rain fall, the ground will be too dry for the seed to vegetate.] The seed must be harrowed in as soon as it is sown with a short-tined harrow; and the ground rolled with a wooden roller, to break the clods, and make the surface even. The plants will come up in ten days or a fortnight after sowing. [But this will vary much with the weather; and there will be a difference of three days between the germinating of new and old seed.

Hoeing.]

When the plants have got four or five leaves, they should be hoed to destroy the weeds, and to cut up the plants where they are too thick, leaving the remaining ones about six or eight inches asunder each way, which will be room enough for the plants to stand for the first hoeing; and the sooner this is performed, when the plants have four leaves, the better they will thrive; but in the second hoeing, which must be performed about a month after the first, they should be cut up, so that the remaining plants may stand fourteen or sixteen inches distance, or more, especially if they are designed for feeding cattle; for where the plants are allowed a good distance, the roots will be proportionably large, provided the ground is good; so that what is lost in number, will be overgained by their bulk. But in places where they are sown for the use of the kitchen, they need not be left at a greater distance than a foot, because large roots are not so generally esteemed for the table.

[The time for the first hoeing of field Turneps is very uncertain, depending on the soil and the season, and varying from three to eight and even nine weeks from the time of sowing. The size of the plants is the only guide; and the best rule is to begin hoeing, as soon as they are about the size of the palm of the hand, or spread upon the ground from three to four inches.

If the hoe be put in too soon, the plants which are set out are liable to be buried, and their roots disturbed, in setting out others which are near them. And if the Turneps be suffered to grow too large, it is difficult to set out the plants, and they are liable to be drawn up by weeds. If these be numerous or luxuriant, it will be necessary to begin hoeing somewhat earlier, in order to check them in time. Some persons run over the ground with a light harrow once in a place as soon as the plants are stout enough, to assist the hoeing; and if any of the fields, after the hoeing begins, get too forward, which in a wet season is often the case, they give them a second harrowing the contrary way.

Nothing but practice can teach the method of hoeing Turneps; to be performed well it requires a

quickness of eye, and a dexterity of hand, which do not fall to the lot of every man. The hoe is generally drawn round the plant with a long sweeping stroke; and when the plants are small, this is the only stroke that ought to be used; but when the plants are out of danger of being buried, a short straight stroke is more expeditious, and in some hands makes tolerably good work. The general effect of hoeing ought to be, that the whole ground should be stirred, all the weeds effectually cut up, and the plants set out singly at proper distances.

The common practice is to set out the plants at fourteen or fifteen, and sometimes at eighteen inches distance. This however is not always necessary, and is frequently injurious. The proper distance depends upon the soil, and the time of sowing. The richest soil will admit of the greatest distance, because the plants in that will be more luxuriant than in a soil of inferior quality. And early sown Turneps will come to a greater size than such as are sown late, and therefore should be allowed more room to spread themselves. The best general rule in this case is, to give the plants room to keep themselves in a state of vigour and full growth, without leaving any space unoccupied by, or even thinly filled with leaves. Since Turneps therefore commonly run from four to eight inches in diameter, twelve inches may be taken as a proper medium distance, except in land of an extraordinary goodness.

The main purpose of the second hoeing is to loosen the mould, and draw it in some measure to the roots of the plants; to reduce the weeds effectually; and to single such plants as have been left double by the first hoeing; as well as to remove such as have been missed, or having been buried in the loose mould in moist weather, have struck root again in improper places. With respect to the time of this second hoeing, it ought to be given before the leaves become too large to prevent the plants from being properly singled and set out, or the weeds from being effectually cleared away; but the longer they stand before the last hoeing, the more effectually will the weeds be overcome.

If when the Turneps are so closed as to exclude all hoeing, any weeds still show themselves, women and children should be sent in to pull them by hand.

The second hoeing is sometimes omitted, but seldom without great detriment to the crop and the land; and, strange to tell, there are yet some parts of the kingdom where it is said all hoeing of Turneps is yet unpractised.

Upon the whole, the object of the first hoeing should be, not so much that of setting out the plants at exact and wide distances, as of checking the weeds, and thinning the plants to prevent their crowding each other: the regulation of distances should be left in a great measure to the second hoeing. In the first, by reason of the many accidents young Turnep plants are liable to, it is a work of hazard and uncertainty; in the second, not only proper distances, but proper plants, may be chosen, with a degree of safety and certainty.

The Norfolk hoes are from nine to eleven inches wide. It is the interest of the hoer to work with a wide hoe, because he gets over his work quicker, and has fewer plants to set out; his interest therefore is, in this case, in direct opposition to that of his employer. The width of the hoe ought to be in proportion to the medium distance between the plants; and that, as has been said, should be in proportion to their expected size. For twelve inches a seven-inch hoe is sufficient.

By sowing at different seasons, six men will hoe an hundred acres twice over. Such as do not vary the season must of course proportionably increase the number.

The price, in Norfolk, is 6s. an acre for the two hoeings, when let jointly, as they commonly are. If let separately, the first is from 3s. 6d. to 4s.; the second, from 2s. to 2s. 6d.

In other counties, 8s., 10s., and even 12s. an acre

^e Macro in Young's ann. 3. 300.

^f Belcher, ibid. 2. 344.

^g Id. 347.

acre are given for the two hoeings; but the Norfolk men are more expert in the business; and the soil of that country is more friable and free from obstructions^a.

In crops of drilled Turneps the work of hoeing may certainly be done cheaper, namely from four to five shillings the acre; and cheaper still with the horse-hoe, when hand-hoeing will be required only in the rows.]

When the Turneps are sown in drills, it will be the best way to hoe between every other row at first, and some time after to hoe the alternate intervals, by which method the plants will receive more benefit from the often stirring the ground, than they would do if all the intervals were hoed at one time, and the plants will be in less danger of suffering from the earth being thrown up too high on some rows, while others may be left too bare of earth; but, when the earth has been thrown up on one side of the drill, it may be turned down again when the next interval is hoed, and this alternate moving of the earth will prepare the ground very well for the succeeding crop, as well as greatly improve the Turneps; but, as this plough cannot well be drawn nearer to the drills than two or three inches, the remaining ground should be forked to loosen the parts, and make way for the fibres of the roots to strike out into the intervals, otherwise, if the land be strong, it will become so hard in those places which are not stirred, as to stint the growth of the Turneps, and this may be done at a small expense; a good hand will perform a great deal of this work in a day, and, whoever will make the trial, will find their account in practising it, especially on all strong land, where the Turneps are much more liable to suffer from the binding of the ground, than on a loose soil; but yet, in all sorts of ground, it will be of great service to practise this.

When the ground is thus stirred in every part, one ploughing will be sufficient, after the Turneps are eaten off the ground, to prepare it for the sowing of Barley, or any other crop: so that there will be an advantage in this, when the Turneps are kept late on the ground, as will often be the case, especially when they are cultivated for feeding of ewes, because it is often the middle of april before the ground will be cleared; for late feed in the spring, before the natural Grass comes up, is the most wanted, where numbers of sheep and ewes are maintained, and one acre of Turneps will afford more feed than thirty acres of the best pasture at that season.

[Application or Use.]

The chief consumption of field Turneps is for feeding either neat cattle or sheep. The first is most common in Norfolk, and the second in most other counties.

In feeding neat or black cattle, the most common practice is to draw and cart off the whole crop. The time of drawing begins about michaelmas, and continues until the plants are in blow. They are drawn by hand, until the frost is in the ground, or has cut off the tops; they are then pulled by two-tined hooks, which in Norfolk they call crooms. When the roots are buried in a deep snow, it is removed by an implement called the snow-sledge. The head-lands and side-lands are first cleared; and then, they begin on one side, and clear the ground progressively for the plow. Some leave the small roots, to increase in size, and to throw out tops for feed in the spring: but this can be done only on land that will bring Barley with one ploughing.

The most common method of giving Turneps to cattle, is by throwing them abroad on stubbles, grass-lands, and fallows. The general practice is to begin with the wheat-stubbles, until they are broken up for fallow for Barley. The next throwing-ground is frequently the barley-stubbles, until they in their turn are broken up for turnep-fallow. From about christmas until the beginning of april,

the clover-lays are thrown open; and after these are shut up, the turnep-fallows, sometimes become the throwing-place.

In throwing Turneps, the carts begin on one side of the land, and work regularly to the other, giving every part an equal share, and never throwing twice in the same place, until the whole is gone over.

At the beginning of the season, whilst grass is still in plenty for the lean stock, the fatting-cattle are kept constantly in the same piece, having a fresh supply of Turneps every day, or every two days at farthest.

But when the clover-stubbles are cleared, and the store-beasts begin to want assistance from Turneps, the fatting-cattle are followed by rearing-cattle, lean bullocks, cows, or store-sheep, to pick up their leavings.

In this case it is convenient to have three shifts or pieces of throwing-ground; one for the head beasts, one for the followers, and the third empty to throw in. Two pieces or divisions are indispensably necessary.

The Turneps should be thrown evenly and thinly, about a yard asunder, not in heaps or parcels; for whilst a bullock is breaking one Turnep, he should not have it in his power to tread or dung upon another.

The bullocks are sometimes, when the distance is not too great, driven into the straw-yard at night: otherwise they have a little straw given them under the hedge, merely to clean their mouths from the dirt of the Turneps.

Not one in ten of the high-finished bullocks, that are annually sent to Smithfield market out of Norfolk, taste one handful of Hay, or any other food, besides Turneps and Barley-straw, except such as are finished with Ray-grass in the spring; and a few that have a little Hay and Turneps towards spring; when the Turneps are going off, before the Ray-grass lays are ready to receive them; which is an excellent practice, bullocks being otherwise liable to receive a check between Turneps and Grass.

It is evident that this method of throwing Turneps cannot be practised except on dry land, and not even on that in a wet season. In such cases nothing but a sound old lay will answer the purpose; and where it can be done, a farmer should contrive to have two such pieces in the neighbourhood of his Turneps.

Another method of fatting cattle, is to keep them loose in a straw-yard, giving them the Turneps in close bins or small cow-cribs, with boards or bars nearly close at bottom. The Turneps are usually put in whole, being first tailed, that is, having their tap-root cut off, in the field; and also topped, unless the tops be fresh and palatable: these, if eatable, being given to store cattle.

This method is somewhat more troublesome than that of throwing the Turneps abroad; which, if the soil be dry enough to bear stock, and so light as to be benefited by treading, is upon the whole the most eligible management. But in deep land, and in a wet or severe season, the yard, if it be kept dry and well littered, is the more comfortable place; especially if it be provided with open sheds for the cattle to take shelter under in inclement seasons. By this method the dung is lost abroad, which is highly serviceable to light land, but then a great quantity of manure is made in a yard well littered.

A third method of fatting beasts on Turneps, is to keep them tied up in hovels, or under open sheds, with troughs or mangers to receive the Turneps, which are frequently chopped into slices, or else quartered, which is not so eligible. The top, with the crown of the root, is thrown aside for the store-cattle, and the tap-root, with the bottom rind, is suffered to drop on one side of the basket, so that the fatting-cattle have only the prime part of the bulb.

This accounts for the quick-progress which shed-bullocks sometimes make, especially in cold weather;

^a Marshall's Norfolk, vol. 1. p. 256, &c.

ther: but on account of the extraordinary attendance they require, not only in cutting the Turneps, but in littering and cleaning out their stalls; besides the check they are liable to receive in close weather; this practice is seldom followed by large farmers, unless to push forward a particular beast.

Much depending on care and management in this method, little farmers, who have leisure and inclination to tend their own sheds, may find their account in it. The cattle have a little Barley-straw given them from time to time, to clean their mouths, and dry up the superfluous juice of the Turnepⁱ.

If the Turneps could be boiled or baked at a moderate expense, a much smaller quantity would suffice to fatten the bullocks^k.

In some places good Hay is given with the Turneps; and in others Pollard or Barley-meal.

The second great application of Turneps is to feeding sheep. On the best turnep-land, that is sufficiently dry, there is no better preparation for Barley than feeding sheep with Turneps upon the land. Those however which are eaten early in the winter will not give Barley so good as those which are eaten later, provided they do not run to flower; for then they are supposed to exhaust the land and injure the succeeding crop. Carting off on such land, besides the expense, is not adviseable, the crop of Barley depending on the manure and treading of the sheep^l.]

When the Turneps are fed off the ground, the sheep should not be suffered to run over too much of it at one time; for if they are not confined by hurdles to as much as is sufficient for them one day, the sheep will spoil three times the quantity of Turneps they can eat, so that it is very bad husbandry to give them too much room; therefore the hurdles should be once or twice every day removed forward; and, if the Turneps are drawn out of the ground before the sheep are turned into the new enclosure, there will be less waste made, for they will then eat up the whole roots; whereas, if they are turned upon the Turneps growing, they will scoop the roots, and leave the rinds, which being hollow, the urine of the sheep will lodge in them; so that when they are forked out of the ground, the sheep will not eat any one of those roots which are thus tainted.

[When a flock of sheep are turned into a piece of standing Turneps, the first thing they do is to run over the whole, and then to eat such of the tops as they have not trampled down. Whilst they are doing this, they stand upon the roots, which being firm in the ground, and flat on the top, are not inconvenient to stand upon; and if one of their feet happen to fall near the edge of the Turnep, it frequently barks and fouls the root. Whereas if sheep be put upon drawn Turneps, their tops may be injured, but their roots cannot; for being round, and lying loose on the ground, they afford no foot-hold, but become stumbling-blocks to the sheep, which therefore carefully avoid them, and stand on the ground. But the better to avoid waste, it is frequently the practice, instead of hurdling the sheep upon the crop, to keep them back upon the cleared ground, and to throw the Turneps upon it. But in this case the Turneps must either be thrown in part over ground already fouled by the sheep, or must be confined to the space from which they are drawn, by which means the principal intention of drawing is frustrated. Some farmers therefore who fat large quantities both of neat cattle and sheep, pursue another method in the consumption of their crop.

The headlands and sidelands being cleared, the area is drawn and carried in alternate stripes about ten paces wide. The first drawing is expended on the bullocks in one or other of the ways already described; whilst the remaining stripes are drawn and scattered over the whole ground for the sheep.

Thus the principal intention of drawing is obtained; namely, that of distributing the Turneps evenly and thinly, so that whilst one is eaten, another may not be spoiled^m.]

I cannot omit taking notice of a common mistake, which has generally prevailed with persons who have not been well informed to the contrary, which is, in relation to the mutton which is fattened with Turneps, most people believing it to be rank and ill tasted, whereas it is a known fact, that the best mutton this country affords is all fattened on Turneps; and that rank mutton, whose fat is yellow, is what the low marshy lands of Lincolnshire, and other rank pastures produce.

[Turneps are sometimes used for feeding milch cows. This is a bad practice when the milk is used for making butter, which acquires a disagreeable taste from this root; but it answers very well in suckling, as it keeps the cow in heart, and furnishes abundance of milk.

A second mode of application of field Turneps is by sale. It is not a general practice to raise Turneps for this purpose; nevertheless every year some are sold. Little farmers, who want conveniency or skill, and larger ones who want money to lay in a proper stock, or who from the comparative prices of stock and Turneps judge it more eligible to sell than to feed, sell their Turneps to those who have judgment, money and spirit to buy stock.

Sale Turneps are usually consumed on the premises. Sometimes the buyer and sometimes the seller draws the crop and tends the cattle, for which sometimes the one and sometimes the other finds Straw.

The medium price of a middling crop of Turneps is about fifty shillings an acre; but the price is subject to great and sudden fluctuationsⁿ.

The third application of Turneps is to raising of seed.]

In order to save good Turnep-seeds, you should transplant some of the fairest roots in february, placing them at least two feet asunder each way, observing to keep the ground clear from weeds, until the Turneps have spread so as to cover the ground, when they will prevent the weeds from growing; and when the seed-pods are formed, you should carefully guard them against the birds, otherwise they will devour them, especially when they are near ripe. When the seed is ripe, it should be cut up, and spread to dry in the sun; after which it may be threshed out, and preserved for use.

[It is generally understood that no Turnep-seed is fit to be sown that has not been raised from transplanted roots; but in Norfolk it is thought that if the seed be gathered repeatedly from untransplanted roots, the Turneps will become coarse-necked and foul-rooted, and the flesh of the root rigid and unpalatable; and that if they be gathered year after year from transplanted roots, the necks will become too fine, and the fibres too few, the plant acquiring a weak delicate habit, and the produce, though sweet, being small.

Sweetness therefore, and not size, being the quality requisite for the table, it is a good rule for the gardener to raise his seed generally from transplanted roots. But it is the farmer's interest to avoid the two extremes of coarseness and delicacy, which can be accomplished only, by sometimes transplanting his seed-plants, and sometimes letting them run up in the seed-bed: and it is found by experience, that transplanting two, three or four years, and letting the plants run up in the third, fourth or fifth, will keep the stock in the desired state. The time of transplanting is from old christmas to old candlemas. The cleanest plants are the best, without much respect to size. A piece of good ground near a habitation is most proper for the purpose; because the plants can there be most easily defended from the depredations of the birds^o.

ⁱ Marshall's Norfolk, vol. 1. p. 284 to 295.
^k Symonds, in Young's ann. 2. 273.

^l Macro, *ibid.* 3. 302.

^m Marshall's Norfolk, 1. p. 296.
ⁿ *Ibid.* 278.

^o *Ibid.* 283.

It is of great consequence to secure seed of a good sort and quality, which cannot always be obtained from dealers; without care it will degenerate, and a mixed seed is too frequently sold: such persons therefore as are curious, should either raise it themselves, or have it raised by a neighbouring labourer, or at least procured from those on whom they can depend. The large green-topped Turnep is the most productive, the sweetest and most juicy; but the red or purple-topped is the hardiest.

Accidents and their Cure.

Admirably as this root is calculated for cleaning land, and feeding cattle and sheep, it is to be lamented that it is so liable to accidents and failures as not to be absolutely depended upon for these purposes. This crop has the fly and many other enemies of the insect tribe to contend with, in the early stage of its growth; second and third sowings, which are frequent, seldom produce much more than good spring-feed for sheep; alternate frosts and thaws rot the Turneps before the season of greatest necessity arrives; or if they are not absolutely rotted, beasts fatten but ill on frozen Turneps; if on the contrary the winter be mild, the Turneps run to flower, and then the root has little substance in it^p.

The Turnep-crop is precarious, principally because the farmer is obliged to depart from the common course of nature in accommodating it to his wants. Instead of putting the seed into the ground in the spring months, when there would be as great a certainty of a crop as of any other vegetable, he is obliged to defer sowing till the hottest season of the year comes on, when unless he is so fortunate as to have a few rainy days, or cloudy weather with frequent showers, he can have little hope of success^q.

The first enemy of the Turnep is the fly, as it is commonly called, or as others name it, the *flea*, or, as it is provincially termed, the *black dolphin*. It is in fact a small insect of the coleopterous or beetle tribe, and is named by naturalists *Chrysomela saltatoria*. In hot summers it abounds to an amazing degree, and may be heard in a field or garden, among the leaves of Turneps or any of the Cabbage kind, make a pattering like rain^r, from its continual skipping. This mischievous insect is not more than from one-twelfth to one-tenth of an inch in length, it attacks the plant as soon as it appears above ground, whilst it is in the seed-leaf; and as soon as the rough leaves are put out strong, the plant is supposed to be safe from this enemy, which is calculated to destroy an entire crop once in five or six years, besides the partial damage which it does in most years. It has however a companion in mischief, the *Turnep-bug*, which becomes a small fly, about one-twentieth of an inch long, and not larger than a grain of Turnep seed. It is the same with the *Black Bug*, *Collier* or *Negro*, with which Beans are frequently infested, in some places provincially called *Smoother-Fly*. The bugs, or fly in a larva state, frequently cover the under sides of the seed-leaves, and are of different colours; yellow, green, and black. When the seedling plants are infested with them, they make no progress, nor any visible effort to get into rough leaf: fifty of these vermin have been counted under one pair of seed-leaves, sucking the juices through their long probosces. The smallest of the flies, or *aphides*, are of a cream colour, the next green, the next to these reddish green, and the largest black.

The destruction however which is imputed to the fly, or to speak more properly, the turnep-beetle, sometimes seems to originate in the season. When the soil is fully and permanently moistened by a steeping rain, the seed will vegetate, the plants will push into rough leaf, and rise without a check, though the beetle and their other insect enemies be in full force: but if the Turneps have only showers

to depend upon in hot dry weather, the seed will vegetate; but by the time the seed-leaves are formed, the moisture is wholly drawn off by the intervening days of drought, and the plants deprived of nourishment pass away, parched up as in an oven^s.

The injury however which is done by the fly being confessedly great, many remedies have been proposed for it, which shall be here set down, although it is much to be feared that they are by no means effectual.

Some good, it is said, may be done, by running a light roller over the crop, with a bundle of Blackthorn fastened behind it^t. Branches of Elder are recommended to be drawn over the Turneps, in the same manner: and the seed is directed to be soaked in the juice of the bruised leaves. But these are palliatives at best, and have been found to be utterly ineffectual^u.

Some persons recommend the land to be fumigated, by burning heaps of quich and other weeds to windward, when it is ready for sowing, and after the seed is come up. Whilst others prescribe a steep for the seed of train or other oil, in which it is to be immersed twenty-four hours or more; when the seed is drained from the oil, it is to be mixed with good earth finely sifted, and sown immediately; when the plants begin to appear, the ground is to be sown with soot, from eight to sixteen bushels the acre^x.

Soot is very generally recommended as a specific against the fly; so also is tobacco-dust, but this can be applied only in small crops, such as are grown in gardens. We are told to shake the seed in a bottle with flower of brimstone, and to sow them together; or to steep it in water strongly impregnated with brimstone, or horse-aloes^y.

A much more likely way than any of these to secure a good plant of Turneps is, after having made the land clean and fine as soon as the weather will permit, to sow two, three, and even four pints of seed upon an acre, in suspicious seasons: thus having a sufficient quantity of plants for the fly and the crop. In case the fly does not take them, it may be said, that the plants will be so thick, that they cannot easily be hoed; they may however be made fit for the hoe by harrowing them first; and at any rate it is a less evil to have too much work for the hoe than little or no crop^z.

Another method of securing a crop, is sowing seed that will germinate at different times. This may be done by mixing new and old seed together, and by soaking half of each in water or the drainings of a dunghill for half an hour, and then spreading it on a floor until it is dry enough for sowing. Thus there will be four chances for a crop, as the seed thus mixed and prepared will come up at four different times^a.

Or sow immediately after the plough without harrowing, and then the seeds lying at different depths, will come up at different times, and consequently have several chances of escaping the fly or turnep-beetle^b.

It is very sensibly remarked by Mr. Miller, that] whatever will add vigour to the young plants, will prevent their being destroyed by the fly, for these never attack them till they are stunted in their growth. [Good tillage therefore, and having the land in heart, is of more consequence to prevent the ravages of the fly, than all the nostrums that have been published.

The provident farmer will, as far as he can, watch for favourable opportunities to sow his seed; and he had better defer sowing, than do it when the weather is hot and dry. He will have his land

^s Marshall's midland, 2. p. 124 & 175. Wimpey in Bath papers, 3. 180.

^t Hill, in Bath papers, 3. 99.

^u Young's ann. 6. p. 90. & 7. p. 104. Bath papers, 2. 7. & 4. 140.

^x Young's ann. 7. p. 102: 6. p. 156. & 7. p. 168.

^y ——— 6. p. 197. Bath papers, 2. 115.

^z Marsh. midland, 2. 174. Bath papers, 2. 236.

^a Young's ann. 3. p. 10. Marsh. Norf. 2. p. 4. Bath papers, 2. 306.

^b Belcher in Young's ann. 2. 344.

^p Young's ann. vol. 2. 357. & 7. 350.

^q Wimpey, in Bath papers, vol. 4. p. 132.

^r White's Selborn.

in proper order: he will be at the pains of procuring good seed, new if he can get it; and he will sow a sufficient quantity: but above all, he will lay in a proper quantity of manure, to promote the growth of the young plants, and to push them forwards as fast as possible. It is this purpose that is answered by dressings of ashes, foot, and composts of lime and dung, &c. in sufficient quantities; either sown with the seed, or rather immediately before, well harrowed in, and completely incorporated with the soil^c. There is some doubt however respecting the expediency of dunging largely for Turneps. One says, the only precaution against the fly consists in ploughing the land till it is very fine, and filling it with muck^d. Whilst others are of opinion, that the flies are increased by the dung^e: which is certainly a nidus for a great variety of insects. Folding perhaps may be better than dunging, the treading of the sheep both destroying the insects, and rendering light land more firm^f.

In seasons wherein apprehensions of the fly are entertained, it is recommended to plough for sowing as soon as it is light in the morning, only so much land as can be sown and harrowed by six o'clock; and about six in the evening again to plow as much as can be sown and harrowed before dark. The seed being thus sown whilst there is some moisture in the newly ploughed ground, will vegetate sooner, and come up more regularly than it would do if the ground were dry. If the season should prove dry, the ground should be well looked over, and when the young plants begin to be attacked by the fly, the land should be strewed all over with vegetable ashes, and the night following it should be rolled. If rain comes in a day or two after, the Turneps will soon be out of danger, by washing the salts of the ashes to their roots: if not, in a week's time, a fresh dressing of ashes with rolling should be applied a second time.

Where wood or peat ashes are not to be had in plenty, the farmer ought to raise a quantity for this purpose from burning quich and other weeds, or turf, litter, furze, heath, fern, &c. Or if he has only a small quantity of ashes, he may have recourse to a compost of these with soaper's ashes, coal ashes, quick lime and foot, mixed well by turning them two or three times, and passing them through a sieve. It is scarcely necessary to add, that the ashes should be kept in a dry place. When large patches are irrecoverably gone, it is best to plough immediately, and sow again, harrowing in the seed. The early stone Turnep is recommended for this purpose, because it comes to maturity sooner than the common sort, and may be sown twenty days after the first sowing^g.

The *Bug-fly* or *Aphis*, is by no means so tremendous an enemy as the Beetle. Being extremely soft and tender, and therefore easily crushed, a light roller, especially if it were muffled in some soft elastic covering, so as to press in between the clods, might perhaps be effectual in destroying these insects, without injuring the plants^h.]

Another danger of the crops being destroyed is from the *Caterpillars*, which very often attack them, when they are grown so large as to have six or eight leaves on a plant. The surest method of destroying these insects is to turn a large parcel of poultry into the field, which should be kept hungry, and turned in early in the morning; these fowls will soon devour the insects, and clear the Turneps. To this evil the Turneps, which are sown in drills, are not so much exposed, for as the ground between the rows will be kept stirred, the plants will be kept growing, and will not be in danger of suffering from these insects; for the parent insects never deposit their eggs upon any plants which are in health, but

^c Wimpey, in Bath papers, 4. 134, &c.

^d Kent's report on Norfolk.

^e Marshall's Norfolk, 2. p. 35.

^f Id. ibid. and Bath papers, vol. 2. p. 233.

^g Barnes, in Young's ann. 12. 359.

^h Marshall's midl. 2. p. 181.

as soon as they are stunted, they are immediately covered with their eggs; so that it is the disease which occasions the vermin, and not the vermin the disease, as is commonly imagined. Therefore as the plants will always be in greater health when the ground is well stirred about them, there will be less danger of their suffering from these enemies, when they are cultivated by the horse-hoe, than in the common way.

[These caterpillars are provincially called *black Cankers*. They are not so universal as the fly or turnep-beetle; but their ravages, though partial, are in some seasons very great, especially near the sea-coast. The parent insect of these caterpillars is discovered to be a fly of the *Tentredo* kind, which comes over frequently in large flights from the continent, especially when the wind blows for a long time from the north-east. The fly is of a yellow colour; the female considerably larger than the male, and appearing of a brighter yellow, when on the wing: the head is black, and there are two black patches on the shoulders, in the shape of a lozenge. The caterpillar is of a jetty black, except a whitish line on each side, just above the setting on of the legs, which are twenty in number: it is wrinkled, but has no hair, and, when full grown, is about half an inch in length. When it is near changing, it becomes blueish or lead-coloured, with a black waving line along the back. On the plant being shaken whereon they are feeding, or on any apprehension of danger, the caterpillars coil themselves up in a circular form, and appear inanimate, till they think the danger is over. They retire under ground to go into their chrysalis state, or to change from caterpillar to fly.

Many remedies have been proposed for the ravages of this occasionally destructive insect. As drawing a rope over the ridges, two persons holding the ends; this will brush the caterpillars off, and perhaps may save a few acres, where it can be frequently repeated, and the insects are not very numerous. It is an improvement upon this expedient, to fasten twigs upon the rope. Elder twigs have been preferred, but certainly without sufficient reason. Stiff crooked boughs will injure and tear the plants. Others draw a brush made of furze over the Turneps: the branches are fixed to a long pole or axle-tree, with a wheel at each end, of such a height, that the furze will brush the plants without pulling them up by the roots.

Lime, foot, and other dressings have been tried without effect. Rolling checks them, especially if repeated, but is not a cure for the evil. Fumigation by brimstone, &c. has been recommended. When part only of a piece is attacked, it is an effectual expedient to draw a furrow across the inclosure, deepening it with a spade, making the side towards the uninfected plants upright or overhanging, and spreading lime along the bottom. A trench across a gateway between two turnep-pieces will answer the same purpose.

Poultry have been mentioned above as highly beneficial. Rooks also are very serviceable. But ducks have been most successful in curing this evilⁱ. The ducks should be half or three quarters grown; old ones are lazy, and will sooner eat the turnep-tops than run after the caterpillars. They should be regularly driven to water, and rested three or four times a day. After drinking they disgorge the caterpillars in great abundance, and soon fall to again with fresh appetite. Four hundred ducks have cleared thirty-three acres in five days most completely; but twenty or thirty may be employed on a small farm to great effect. When caterpillars grow scarce, the ducks will take to the turnep-tops, and do more harm than the few caterpillars which are left. It is then better to turn out the ducks, and pick over the plants by hand, if there be still any apprehension from the insects.

Where the Turneps have been hoed out, many

ⁱ Marsh. Norfolk, 2. p. 15 & 285. Midl. 2. p. 178.

persons have begun with hand-picking them; when the caterpillars are very abundant this is tedious and expensive; but where they are in moderate quantities, it may be done by women and children at a charge of from five to eight shillings an acre, and is the most certain method of extirpating these animals^{*}.

Where they are very numerous, the plants are stripped in a few days, so that there is not time to save them by any means, unless the farmer is aware of their ravages; his only resource then is to plough up the ground, and sow again. If some patches have fared better than the main body of the piece, it is in vain to leave them; for they will only serve to support the vermin, till the young plants get up to be devoured by them.

Setting out the plants with the hoe, when the caterpillar is upon them in force, is labour thrown away, and certain destruction to the crop.

It would be a prevention of the mischief, if the inhabitants of the sea coast would burn the flies on their arrival, when they are spent with their flight, and frequently may be taken up by shovel-fulls[†].

Another enemy to Turneps, as well as to the garden in general, to Flax, and to Wheat, &c. is the naked snail or *Slug*. This however is a trifling evil in comparison with the others. Slugs abound most in wet seasons, when the fly is least prevalent, and chiefly on fresh ground, or bad fallows. The only remedy prescribed for them is night rolling, when the dew is upon the ground[‡].

The wire-worm or red-worm is also complained of as injurious to Turneps, particularly by those who pursue the drill culture[§].

The grub is perhaps in itself not fatal, did not the rooks, in order to come at it, pull up not only the plants which are attacked, but those also which are free from it, and thus clear them as they go.

There is also a disease to which Turneps are subject, called the *Anbury* or *Hanbery*. It is a large excrescence, which forms itself below the bulb or apple; grows to the size of both the hands; and, when brought to maturity, becomes putrid, and smells very offensively: it is irregular in its form, with excrescencies, like races of ginger, hanging to it. The tops of those Turneps which are much affected turn yellow, and flag with the heat of the sun.

It is a common notion that this disease is caused by the soil's being tired of Turneps; that is, by their being sown too often on the same land. This however is erroneous, for they have the *Anbury* on fresh land, which never bore Turneps before. It is more probable, that it is caused by some grub or insect, that diverts the course of the sap, by wounding the vessels of the tap-root[¶]. Marl is looked upon in Norfolk as a certain preventive of the *Anbury*[‡].

The last enemy that I shall mention is severe *Frost*, which usually destroys the early sown Turneps, and much injures the late ones. They are also difficult to get at in this situation, and do the stock but little good[¶].

The only method of counteracting this evil, is to preserve or store up a certain quantity of Turneps, in case of frost or a deep snow. This may be done by drawing them in dry weather, and when they have attained their full growth; topping and tailing them; and carting the roots into an adjoining new-made dry ditch, covering them with straw, and protecting them with hurdles or faggots from the cattle; or still better, by stacking them in the field with layers of straw between, covered and thatched with straw; either on the ground, or if the land will bear it, in beds or pits dug one or two

feet deep or more, three yards wide, and of what length you want them. If straw be scarce, old haulm or stubble will answer the purpose. Or else to carry them home, and pile them in small stacks in a clean home pasture, or near the yard; or to house them where there is room, always screening them with straw, and putting some between the layers to absorb the moisture. This practice not only preserves some Turneps from the rot, and furnishes cattle and sheep with feed in time of the greatest distress; but prevents the crop from exhausting and impoverishing the land, and gives time for preparing it for the succeeding crop of Barley^{*}.

After all, the provident farmer will not absolutely depend upon his Turnep crop for feed late in the spring; but have in reserve some Cabbages, Coleseed, Rie, or winter Tares, according to his convenience and the nature of his land; not only to guard against failures in his Turnep crop, from frost, &c. but to have some provision for the couples, by the time the lambs begin to feed, which will put them on much faster than the best Turneps^{*}.

Quantity.

A square perch of Turneps (sixteen feet and a half) drilled in rows three feet apart, has been found to contain eighty-four roots, weighing seven hundred two quarters; which is sixty tons to a statute acre: eighty-four turneps, picked within fifteen yards of the above perch, weighed fifteen hundred, fifteen quarters, seventeen pounds; which is one hundred and twenty-five tons, twenty-nine hundred, twenty pounds to an acre. Two weighed each thirty-two pounds; and one was three feet eight inches in circumference[†]. But whoever calculates on such a produce as this will find himself grievously mistaken. A more moderate estimate is the following. An acre is 4840 square yards or 43560 square feet. Now if we reckon one Turnep of two pounds weight to every square foot, we shall have forty-six tons upon an acre[‡]. But even here we must make considerable abatements, for vacant spaces, deficient roots; and in the application for waste, &c.

We are told indeed, that an acre twice hoed will, if the land be good, produce about fifty tons of Turneps^{*}: and that the roots will average at six or even eight pounds. But such crops are not general, and it is probable that the farmer has more frequently twenty, and fifteen or sixteen, nay even so low as ten tons on an acre, than forty or fifty. Twenty cart loads, such as three horses usually draw, is called a fair crop, and from thirty to forty a large one. An acre is a common allowance to a middling bullock, and such a beast is estimated to consume thirty loads of Turneps in six months; or according to others two hundred weight a day, with straw; which is somewhat more than eighteen tons in six months. Eight sheep are usually allowed to an acre, and they are computed each to eat from sixteen to twenty pounds a day; that is from about ten to thirteen tons in six months[†]. From ten to eighteen tons therefore is the supposed common crop of Turneps on an acre, according to this calculation; and we may conclude that more is seldom grown, except on very fine land, and with extraordinary exertions.

CABBAGE.

Colewort, Cole or Kale.

Coleworts are greens that never close or cabbage, but always continue loose and open.]

The common Colewort, or Dorsetshire Kale, is now almost lost near London, where the markets are usually supplied with Cabbage plants, instead of it; these being tenderer, and more delicate in winter, are much more cultivated than the common Colewort, which is better able to resist the cold in severe winters than those, but is not near so delicate till

* Marsh. Norf. 2. p. 298. 291. Young's ann. 6. 195. & 2. 377. Kent's report on Norfolk.

† Marsh. Norf. 2. p. 297. 287.

‡ Marsh. midl. 2. p. 178. Young's ann. 10. p. 214. & 12. p. 336.

§ Trans. soc. arts, vol. 10. for 1792. p. 59, 62.

¶ Marsh. Norf. 2. p. 33. Lisle's husb. p. 239.

‡ Id. ibid. p. 35.

* Young's ann. vol. 11. p. 324, 327, 332.

* Young's ann. 7. p. 526. & 3. p. 131. Bath papers, 2. p. 289. Marsh. Norf. 2. p. 109. Kent's hints, p. 129.

† Macro, in Young's ann. 3. 303.

‡ Young's tour in Ireland, 1. 402.

§ Bath papers, 2. 371.

¶ Ibid. 101.

‡ Young's ann. 3. p. 297. & 16. p. 93, &c.

pinched by frost. And since the winters in England have been generally temperate of late years, the common Cabbage plants have constantly been cultivated by the gardeners near London, and sold in the markets as Coleworts, which, if they are of the Sugar-loaf kind, are the sweetest greens from december to april yet known.

The seeds should be sown in july, in an open spot of ground, and transplanted as soon as the leaves are two or three inches broad into rows a foot asunder, and six inches distant in the rows. The rows may be drawn alternately for Coleworts, and the remainder left to cabbage.

To continue them for spring drawing, some seed should again be sown at the beginning of august.

Field Culture of Coleworts.

Where farmers sow Coleworts to feed their milch-cattle in the spring, when there is a scarcity of herbage, the common Colewort is to be preferred, as being so very hardy that no frost will destroy it. The best method to cultivate this plant in the fields is, to sow the seeds about the beginning of july, choosing a moist season, which will bring up the plants in about ten days or a fortnight; the quantity of seed for an acre of land is nine pounds: when the plants have got five or six leaves, they should be hoed, as is practised for Turneps, cutting down all the weeds from amongst the plants, and also thinning the plants where they are too thick; but they should be kept thicker than Turneps, because they are more in danger of being destroyed by the fly: this work should be performed in dry weather, that the weeds may be killed; for if it should prove moist soon after, the weeds will take root again, and render the work of little use. About six weeks after, the plants should have a second hoeing, which, if carefully performed in dry weather, will entirely destroy the weeds, and make the ground clean, so that they will require no farther culture. In the spring they may either be drawn up and carried out to feed the cattle, or they may be turned in to feed upon them as they stand; but the former method is to be preferred, because there will be little waste; whereas, when the cattle are turned in amongst the plants, they will tread down and destroy more than they eat, especially if they are not fenced off by hurdles.

The perennial Colewort is also little cultivated in the gardens near London at present. This is very hardy, and may be cultivated in the same manner as the former sort. This will continue two years before it runs up to seed, and will afterwards produce many side shoots, and in poor land will continue three or four years; but in rich soils it will not last so long. This may be used as the former sort, to feed cattle; for it is not so good for the table (unless in very severe frost) as the plants which are now cultivated for that purpose.

Early or Summer heading Cabbages.

The Early and Sugar-loaf-Cabbages are commonly sown for summer use, and are called by the gardeners about London michaelmas Cabbages. The season for sowing these is about the end of july, or beginning of august, in an open spot of ground; and when the plants have got eight leaves, you must prick them into beds at about three inches distance every way, that the plants may grow strong and short shanked; and in the middle of october you should plant them out for good; the distance that these require is, three feet row from row, and two feet and a half asunder in the rows. The gardeners near London commonly plant these Cabbages upon the same spot of ground, where their winter Spinach is sown; so that when the Spinach is cleared off in the spring, the ground will have a crop of Cabbages upon it; you must therefore clear off the Spinach just round each plant early in the spring, that with a hoe you may draw the earth up to the stem; and when all your Spinach is cleared off, which is commonly in the beginning of april, you must hoe down all the weeds, and draw up the earth again about your Cabbage plants.

In may, if your plants were of the early kind, they will turn in their leaves for cabbaging; at which time, the gardeners near London, in order to obtain them a little sooner, tie in their leaves close with a slender Osier-twigg to blanch their middle; by which means, they have them at least a fortnight sooner than they could have if they were left untied.

The early Cabbage being the first, we should choose (if for a gentleman's use) to plant the fewer of them and a greater quantity of the Sugar-loaf kind, which comes after them; for the early kind will not supply the kitchen long, generally cabbaging apace when they begin, and soon grow hard, and burst open, but the Sugar-loaf kind is longer before it comes, and is as slow in its cabbaging; and, being of a hollow kind, will continue good for a long time. I have known a large quarter of ground, which was planted with this sort of Cabbage for market use, which has afforded a supply for near three months together. This, though of singular service to a gentleman's garden, is not so much for the advantage of the market gardener, who wishes to have his ground cleared sooner, that he may have another crop of Celeri, Endive, &c. which is more to his purpose, that he may have as many crops in a year as possible.

Although I have advised planting out Cabbages finally in october, yet the Sugar-loaf sort may be planted out in february, and will succeed as well as if planted earlier, with this difference only, that the plants will be later before they cabbage.

Some plants of the early sort should also be reserved in some well-sheltered spot, as a supply in case of a failure; for in mild winters many of the plants run to seed, especially when sown too early; and in severe winters they are often destroyed.

The Russian Cabbage, must be sown late in the spring, and managed as above directed; with this difference only, that it must be finally planted out sooner, must have an open clear spot of ground, and requires much less room, being a very small hard Cabbage. It will be fit for use in july or august, but will not continue long before it breaks, and runs up to seed. The way to have this sort good is to procure fresh seeds every year from abroad, for it soon degenerates in England.

Late or Winter heading Cabbages.

The common white, red, flat, and long-sided Cabbages are chiefly cultivated for winter use: the seeds of these sorts must be sown the end of march, or beginning of april, in beds of good fresh earth; and in may, when the young plants will have about eight leaves, they should be pricked out into shady borders, about three inches square, that they may acquire strength, and to prevent their growing long-shanked.

About the beginning of june you must transplant them out, where they are to remain for good (which in the kitchen-gardens near London, is commonly between Cauliflowers, Artichokes, &c. at about two feet and a half distance in the rows;) but if they are planted for a full crop in a clear spot of ground, the distance from row to row should be three feet and a half, and in the rows two feet and a half asunder: if the season should prove dry when they are transplanted out, they must be watered every other evening, until they have taken fresh root; and afterwards, as the plants advance in height, the earth should be drawn about their stems with a hoe, which will keep the earth moist about their roots, and greatly strengthen the plants. Weeds, if suffered to grow among them, will draw them up tall, and often spoil them.

Some of these Cabbages will be fit for use soon after michaelmas, and will continue until the end of february, if they are not destroyed by bad weather; to prevent which, the gardeners near London pull up their Cabbages in november, and trench their ground up in ridges, laying their Cabbages against their ridges as close as possible on one side, burying their stems in the ground: in this manner they let them

them remain till after christmas, when they cut them for the market; and although the outer part of the Cabbage be decayed (as is often the case in very wet or hard winters,) yet, if the Cabbages were large and hard when laid, the inside will remain sound.

The Savoy Cabbage is also cultivated for winter use, being best when pinched by frost. It must be sown about the middle of april, and treated as the common White Cabbage; with this difference, that it may be planted closer; two feet and a half square being sufficient. This sort should have an open situation, clear of trees and hedges; for in close places it is very subject to be eaten by caterpillars, and other vermin, especially if the autumn prove dry. If early Savoy is desired, some seed must be sown sooner, as in march, february, or autumn. The autumn-raised plants will be very large, and in order for the table from the end of august through september and october.

The Musk Cabbage may be cultivated in the same manner as the Common Cabbage; and the plants set out at the same distance. It is in use from the beginning of october until christmas; and is apt to suffer in very severe winters.

[*Field Culture of Cabbage.*

Sorts.

The sorts most commonly cultivated for feeding cattle are the *Scotch*, the *Drum-head*, and the *American*. The first, if it be the true flat-topped firm sort, is never affected by frost, a few of the outside leaves excepted^z. The true Drum-head is said to be hardy, and the heaviest of any for the size; it may be planted closer than the large American^a. It is called in some places the Tallow-loaf, (though others distinguish them) and being too tender to bear very sharp frost, a mixed stock has been procured, by planting this and the common red Cabbage together, and when the seed-pods were formed, cutting down the red, and leaving the other for seed: this mongrel is of a deep green colour with purple veins, retains the size of the Drum-head, and has acquired the hardness of the Red Cabbage^b. The American comes to a great size, and lasts good very late in the spring^c. There are many other varieties, as the Flat Dutch, Yorkshire, &c. and the same variety is known under several names in different parts of the country. Mr. Bakewell is said to cultivate a large green Cabbage, which is a valuable one^d.

Soil.

The Cabbage culture is best adapted to strong land, and comes peculiarly in aid to the farmer who cannot to much purpose avail himself of Turneps. It succeeds admirably on a rich moist friable loam.

Tillage, &c.

The tillage for Cabbages differs very little from that which is given for Turneps. They are commonly planted on stubbles, after Wheat, Barley, Oats, or Beans. The land is ploughed up at michaelmas, lies till spring, is then ploughed again three or four times; is manured with fifteen or twenty-three horse loads of dung, or else with from twenty to thirty loads of compost to an acre, before the last ploughing, which lays the land in three-foot ridges, towards the end of may or the beginning of june; in which state it must be left for rain to enable the farmer to plant^e. Some persons spread the dung upon the stubble, and bury it with the first ploughing; because if the weather should set in dry at the time of planting, the dung opens the soil too much, lets in the drought, and thus destroys, or at least stunts the plants^f.

Seed-bed.

The best method of raising plants is to sow the seed as early in spring as the weather will permit

(the end of february or beginning of march), upon good land, well sheltered, digged, and dunged; on beds from four to five feet wide, for the convenience of cleaning them, and destroying the fly. Plants may thus be obtained of sufficient strength to plant out by the third or fourth week in may, at the latest; and these plants will be in perfection by the third week in october, and will continue to the end of march or the middle of april.

The best seed sown on a poor soil without dung will produce many runaway plants. These also are frequently spoiled by being sown too thick. An ounce and half of seed on a bed fourteen yards long, and five feet wide, will, allowing for all accidents, produce two thousand good plants^g. Half a pound of seed is fully sufficient to produce plants for an acre; or a pound of seed sown on ten rods of land, may do for three acres, according to the goodness of the land, and the season^h. Seven thousand plants are fully sufficient for an acre.

Though spring plants are most commonly reputed the best for general use, not so much on account of their size as their duration, because the slugs are apt to destroy much of the autumn sowing in winter; and because by good management as large and heavy a Cabbage may be produced from spring sowing; yet some persons are attached to sowing in autumn, about the middle of august, and pricking the plants out into a warm place, where they may be sheltered from very severe frost: they may thus be planted out in may, whereas the spring sown ones can hardly ever be planted out till near midsummer, perhaps in a dry time, when they will be scorched upⁱ; and are scarcely ever so large. It is to be considered however that the great use of Cabbages is for feed late in the spring, when the early sown ones will be run up to feed. Some persons prick out the young spring sown plants from the seed-bed: it is certainly an advantage to them, but is attended with too much expense and trouble for those who cultivate this crop on a large scale.

Planting.

The operation of planting depends upon the weather, and may be performed as soon after the middle of may as that will admit. But it is vain to attempt it till there has been a ground rain, and then it must be done as quick as possible. The plants are commonly set in one row on each ridge, at the distance of two or three feet, or according to some of four: in the rows they are planted two feet and a half asunder by most persons; some are for smaller distances, as two feet or eighteen inches; others for larger, as three feet^k. The distance however ought to be regulated by the size of the Cabbage, and the strength of the soil. They should be planted wide enough to admit of being cleaned with the plough, and yet so near as to afford a full crop^l. On land that will admit of it, to plant them at equal distances every way, so that the plough may pass crosswise as well as longwise between the rows, in cleaning them, must be a great advantage^m. In the common way, the rows are kept clean by hand-hoeing; and at the same time any clods that may have rolled on the plants in ploughing between the rows are removed. About three weeks after planting, taking the opportunity of rain, replant what vacancies there are from failuresⁿ.

Application.

Cabbages are applied to feeding milch cows, to fattening bullocks, to sheep and swine. We have not heard of their being given to horses; and yet it is probable, that either alone, or mixed with chaff or cut-meat, they might be a valuable horse-feed^o.

They are very generally and successfully applied to feeding milch cows in the great dairy farms of

^z Bath papers, 2. 103.

^b Bath papers, 1. 17.

^d Marshall's midl. 1. p. 260.

^c Young's ann. 2. 161. 3. 182. 5. 200. & 18. 106.

^f Ibid. 9. 393. & 19. 470.

^a Young's ann. 9. 395.

^e Young's ann. 2. 161.

^g Forby, in Young's ann. 9. 392. & 11. 330.

^h Ibid. 2. 161. 3. 182.

ⁱ Bath papers, 4. 336.

^k Young's ann. 2. 140, 161. 9. 135. & 18. 107.

^l Marshall's midl. 1. 261.

^m Young's ann. 15. 626.

ⁿ Ibid. 3. 183.

^o Marshall's midl. 1. 262.

High Suffolk; where they have eight or ten acres of the great Scotch and American Cabbage to forty cows; and in some parts they are of opinion, that one good acre of Cabbages will do for seven or eight cows, yielding as much food as three acres of Turneps, and making the cows give more and better butter^p. A more common proportion however is four cows to an acre, without Hay or Straw; and six or seven, with Straw and some Hay^q. One acre and one rood, producing forty-five tons of Cabbages, fed nine cows and a bull thirteen weeks and two days^r.

The report concerning the effect of Cabbages upon milk is different: some asserting that the butter is as bad as from Turneps; others, that they yield not only more milk, but better butter^s.

Cabbages are also reputed excellent for weanling calves; Turneps being apt to give them the garget, which Cabbages never do^t.

In fattening beasts, three quarters of an acre, of a middling crop, will do for two beasts of fifty stone each, that have had the summer grafs^u. A middling bullock will eat about two hundred pounds in twenty-four hours, and therefore a score may be kept on an acre for near a month, if the crop be tolerably good^x. Fifteen fatting oxen, nine hundred weight each when fat, were kept from the 5th of november to the 31st of december, that is, eight weeks, on two acres of autumn-sown Cabbages, with the addition of four tons of Hay^y. Upon the whole, an acre of Cabbages is supposed to fatten one beast in four more than Turneps, and all in two-thirds of the time. For the grazier, another circumstance of consequence is, that they are said to have a remarkable effect in laying on the fat on the grazier's points^z.

With respect to sheep, one of twenty pounds a quarter will eat fifteen pounds of Cabbage in twenty-four hours; one acre therefore will nearly maintain two hundred sheep a month, if it be a good crop^a. Thirteen fat wethers, who had nothing else to eat, except what they picked up in open weather on a bare grafs field, consumed one load a week; that is, in the proportion of an acre to twenty-six sheep, for one hundred and twenty days, or more than sixteen weeks^b. When the autumn-sown plants run up to seed in april; sheep will eat every morsel of them clean up, when they will not touch a Turnep. When the plants are suffered to run up, that part of the land should have a light dressing of pigeon's dung, foot or malt-dust, to make it amends for supporting the Cabbage-stalks so much longer^c.

Hogs do very well on Cabbages, and prefer them to Turneps. When they get into a field where there are both, they constantly take to the former, and will scarcely touch the latter^d.

By sowing early in the spring, or by sowing some in autumn, and some then, a succession of Cabbages may be obtained from the third week in october, or a month after michaelmas, to the end of march; or, if desired, even to the middle or end of april. They ought however, in the general opinion, to be off by the middle of march, because they then shoot, and exhaust the land^e. How valuable therefore must this crop be, thus adapted as it is to feeding milch kine, bullocks, sheep, &c. and which is in perfection during the months of february, march, and part of april, when the anxiety of farmers, particularly of those who keep large flocks, for a supply of food, is at the height. On moist soils, Turneps however valuable they be, are so much affected by the vicissitudes of the season, as to be a very uncertain provision. For how often does it happen, that after a year's fallow, an ample and expensive manuring, great care to prevent the ravages of the fly, slug, caterpillar, &c. unremitting attention to the

hoers, and altogether an expence of from three to five pounds an acre; one sharp frost, succeeding a wet season, in the months of january or february, destroys all the farmer's hopes, and leaves his flock or bullocks destitute of food when they want it most; or reduces him to the necessity of feeding them on Hay, which perhaps is so dear, as to devour all his profits. Now Cabbages are by no means so liable to these accidents; for, unless a long-continued drought succeed the planting out, they are in a manner a certain crop; neither frost nor snow will materially injure it; and as a farther recommendation it is more grateful to the consumers^f.

The dung of the cattle fed on Cabbages is better and more in quantity than when they are fed on Turneps. They are an excellent preparation for Barley and Oats, as well as Turneps; or if they be, as some think, in a small degree inferior in that respect, it ought to be considered that the crop in itself is more valuable, being worth from four to seven pounds an acre^g.

Accidents.

Cabbages, in the seed-bed, are liable to be destroyed by the beetle or fly, as well as Turneps. But in this situation these insects are easily destroyed by sowing wood-ashes, foot, &c. the moment they appear; and at the same time the plants are invigorated by the dressing^h.

They are attacked also both in the seed-bed and the field by the caterpillar of the *Papilio Brassicae* or Cabbage Butterfly. This insect, though destructive to the plants in gardens, is of little consequence in field culture; because it comes too late to injure the seed-bed; and if the plants prosper after they are set out, they become so strong and numerous as to set it at defiance. I have practised an easy method of stopping the ravages of these caterpillars, in the garden, by turning up the leaves, when I have observed the white butterflies busy about the plants, and rubbing off the eggs, which are deposited along the ribs of them, with the back of a knife; this operation is performed in a very short time, whereas the picking of the caterpillars after they are hatched and dispersed is operose and tedious.

The Slug, that common enemy to all crops, attacks the Cabbage, but is by no means so injurious to that as to the Turnep, because it stands up above the ground, whereas the leaves of the latter spread upon it.

From Frost, Cabbages sustain little or no damage, if they be of an hardy sort, a few of the outside leaves excepted. In the last severe frost of 1788-9, the early sown Turneps were universally destroyed, and the late sown ones much injured: whereas the Cabbage crop endured all the severity of the winter, and supplied food, when nothing else, besides Hay, could be procured; was got up with nearly as much ease as in open weather; and the stock did well on it, even when the plants were much frozenⁱ.

There is a disease to which Cabbages are subject, which is the roots becoming swollen or knobbed, and the plant at the same time smaller. It is occasioned by grubs which are the *larvæ* of flies; and is incident chiefly to such Cabbages as are sown or planted for several years together on the same land^k. This disease therefore does not affect the field culture, unless indeed the seed-bed should be continued on the same piece.

Objections.

The two principal objections to the field culture of Cabbages are, the impoverishment of the land, and the difficulty of carting them off.

That it is an exhausting crop is generally allowed, and that it is much more so than Turneps^l. A gentleman however who has given it repeated trials for twelve years, on a wet clayey loam, declares himself fully assured that it does not impoverish the soil, but on the contrary meliorates and

^p Young's ann. 2. 151, 152. ^q Idem 3. 183. & 5. 199.
^r Id. 9. 392. ^s Ib. 2. 140. 5. 199, 200. & 9. 392.
^t Id. 3. 183. ^u Id. 3. 184. ^x Bath papers, 2. 103.
^y Young's ann. 11. 333. ^z Id. 4. 177.
^a Bath papers, 2. 103. ^b Young's ann. 5. 199.
^c Id. 9. 393. ^d Id. 3. 184. ^e Id. 3. 183. & 9. 393.

^f Young's ann. 11. 334. ^g Id. 3. 185. & 5. 198.
^h Id. 9. 392. ⁱ Id. 11. p. 327, 332.
^k Stokes in Withering's arrangement.
^l Young's ann. 5. 197, 200.

cleans the land to which it is adapted, better than Turneps. One acre of his Cabbages is often worth three and sometimes four acres of adjoining Turneps, on land five shillings an acre better than his. The average crop of Cabbages twenty-six tons; of Barley after it, thirty-seven bushels; of Wheat, thirty bushels; of Oats, sixty bushels; of Clover, when mown twice, three tons from an acre^m.

His course of crops is worth remarking. The Cabbages being disposed of, by carrying the best to the cows and other cattle in the straw-yard, and folding ewes and lambs upon the remainder in march and april; the land is sown with Barley and Clover; the autumn following the Clover lay is broken up, and set with Wheat; the year after Oats are sown upon the Wheat stubble; and at michaelmas following from twelve to fourteen loads of compost being ploughed in, the may or june after Cabbages are again plantedⁿ.

Another great advantage of Cabbages is, by their being planted on four-furrow work, the land lays drier, and works better for Barley or Oats than Turnep land: there is always mould to sow in spring, after feeding off with sheep, which is by no means the case in the same sort of land with Turneps; if the season be wet when they are feeding, and sets in dry in feed-time, it is not possible to get the feed in properly^o.

Many are inclined to attribute the exhausting of land by Cabbages to the practice of leaving the stalks in the ground, which throw out sprouts, and thus draw the land when the effect of the crop ought entirely to have ceased. But if we should allow, what however some dispute, that Barley after Turneps is better by eight bushels an acre, than after Cabbages; yet if one acre of Cabbages be more valuable, as is commonly thought, than two acres of Turneps, there will be a gain upon the whole, and Cabbages ought not to be stigmatized as an exhausting crop^p. It is found however that to ensure a good crop of Barley, the Cabbages should not be taken off too late.

As the crop cannot be fed upon the land by heavy cattle, this occasions an expense in carting it off, and that damages the land, by cutting it up and poaching it in a dreadful manner. The Turneps however are most damaged, because they are on steaches nearly flat, whereas the Cabbages being on three-feet ridges, the poaching is chiefly in the furrows, and no part of the crop which is left for the sheep is injured. The carting also is done at half the expense, and the food is cleaner for the stock^q. If broad-arched ridges were used, all the carting being in the furrows alone, the productive part of the field would be secure from injury, in the case both of Cabbages and Turneps^r.

Quantity.

The quantity of the Cabbage crop will of course vary with the quality of the land, the quantity of manure, the degree of tillage, the goodness of the plant, and the season at and after planting. From partial measurements the crop has been estimated at forty-two, fifty-four, and even sixty-eight tons to the acre, but these are extraordinary weights not to be depended upon. Crops are stated more generally at from thirty-six to twenty-six tons, and some so low as fourteen^s; and a good one may be laid at thirty tons. Allowing indeed a Cabbage of twenty-eight pounds to every square yard, an acre will yield upwards of sixty tons; but every cultivator knows that a considerable abatement must be made in such estimates, for failures of plants, and deficiency in weight of those which succeed.

The great aim of the farmer is to have large plants of a firm sort; and such cannot be obtained without great care and attention in procuring or saving

good seed. For this purpose it is not sufficient to have a good sort; but the plants which stand for seed must be removed from all other sorts and varieties of the Cabbage kind, when in flower. To this end some plant them in a piece of Wheat: but in this situation it is difficult to keep them from birds.

Turnep Cabbage, and Turnep-rooted Cabbage.

These two plants are sometimes confounded, and indeed they are not essentially different. The first produces its bulb or protuberance, which approaches to roundness, chiefly above ground; but in the second it is oblong, and descends into the ground^t.

The Turnep Cabbage, though said not to be so hardy as the other, is hardy enough, for it stood the severe winter of 1788-9, when most of the Turneps were destroyed. It is eatable when young, about the size of a moderate garden Turnep, and those which are sown in june will continue good all the winter. The root must be stripped of its thick fibrous rind, and then it may be treated as a Turnep. The largest roots are twenty-three inches in circumference, and weigh upwards of twelve pounds^u. Their chief use, as well as that of the Turnep-rooted Cabbage, is for feeding cattle and sheep; their culture is the same; and their principal excellence is their hardiness.

For domestic use, the seeds are sown in april, on a bed of light fresh earth, and when the plants are an inch high, they should be transplanted into a shady border, at two inches distance every way, kept clean from weeds, and watered till they have taken root; if the season should prove extremely dry, they should be watered afterwards every four or five days, to prevent the mildew. In the beginning of june they should be transplanted where they are to remain, at two feet distance every way, and watered till they have taken root. As their stems advance draw the earth up to them with a hoe, but not too high, so as to cover the globular part, which is eaten.

[The manner of cultivating these plants in the field is much the same as that of the Cabbage. Sow a pound of seed very early in march for every three acres intended to be planted. Prepare the land by three or four earths, the first given at michaelmas. Before the last earth manure as for Turneps. Finish the whole ready for planting by the first week in june. The first ground rain after that set all hands to planting; the rows two feet asunder, and the plants eighteen inches apart in good land, and twelve in poorer soils. Plough the intervals three times, and keep the rows perfectly clean by hand-hoeing. When the plants are to be taken up, plough the rows without a coulter, and a round share with a blunt edge^v.

Others sow broadcast, and hoe out as for Turneps. Others again sow the seed in drills the middle of april, where it is to remain; having observed a great difference between the plants left in the seed-bed, and those planted just beside them, to the advantage of the former^w. When they are sown broadcast, they should be put in earlier, because they are longer in coming to the hoe, than Turneps.

This crop is in no danger from the fly; and if it be attacked by caterpillars or slugs, they may be checked by rolling very early in the morning.

Turnep-rooted Cabbage will produce from twenty-five to thirty tons on an acre; and for late spring-feed is certainly a most valuable crop. It is invulnerable to frost; and when farmers are in the greatest distress for sheep-feed in april, it is an unfailing supply, and affords abundant milk for the lambs. It is a firmer and more substantial food than Turneps, and may be kept long out of the ground^x.

Every farmer therefore should cultivate so much of this root as will ensure him provision for his cat-

^m Forby, in Young's ann. 19. 470.

ⁿ Id. 19. 566.

^o Id. 567. & 9. 301.

^p Id. 5. 197 to 201.

^q Id. 202. & 19. 567.

^r Id. 5. 202.

^s Young's ann. 9. 391. 16. 93, 262. 19. 481, 566. Bath papers, 2. 103, 227. 4. 336.

^t Young's ann. 2. 345.

^u Bath papers, 5. 454.

^v Young's ann. 2. 364.

^w Ibid. 365. & 345.

^x Bath papers, 2. 102.

tle and sheep three or four weeks in the latter part of the spring, unless he be otherwise provided. A greater quantity is not to be wished, because the consumption of them, particularly when drawn, and carried off the land, is attended with more trouble and expense than Turneps, especially if the soil be wet and heavy^a. But on such a soil Turneps seldom succeed; nor can they be either fed on the land or carted off from it in ordinary spring seasons without materially injuring the succeeding crop.

If the ground be wanted for Barley, the turnep-rooted Cabbages may be ploughed up in february or march, and spread on a lay or dry pasture, or else stacked up. They are of so firm a nature, that they will keep good out of the ground near twelve months, through the extremes of heat and cold^b. Or on light land, Buck-wheat may be sown on the first earth upon the land from which they are fed off; and the Clover or other seeds may be sown with it, in the same manner as with Oats or Barley^c.

The Swedish Turnep or *Roota Baga*, is of the same nature with these, and equally hardy. The root is sweet and firm, being nearly twice as heavy as one of our Turneps of the same size. When dressed for the table it is preferred to ours; and it is particularly grateful to all sorts of cattle. Hares and pheasants will take to it, and leave Cabbages and common Turneps untouched. The culture and application of the Swedish Turnep is the same as that of these. The roots are as found in may as at christmas; they may be pulled up at this time, and kept till april, either piled up with sand or straw in a barn, or thrown on a pasture. Their heads are not so large and bushy as those of the turnep-rooted Cabbage, and therefore will not produce so much green food^d.

BORECOLE, or *Fringed Cabbage*.

The varieties are, 1. Green curled. 2. Red curled. 3. Thick-leaved curled. 4. Finely fringed. 5. Siberian, or Scotch Kale.]

For the garden, these may be treated in the manner directed for winter Cabbages; but they need not be planted above one foot asunder in the rows, and these need not be more than at two feet distance. The Borecoles are never eaten till frost has rendered them tender; for before that they are tough and bitter.

The seeds of the Siberian Borecole may be sown the beginning of july; and when the plants are strong enough, they should be set in rows eighteen inches asunder, and ten inches distant in the rows. This work must be done in a moist time. They will be fit for use after christmas, and continue good to april.

[All these plants bear our severest winters, are a useful reserve for the table in such seasons, and then eat very sweet and tender.

Green Borecole is also a very useful green food for sheep, because it is not only hardy, but growing three feet high it may at all times in deep snows be got at by these animals, who frequently suffer much for want of food in such cases. It may be cultivated exactly as is directed above for the turnep-rooted Cabbage^e.]

CAULIFLOWER.

Cauliflowers by the skill of the gardener, are continued for several months together; but the most common season for the great crop, is in may, june, and july. I shall therefore begin with directions for obtaining them in this season.

Having procured a parcel of good seed, of an early kind, you must sow it about the twenty-first of august, upon an old Cucumber or Melon-bed, sifting a little earth over the seeds, about a quarter of an inch thick; and if the weather should prove extremely hot and dry, you should shade the bed with mats, to prevent the earth from drying too fast,

which would endanger the spoiling your seed; and give it gentle waterings, as you may see occasion. In about a week's time your plants will appear above ground; when you must take off your coverings by degrees, but do not expose them too much to the open sun at first. In about a month's time after sowing, your plants will be fit to prick out, you should therefore put some fresh earth upon your old Cucumber or Melon-beds; or where these are not to be had, some beds should be made with a little new dung, which should be trodden down close, to prevent the worms from getting through it; but it should not be hot dung, which would be hurtful to the plants at this season, especially if it proves very hot; into this bed you should prick your young plants; at about two inches square, observing to shade and water them at first planting; but do not water them too much after they are growing, nor suffer them to receive too much rain, if the season should prove wet, which would be apt to make them black shanked (as the gardeners term it,) which is no less than a rottenness in their stems, and is the destruction of the plants so affected.

In this bed they should continue till about the 30th of october, when they must be removed into the place where they are to remain during the winter season, which, for the first sowing, is commonly under bell or hand-glasses, to have early Cauliflowers, and these should be of an early kind: but in order to have a succession during the season, you should be provided with another more late kind, which should be sown four or five days after the other, and managed as was directed for them.

In order to have very early Cauliflowers, you should make choice of a good rich spot of ground, that is well defended from the north, east, and west winds, with hedges, pales, or walls; but the first is to be preferred, if made with reeds, because the winds will fall dead in these, and not reverberate as by pales or walls. This ground should be well trenched, burying therein a good quantity of rotten dung; then level your ground, and if it be naturally a wet soil, you should raise it up in beds about two feet and a half, or three feet broad, and four inches above the level of the ground; but if your ground is moderately dry, you need not raise it at all: then set your plants, allowing about two feet six inches distance from glass to glass, in the rows, always putting two good plants under each glass, which may be at about four inches from each other; and if you design them for a full crop, they may be three feet and a half, row from row: but if you intend to make ridges for Cucumbers or Melons between the rows of Cauliflower plants (as is generally practised by the gardeners near London,) you must then make your rows eight feet asunder.

When you have set your plants, if the ground is very dry, you should give them a little water, and then set your glasses over them, which may remain close down upon them, until they have taken root, which will be in about a week or ten days time; unless there should be a kindly shower of rain, in which case you may set off the glasses, that the plants may receive the benefit of it; and in about ten days after planting, you should be provided with a parcel of forked sticks or bricks, with which you should raise your glasses about three or four inches on the side toward the south, that your plants may have free air. In this manner your glasses should remain over the plants night and day, unless in frosty weather, when you should set them down as close as possible: or if the weather should prove very warm, which many times happens in november, and sometimes in december; in this case, you should keep your glasses off in the day-time, and put them on only in the night, lest, by keeping the glasses over them too much, you should draw them into flower at that season, which is many times the case in mild winters, especially if unskilfully managed.

Toward the latter end of february, if the weather proves mild, you should prepare another good spot of ground, to remove some of the plants into from under

^a Bath papers, 5. 423.

^b Ibid. 2. 102.

^c Ibid. 3. 112.

^d Young's ann. 16. 173.

Bath papers, 5. 425 & 457.

^e Young's ann. 2. 364.

under the glasses, which should be well dunged and trenched (as before;) then set off the glasses, and, after making choice of one of the most promising plants under each glass, which should remain, take away the other plant, by raising it up with a trowel, so as to preserve as much earth to the root as possible; but have a great regard to the plant that is to remain, not to disturb or prejudice its roots: then set your plants which you have taken out, at the distance before directed, *viz.* if for a full crop, three feet and a half, row from row; but if for ridges of Cucumbers between them, eight feet, and two feet four inches distance in the rows: then with a small hoe, draw the earth up to the stems of the plants which were left under the glasses, taking great care not to let the earth fall into their hearts; and set your glasses over them again, raising your props an inch or two higher than before, to give them more air, observing to take them off whenever there may be some gentle showers, which will greatly refresh the plants.

In a little time after, if you find your plants grow so fast as to fill the glasses with their leaves, you should then slightly dig about the plants, and raise the ground about them in a bed broad enough for the glasses to stand about four inches high, which will give your plants a great deal of room by raising the glasses so much higher, when they are set over them; and by this means they may be kept covered until april, which otherwise they could not, without prejudice to the leaves of the plants: and this is a great advantage to them; for many times we have returns of severe frosts at the latter end of march, which prove very hurtful to these plants, if exposed thereto, especially after having been nursed up under glasses.

After you have finished your beds, you may set your glasses over your plants again, observing to raise your props pretty high, especially if the weather be mild, that they may have free air to strengthen them; and in mild soft weather set off your glasses, as also in gentle showers of rain; and now you must begin to harden them by degrees to endure the open air: however, it is adviseable to let your glasses remain over them as long as possible, if the nights should be frosty, which will greatly forward your plants: but be sure do not let your glasses remain upon them in very hot sun-shine, especially if their leaves press against the sides of the glasses; for I have often observed, that the moisture which has risen from the ground, and the perspiration of the plants, which, by the glasses remaining over them, has been detained upon the leaves, and when the sun has shone hot upon the sides of the glasses, has acquired a powerful heat, have scalded all their larger leaves, to the no small prejudice of the plants: nay, sometimes I have seen large quantities of plants so affected therewith, as never to be worth any thing after.

If your plants have succeeded well, toward the end of april some of them will begin to produce; you must therefore look over them carefully every other day, and when you see white stalk, which is commonly called the flower, plainly appear, you must break down some of the inner leaves over it to guard it from the sun, which would make it yellow and unsightly, if exposed thereto; and when you find it at its full bigness (which you may know by its outside parting, as if it would run,) you must then draw the plant out of the ground, and not cut it off, leaving the stalk in the ground, as is by some practised; and if they are designed for present use, you may cut them out of their leaves; but if designed to keep, you should preserve their leaves about them, and put them into a cool place: the best time for pulling them is in a morning, before the sun has exhaled the moisture; for Cauliflowers, pulled in the heat of the day, lose that firmness which they naturally have, and become tough.

But to return to our second crop (the plants being raised and managed as was directed for the early crop, until the end of october;) you must then pre-

pare some beds, either to be covered with glass-frames, or arched over with hoops, to be covered with mats, &c. These beds should have some dung laid at the bottom, about six inches or a foot thick, according to the size of your plants; for if they are small, the bed should be thicker of dung, to bring them forward, and *vice versa*: this dung should be beat down close with a fork, in order to prevent the worms from finding their way through it; then lay some good fresh earth about four or five inches thick thereon, in which you should set your plants about two inches and a half square, observing to shade and water them until they have taken fresh root: but be sure do not keep your coverings close, for the warmth of the dung will occasion a great damp in the bed, which, if pent in, will injure the plants.

When your plants have taken root, you must give them as much free open air as possible, by keeping the glasses off in the day-time as much as the weather will permit; and in the night, or at such times as the glasses require to be kept on, raise them up with bricks or other props to let in fresh air, unless in frosty weather; at which time the glasses should be covered with mats, straw, and Pease-haulm, &c. but this is not to be done except in very hard frosts: you must also observe to guard them against great rain, which in winter time is very hurtful to them; but in mild weather, if the glasses are kept on, they should be propped to admit fresh air; and if the under leaves grow yellow and decay, be sure to pick them off; for if the weather should prove very bad in winter, so that you should be obliged to keep them close covered for two or three days together, as it sometimes happens, these decayed leaves will render the inclosed air very noxious; and the plants perspiring pretty much at that time, are often destroyed in vast quantities.

In the beginning of february, if the weather proves mild, you must begin to harden your plants by degrees, that they may be prepared for transplantation; and the ground where you intend to plant your Cauliflowers out to remain (which should be quite open from trees, &c. and rather moist than dry) having been well dunged and dug, should be sown with Radishes a week or fortnight before you intend to plant out your Cauliflowers: the reason why I mention the sowing of Radishes particularly, is this, *viz.* that if there are not some Radishes amongst them, and the month of may should prove hot and dry, as it sometimes happens, the fly will seize your Cauliflowers, and eat their leaves full of holes, to their prejudice, and sometimes their destruction; whereas, if there are Radishes upon the spot, the flies will take to them, and never meddle with the Cauliflowers so long as they last. Indeed, the gardeners near London mix Spinach with their Radish-seed, and so have a double crop, which is an advantage where ground is dear, or where persons are straitened for room; otherwise it is very well to have only one crop amongst the Cauliflowers, that the ground may be cleared in time.

Your ground being ready, and the season good, about the middle or end of february, you may begin to plant out your Cauliflowers: the distance which is generally allowed by the gardeners near London (who plant other crops between their Cauliflowers to succeed them, as Cucumbers for pickling, and winter Cabbages) is every other row four feet and a half apart, and the intermediate rows two feet and a half, and two feet two inches distance in the rows; so that in the latter end of may, or beginning of june, when the Radishes and Spinach are cleared off, they put in seeds of Cucumbers for pickling, in the middle of the wide rows, at three feet and a half apart; and in the narrow rows, plant Cabbages for winter use, at two feet two inches distance, so that these stand each of them exactly in the middle of the square between four Cauliflower-plants; and these, after the Cauliflowers are gone off, will have full room to grow, and the crop be hereby continued in a succession through the whole season.

About three weeks or a month after your Cauliflowers are planted out, the Radishes between them will be fit to hoe; at which time, when you are hoeing out the Radishes where they are too thick, you should cut off all such as grow immediately about the Cauliflowers, and would prove hurtful to them, by drawing them up tall and weak; and also at that time draw the earth up to the stems of the plants, being careful not to let any get into their hearts, as was before directed; and when your Radishes are fit to pull, be sure to clear round the Cauliflowers first, and keep drawing the earth up to their stems as they advance in height, which will keep their stems from being hardened by the weather, and be of singular service to your plants.

There are many people who are very fond of watering Cauliflower-plants in summer, but the gardeners near London have almost wholly laid aside this practice, as finding a deal of trouble and charge to little purpose; for if the ground be so very dry as not to produce tolerable good Cauliflowers without water, it seldom happens, that watering them renders them much better; and when once they have been watered, if it is not constantly continued, it had been much better for them if they never had any; as also if it be given them in the middle of the day, it rather helps to scald them: so that, upon the whole, if care be taken to keep the earth drawn up to their stems, and clear them from every thing that grows near them, that they may have free open air, you will find that they will succeed better without than with water, where any of these cautions are not strictly observed.

When your Cauliflowers begin to show, you must often look over them, to turn down their leaves, as was before directed, to preserve their whiteness; and when they are full grown, observe the former directions in pulling them, &c. but wherever you meet with an extraordinary good Cauliflower, whose curd is hard and white, and perfectly free from any frothiness about the edges, you should suffer it to remain for seed, keeping the leaves close down upon it until the flower has shot out stems, and then remove the leaves from it by degrees, but do not expose it too much to the open air at first. As the stems advance, you must take the leaves quite away; and when they begin to branch out, you should fix three pretty strong stakes, at equal angles, about it, surrounding them with packthread, &c. to support the branches, which would be otherwise liable to break with the wind.

When your pods begin first to be formed, if the weather proves dry, you should give them a little water all over (with a watering-pot that has a rose to it;) which will promote the progress of the seeds, and preserve them from mildew, which is often hurtful to the seeds; and, when your seeds are ripe, you must cut it off, and hang it up to dry, and rub it out as was directed for Cabbage-seed: and although your flowers do not produce so much seed as those which were of a softer or frothy nature, yet the goodness of such seeds will sufficiently recompense for the quantity; and any person who was to purchase his seeds, had better give ten shillings an ounce for such seed than two for the seeds commonly saved for sale, as the gardeners about London have experienced, who will never buy any seeds of this kind, if they do not know how they were saved.

But in order to have a third crop of Cauliflowers, you should make a slender hot-bed in february, in which you should sow the seeds, covering them a quarter of an inch thick with light mould, and covering the bed with glass-frames: you should now and then gently refresh the bed with water, observing to raise the glasses with bricks or props in the day-time, to let in fresh air; and when the plants are come up, and have gotten four or five leaves, you should prepare another hot-bed to prick them into, at the distance of about two inches every way; and in the beginning of april harden them by degrees, to fit them for transplanting, which should be done the middle of that month, at the distance directed

for the second crop, and must be managed accordingly: these (if the soil be moist where they are planted, or the season cool and moist) will produce good Cauliflowers about a month after the second crop is gone, whereby their season will be greatly prolonged.

There is also a fourth crop of Cauliflowers, which is raised by sowing the seed about the 23d of may; and being transplanted, as has been before directed, will produce good Cauliflowers in a kindly season and good soil, after michaelmas, and continue through october and november; and, if the season permit, often a great part of december.

The reason why I fix particular days for the sowing of this seed, is because two or three days often make a great difference in their plants; and because these are the days usually fixed by the gardeners near London, who have found the crops to succeed best when sown at those times, although one day, more or less, will make no great odds.

BROCCOLI.

The seeds of the Broccoli, of which there are several kinds, viz. the Roman, or purple, and the Neapolitan, or white, and the black Broccoli, with some others; (but the Roman is chiefly preferred to them all) should be sown about the latter end of may, or beginning of june, in a moist soil; and when the plants are grown to have eight leaves, transplant them into beds, as was directed for the common Cabbage; and toward the middle of july they will be fit to plant out finally, which should be into some well sheltered spot of ground, but not under the drip of trees: the distance these require is about a foot and a half in the rows, and two feet row from row. The soil, in which they should be planted, ought to be rather light than heavy, such as are the kitchen gardens near London: if your plants succeed well (as there will be little reason to doubt, unless the winter prove extremely severe) they will begin to show their small heads, which are somewhat like a Cauliflower, but of a purple colour, about the end of december, and will continue eatable till the middle of april.

The brown or black Broccoli is by many persons greatly esteemed, though it does not deserve a place in the kitchen-garden, where the Roman Broccoli can be obtained, which is much sweeter, and will continue longer in season: indeed, the brown sort is much hardier, so that it will thrive in the coldest situations, where the Roman Broccoli is sometimes destroyed in very hard winters. The brown sort should be sown in the middle of may, and managed as has been directed for the common Cabbage, and should be planted at the same distance which is about two feet and a half asunder. This will grow very tall, and should have the earth drawn up to the stems as it advances in height. This does not form heads so perfect as the Roman Broccoli; the stems and hearts of the plants are the parts which are eaten.

The Roman Broccoli (if well managed) will have large heads, which appear in the center of the plants, like clusters of buds. These heads should be cut before they run up to seed, with about four or five inches of the stem; the skin of these stems should be stripped off, before they are boiled: these will be very tender and little inferior to Asparagus. After the first heads are cut off, there will be a great number of side shoots produced from the stems, which will have small heads to them, but are full as well flavoured as the large. These shoots will continue good until the middle of april, when the Asparagus will come in plenty to supply the table.

The Naples Broccoli has white heads, very like those of the Cauliflower, and eats so like it, as not to be distinguished from it. This being much tenderer than the Roman Broccoli, is not so much cultivated in England; for as the gardens near London generally produce great plenty of late Cauliflowers, which, if the season prove favourable, will continue till christmas, the Naples Broccoli, coming at the same time, is not so valuable.

Besides

Besides this first crop of Broccoli (which is usually sown the end of may,) it will be proper to sow another crop the beginning of july, which will come in to supply the table the latter end of march, and the beginning of april, and being very young, will be extremely tender and sweet.

In order to save good seeds of this kind of Broccoli in England, you should reserve a few of the largest heads of the first crop, which should be let remain to run up to seed, and all the under shoots should be constantly stripped off, leaving only the main stem to flower and seed. If this be duly observed, and no other sort of Cabbage permitted to seed near them, the seeds will be as good as those procured from abroad, and the sort may be preserved in perfection many years.

The manner of preparing the Naples Broccoli for the table is this: when your heads are grown to their full bigness (as may be easily known by their dividing, and beginning to run up,) then you should cut them off, with about four inches of the tender stem to them; then strip off the outer skin of the stem, and after having washed them, boil them in a clean linen cloth as is practised for Cauliflowers, and, if they are of a right kind, they will be tenderer than any Cauliflowers, though very like them in taste.

[The White or Neapolitan Broccoli may also be sown in the beginning or middle of february, upon a wall border having an eastern aspect. So soon as the plants have got five leaves, transplant them into a more southerly aspect, upon a very good rich soil, where they may remain. The reason of this transplanting is, that they may thereby acquire more fibres, whereby they suck more nourishment from the soil, than those plants which are continued in their seed-beds: for by every transplantation they acquire a new set of fibres, and of consequence, if they are twice or thrice transplanted in nursery-beds, they are much better in their productions than plants of the same kind, which have not been transplanted.

In order to have Broccoli produce well, transplant it into the alleys of your Onion, Carrot, &c. beds, the beginning of july; preserving it from snails, and hilling it up, it will produce most noble heads in january and february, and will furnish the table until it is quite over. By thus sowing very early in the spring, the most forward will succeed the autumnal-sown crops, by which means there will be a constant succession.

The Roman or Blue Broccoli should be sown by the 10th of march; when the plants have five leaves transplant them into nursery-beds at three inches distance; at the end of june plant them out into a good soil in rows three feet distant, and two feet between the plants: hill, dig, and keep them clear from weeds; and in november they will show their heads: these must be cut off, except in severe frost, that their side sprouts may advance in the spring; for these will be fit for service long after the other sorts are quite gone. All the varieties of Broccoli prosper best in a rich loamy soil, not much exposed to the sun; but they must never be planted under the drip of trees^f.]

Saving Seeds.

The best method to save the seeds of all the best sorts of Cabbages is, about the end of november to make choice of some of your best Cabbages, which you should pull up, and carry to some shed, or other covered place, where you should hang them up for three or four days by their stalks, that the water may drain from between their leaves; then plant them in some border, under a hedge or pale, quite down to the middle of the Cabbage, leaving only the upper part of the Cabbage above ground, observing to raise the earth about it, so that it may stand a little above the level of the ground; but if the ground be wet, it will require to be raised pretty much above the surface.

^f Justice Brit. Gard. director, p. 187.

If the winter should prove very hard, you must lay a little straw or Pease-haulm lightly upon the Cabbages, to secure them from the frost, taking it off as often as the weather proves mild, lest by keeping them too close they should rot. In the spring of the year they will shoot out strongly, and divide into a great number of small branches: you must therefore support their stems, to prevent their being broken off by the wind; and if the weather should be very hot and dry when they are in flower, you should refresh them with water once a week all over the branches, which will greatly promote their seedling, and preserve them from mildew.

When the pods begin to change brown, you will do well to cut off the extreme part of every shoot with the pods, which will strengthen your seeds; for it is generally observed, that those seeds which grow near the top of the shoots, are very subject to run to seed before they cabbage; so that by this there will be no loss, but a great advantage, especially if you have more regard to the quality than to the quantity of the seeds, which indeed is not always the case, when it is intended for sale; but those who save it for their own use, will be careful to have it good.

When your seeds begin to ripen, you must be particularly careful, that the birds do not destroy it; for they are very fond of these seeds. In order to prevent their mischief, some use old nets, which they throw over their feeds, to prevent their getting to it: but this will not always do, for unless the nets are very strong, they will force their way through them, as I have often seen; but the best method I know, is to get a quantity of birdlime, and daub over a parcel of slender twigs, which should be fastened at each end to stronger sticks, and placed near the upper part of the seed, in different places, so that the birds may alight upon them, by which means they will be fastened thereto, where you must let them remain a considerable time, if they cannot get off themselves: and although there should be but few birds caught, yet it will sufficiently terrify the rest, that they will not come to that place again for a considerable time after, as I have experienced.

When your seed is fully ripe, you must cut it off: and, after drying, thresh it out, and preserve it in bags for use.

But in planting Cabbages for seed, I would advise never to plant more than one sort in a place, or near one another: as for example, never plant red and white Cabbages near each other, nor Savoy with either white or red Cabbages; for I am very certain they will produce a mixture of sorts; and it is wholly owing to this neglect, that the gardeners rarely save any good red Cabbage-seed in England, but are obliged to procure fresh seeds from abroad, as supposing the soil or climate of England alters them from red to white, and of a mixed kind between both; whereas, if they would plant red Cabbages by themselves for seeds, and not suffer any other to be near them, they might continue the kind as good in England, as in any other part of the world; for in the Dutch gardens, from whence the best seeds of red Cabbages are procured, they cultivate no other sort.

10. This is an open Colewort. It is an annual plant, and if sown in april, will flower in july and perfect its seeds in october. Even when it has been frozen, it is much worse than the common Colewort, and therefore not worth propagating.

13. When this is propagated for salads, the seeds should be sown in drills, in the same manner as is practised for other small salad herbs, but if it be not eaten young, it will be too strong for most palates. When sown in summer, the plants soon run up to seed, and are too rank. When cultivated for the seed, which is sometimes used in medicine, it should be sown in march on an open spot of ground; and when the plants have put out four leaves, they should be hoed to three or four inches distance; in five or six weeks they should have a second hoeing. When the seeds are ripe, the plants should be

drawn up, and spread upon a cloth in the sun two or three days to dry; when the seeds may be beaten out of the pods, and put up for use.

The wild Rockets may be cultivated, by sowing the seeds in march or april. When the plants come up, they require no other culture but to thin them, and keep them clear from weeds.

[BRASSICA. See *Arabis*, *Arum*, *Turritis*.

_____ marina. See *Convolvulus Soldanella* and *Crambe*.

_____ monensis. See *Sisymbrium*.

_____ spinosa. See *Bunias*.

BRATHYS. (*Bpados* or *Bpadu*, the name of a plant in *Dioscorides*.)

Mutis. *Lin. suppl.* n. 1402. p. 43. *Lin. gen.*

Schreb. n. 937. *Juss.* 254.

Class. 13. 5. Polyandria Pentagynia.

Nat. order of *Rotaceæ*. *Hyperica* *Juss.*

GENERIC CHARACTER.

CAL. *Perianth* five-leaved: leaflets lanceolate, acute, permanent.

COR. *Petals* five, lanceolate, twice as long as the calyx.

STAM. *Filaments* many, more than twenty, capillary, the length of the calyx. *Anthems* twin.

PIST. *Germ* superior, ovate. *Styles* five, patulous, filiform. *Stigmas* capitate.

PER. *Capsule* ovate, with five little swellings, one-celled.

SEEDS very many, roundish.

ESSENTIAL CHARACTER.

Cal. five-leaved. Pet. five. Neet. none. Caps. one-celled, many-seeded.

SPECIES.

1. *Brathys juniperina*.

Lin. syst. 506. *suppl.* 268.

DESCRIPTION, &c.

This is a shrub of a habit between Heath and Juniper, very branching, and upright, the branches covered with leaves. Leaves opposite, very much crowded, acrosc, an inch long, acute, unarmed, evergreen. Flowers terminating the branches, several together, sessile. Found in New Granada, by Mutis^a.

BREAD-FRUIT TREE. See *Artocarpus*.

BREAD-NUT TREE. See *Brosimum*.]

[BREYNIA. (So named by Forster, in memory of Jac. Breynius, and his son Jac. Phil. Breynius, M. D. both celebrated botanists.)

Forst. *gen.* 1. 73. *Lin. gen.* Schreb. n. 1605.

Class. 23. 2. Polygamia Dioecia.

GENERIC CHARACTER.

* *Hermaphrodite* Flowers.

CAL. *Perianth* one-leaved, turbinate, minute, six-parted: parts concave, blunt, closely converging, depressed flat at the end, so that it is pervious only by a small hole.

COR. none.

STAM. *Filaments* none. *Anthems* five, linear, upright, fastened longitudinally to the style, approximating.

PIST. *Germ* very small. *Style* cylindric, the length of the calyx. *Stigma* blunt.

PER. *Berry* dry, globular, three-celled, propped on the perianth, now become three times its former size, and spreading very much: the segments orbiculate, and nearly equal.

SEEDS two, convex at the back, flat on the sides:

* *Male* flowers.

CAL. *Perianth* one-leaved, five-parted: leaflets roundish, concave, almost equal.

COR. none. *Neetary* five glands, subpedicelled, alternate with the stamens.

STAM. *Filaments* five, very short. *Anthems* roundish, the length of the calyx.

* *Female* flowers.

CAL. & COR. as in the Male.

PIST. *Germ.* globose. *Style* none. *Stigmas* five, obcordate, resembling petals.

PER. *Capsule* five-celled.

SEEDS solitary, subtriquetrous.

^a *Linn. suppl.*

ESSENTIAL CHARACTER.

Cal. one-leaved. Cor. none.

HERM. Cal. six-parted. *Anthems* five, linear, fastened to the style. *Berry* three-celled. *Seeds* two.

MALE. Cal. five-parted. *Filaments* five. *Anthems* roundish.

FEM. *Stigmas* five, obcordate, petaloid, without any style. *Caps.* five-celled. *Seed* solitary.

SPECIES.

1. *Breynia disticha*.

Forst. *fl. austral.* n. 40.

Native of New Caledonia, and the isle of Tanna, in the South Seas.]

BREYNIA. See *Capparis* [and *Seriphium*.

BREYNIAE affinis. See *Capparis*.

BRIONY. See *Bryonia*.

BRITANNICA. See *Rumex*.]

[BRIZA. (*Bpiza*, to nod or sleep.)

Lin. gen. n. 84. *Reich.* n. 90. *Schreb.* n. 115. *Gertn.* t. 1.

Class. 3. 2. Triandria Digynia.

Nat. order of *Gramina* or *Grasses*.

GENERIC CHARACTER.

CAL. *Glume* many-flowered, bivalve, spreading, collecting the flowers into a heart-shaped distich spike: valves heart-shaped, concave, equal, obtuse.

COR. bivalve: lower valve the size and figure of the calyx; upper very small, flat, roundish, inclosing the body of the other. *Neetary* two-leaved; leaflets linear, crenulate.

STAM. *Filaments* three, capillary. *Anthems* oblong.

PIST. *Germ* roundish. *Styles* two, capillary, recurved. *Stigmas* plumose.

PER. none. *Corolla* unchanged contains the seed, gapes, and drops it.

SEED one, roundish, compressed, very small.

ESSENTIAL CHARACTER.

Cal. bivalve, many-flowered. Spikelet distich with heart-shaped obtuse valves, the lower of which is minute.

SPECIES.

1. *Briza minor*. Small quaking-grass.

Lin. spec. 102. *Reich.* 193. *hort. cliff.* 23. *Huds. angl.* 38. *With.* 92. *Villars dauph.* 2. 137.

Poa. Hall. belv. n. 1449.

Gr. tremulum, &c. *Baub. pin.* 2. n. 4. *prodr.* 4. n. 9. *theatr.* 24. *Mor. bist.* 3. 203. f. 8. t. 6.

f. 47. *Raii bist.* 1274. n. 1. *syn.* 412. n. 2. *Scheuch. gram.* 205. t. 4. f. 9. *Park.* 1165. 5.

Barr. ic. 16. *Lob. obs.* 12.

Spikelets triangular, calyx longer than the seven floscules.

2. *Briza virens*. Green quaking-grass.

Lin. spec. 103. *Reich.* 194. *Allion. pedem.* n. 2216. *Gr. paniculatum minus, locustis magnis tremulis.*

Tourn. inst. 523.

Spikelets ovate, calyx equal to the seven floscules.

3. *Briza media*. Middle, or common quaking-grass,

Cow-quakes, Shakers, Ladies-bair, Bird's-eyes.

Lin. spec. 103. *Reich.* 194. *hort. cliff.* 23. *succ.* n. 86. *Huds. angl.* 38. *With.* 92. *Relb. cantabr.*

n. 73. *Fl. rust.* t. 39. *Pollich pal.* n. 97. *Neck. gallob.* 56. *Leers herb. n.* 64. t. 7. f. 2.

Scop. carn. n. 109. *Fl. dan.* t. 258. *Krock. fles.* n. 146. *Villars dauph.* 137.

Poa. Hall. belv. n. 1448.

Gr. tremulum. *Baub. bist.* 2. 469. *Mor. f.* 45. 46. *Monti* 45. f. 39. *Scheuch. gram.* 204. t. 4. f. 8, 9.

Raii bist. 1274. n. 3. *Park.* 1165. 2.

Phalaris pratensis. *Ger.* 80. 2. *emac.* 86. 2.

Spikelets ovate, calyx shorter than the seven floscules.]

4. *Briza maxima*. Greatest quaking-grass.

Lin. spec. 103. *syst.* 115. *Reich.* 194. *hort. cliff.* 23. *ups.* 20. *Jacqu. obs.* 3. 10. t. 60. *Gertn. fruct.* 1. p. 4. t. 1.

Gr. trem. maximum. *Baub. pin.* 2. *prodr.* 5. t. 1. *Baub. bist.* 2. 470. *Mor. f.* 48. *Raii bist.* 1274.

Park. 1166. n. 5. *Scheuch. gram.* 202. t. 4. f. 7. *Mill. dict.* n. 7.

Phalaris pratensis altera. *Ger. emac.* 87. n. 3.

Spikelets heart-shaped, floscules 17.

[5. *Briza Eragrostis*. *Branched quaking-grass*, or *Love-grass*.

Lin. spec. 103. *syft.* 116. *Reich.* 195. *Scop. carn.* n. 110. *Schreb.* 2. 83. t. 39. *Krock. filef.* n. 147. t. 27. *Villars dauph.* 2. 136.

Poa. *Hall. herb.* n. 1450.

Uniola. *Gron. virg.* 136.

Gr. paniculis elegantissimis. *Baub. pin.* 2. *theat.* 25. *Scheuch. gram.* 194. t. 4. f. 4. *Mor.* 204. t. 6. f. 52. (conf. f. 53.) *Raii hist.* 1274. n. 5. *Barr. rar.* t. 43, 44 & 744. *Ger. emac.* 9. f. 2.

Spikelets lanceolate, floscules 20. (15 to 20 and more.)

6. *Briza monspessulana*. *Montpelier quaking-grass*.

Allion. pedem. n. 2220. *Gouan. hort.* n. 1.

Gr. trem. minus panic. magna. *Bot. mont.* 113.

Spike nodding simple, spikelets alternate peduncled sub-solitary ovate, calyx five-flowered.

DESCRIPTIONS, &c.

1. The Small Quaking Grass is annual; at least it is so marked by Linneus and Villars: by Hudson and in the Kew catalogue it is marked as perennial. The culms are about a foot and half in height; and the panicles are very much branched. Dr. Withering affirms, that Caspar Bauhin's plant is only a smaller specimen of *Briza media*; and Haller says, that he never saw a different species from that in Switzerland. That however which was sent him from warmer climates he describes as low, with leaves less than a line in breadth, a sparse panicle, with long slender pedicels, the spikelets smaller, inclining to purple, the glumes of the calyx ovate, hollow, of the same length with those of the corolla, and having five or six floscules together. Native of Germany, Switzerland, the South of France, Italy, and Britain. With us it was first observed by Dr. Sherard, in the island of Jersey, and since near Bath by Mr. Alchorne. It flowers from June to August.

2. This is very like the common sort (n. 3.), but the leaves are twice as broad, flatter, and run down by an acute strap. The panicle is very like that, but more copious, green not purple, with the divisions more branched and divaricate, having callous knots depressing them at the base. The flowers are rather smaller, and readily fall off when handled. It is an annual grass, native of the Levant, Spain^a, and the county of Nice; flowering in July. Introduced in 1787, by Mr. Zier^b.

3. Root perennial. Culm upright, six or seven inches high in a dry soil, but in wet boggy places, two or three feet in height; having four or five knots on it, three of which are near the root. Leaves from two to three or four inches in length, and a line or a line and half in breadth; the upper one forms a sheath for the panicle, which continues a long time within it. The panicle is handsome, spreads very much when in flower, and has two spikelets on each branch, placed on such long slender pedicels, as to shake with the least air or motion: each spikelet is composed of seven, eight, or nine florets, is heart-shaped, flattened, shining, smooth, varying in colour, usually variegated with green, white and purple, but sometimes entirely white. The smaller glume of the corolla is slightly emarginate.

This beautiful grass is very common in pastures, especially dry ones, in most parts of Europe, and is easily distinguished by the continual shaking of the spikelets. Hence most of its common English names, as well as that by which it was known among old authors, *Gramen tremulum*. The French call these Quaking Grasses *Amourettes*. It flowers from May to July.

Cattle eat it, both green, and made into hay with other grasses, but it has no peculiar excellence that we are acquainted with, nor has it ever been cultivated separately. Indeed it furnishes very little food, and generally indicates a poverty of soil.]

4. Great Quaking Grass has an annual root, sending up many broad hairy leaves, between which arise

slender stiff stalks, from a foot to near two feet high, dividing at top into a large loose panicle; [which is rather a raceme, than a panicle^c. It is a native of the South of Europe, and was cultivated here in 1633^d.

5. Root annual. Culms decumbent at bottom, very smooth, round, finely streaked, from a span to a foot in height; they have several joints towards the base, tinged slightly with red. Sheaths smooth, very finely streaked, where the ligule or strap is crowned with very slender white hairs. Leaves smooth, except that they are roughish about the edge, as may be perceived by drawing the fingers along them backwards; they are of a bright green, have five nerves, and cover only the lower part of the culm. Panicle at first contracted, but afterwards diffused, a span in length, the lowest pedicels largest, the uppermost smallest, decreasing proportionably, alternate, stiff; hence the spikelets are upright and divaricate; they are hoary or silvery, perfectly distich, compressed, compact, and have eighteen or twenty florets in each. Valves of the calyx lanceolate, swelling, smaller than those of the corolla. Outer valve of the corolla concave, pellucid, with a nerve running along the middle, and two along the edge^e. This last character is striking, and may serve to distinguish this species from *Poa Eragrostis*, (Schreb. t. 38.) with which otherwise it may easily be confounded^f. The number of flowers varies; for in specimens from Austria Scopoli observed fifteen; in those from Carniola twenty; and in Italian specimens more.

This grass varies much; being commonly small and decumbent, but sometimes rising to the height of several feet, at others of a middling size, with longer and more contracted spikelets^g.

Native of the South of Europe. Ray first remarked it about Frankfort, and afterwards commonly through Germany, Italy, and the South of France^h. It flowers in July and August.

Johnson calls it Fern-grass, and says that the white tops are gathered where they grow naturally to beautify garlandsⁱ. It was introduced in 1776, by Mons. Thouin^k.]

PROPAGATION AND CULTURE.

If the seeds of these be permitted to scatter, or else be sown in the autumn, the plants will come up stronger, and flower much earlier, than when they are sown in the spring.

BROCCOLI. See *Brassica*.

BROME GRASS. See *Bromus*.

BROMELIA. (In memory of Olaus Bromel, a Swede, author of *Lupulogia*. Stockb. 1687. 12°. and *Chloris Gothica*, 1694. 8°.)

Lin. gen. n. 395. *Reich.* 427. *Schreb.* 540. *Juss.* 50.

Plum. 8. Pinguin. *Dill. elth.* 240. Ananas.

Tournef. 426, 427, 428. *Mill. dict.* *Gartn.*

t. 11. Karatas. *Plum.* 33. *Mill. dict.*

Class. 6. 1. Hexandria Monogynia.

Nat. order of *Coronariae*. *Bromeliæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* three-cornered small, superior, permanent; divisions three, ovate.

COR. *Petals* three, narrow-lanceolate, erect, longer than the calyx. *Nectary* fastened to each petal above the base, converging.

STAM. *Filaments* six, subulate, shorter than the corolla, inserted into the receptacle. *Antthers* erect, sagittate.

PIST. *Germ* inferior. *Style* simple, filiform, the length of the stamens. *Stigma* obtuse, trifid.

PER. *Berry* roundish, umbilicate, one or three-celled.

SEEDS numerous, incumbent, somewhat oblong, obtuse.

ESSENTIAL CHARACTER.

Cal. trifid, superior. Pet. three, and a nectareous scale at the base of each. Berry three-celled.

^c Linn. & Jacq.

^e Krock. filef.

^h Hist. 1275.

^d Hort. kew. from Ger. emac.

^f Villars.

^g Ger. emac.

ⁱ Idem.

^k Hort. kew.

^a Linn.

^b Hort. kew.

1. *Bromelia Ananas*. *Ananas* or *Pineapple*.
Lin. spec. 408. *Reich.* 2. 6. *hort. cliff.* 127. *upf.* 73.
Lour. cochinch. 192. *Raii hist.* 1332. 1. *Ger.*
emac. 1550, 1552. n. 15. *Park.* 1626. *Mor.*
hist. 3. 169. f. 7. t. 37. f. 1. last row.
α. Ananas ovata. *Mill. dict. n.* 1. *Queen Pine*.
Comm. hort. 1. 109. t. 57. *Trew. Ebrt.* t. 2.
Blackw. t. 567. *Sabb. hort.* 1. t. 72. *Plenck, ic.*
t. 249.
Carduus brasiliensis, fol. aloes. *Baub. pin.* 384.
Anassa. *Rumph. amb.* 5. 227. t. 81.
Kapa-Tsjakka. *Rheed. mal.* 11. 1. t. 1, 2.
β. A. pyramidalis. *Mill. dict. n.* 2. *Sugar-loaf Pine*.
A. acul. fr. conico, carne aurea. *Plum. spec.* 20.—
fr. pyramidato, carne aurea. *Tourn. inst.* 653.
Blackw. t. 568.
γ. A. lucida. *Mill. dict. n.* 4. *King Pine*.
A. lucide virens, fol. vix. ferrato. *Dill. elth.* 25.
t. 21. f. 23, 24.
A. non acul. *Pitta dictus*. *Plum. spec.* 20.
δ. A. glabra. *Mill. dict. n.* 3. *Smooth Pine*.
Boerb. ludgb. 2. 83.
ε. A. ferotina. *Mill. dict. n.* 5. *Late Pine*.
ζ. A. viridis. *Mill. dict. n.* 6. *Green Pine*.
Leaves ciliate-spiny mucronate, spike comose.
2. *Bromelia Pinguin*. *Pinguin* or *broad-leaved wild*
Ananas.
Lin. spec. 408. *syft.* 313. *Reich.* 2. 6. *hort.*
cliff. 129. *Jacqu. amer.* 91. ed. 2. *piet.* 47.
Swartz obs. 120. *Trew. Ebr. t.* 51. *Broten.*
jam. 193. n. 4. *Raii hist.* 1333. 2.
Karatas Pinguin. *Mill. dict.*
Pinguin. *Dill. elth.* 320. t. 240. f. 311.
A. amer. sylvestris altera minor. *Pluk. mant.* 29.
t. 258. f. 4.
Leaves ciliate-spiny mucronate, raceme terminal.
[3. *Bromelia Karatas*. *Karatas*, or *upright-leaved*
wild Ananas.
Lin. spec. 408. *syft.* 313. *Reich.* 2. 7. *mant.* 362.
Jacqu. amer. 90. *hort.* 31, 32. *amer. piet.* 47.
t. 260. f. 24.
K. fol. altissimis angustissimis & aculeatis. *Plum.*
gen. 10?
Leaves erect; flowers stemless sessile aggregate.
4. *Bromelia lingulata*. *Tongue-leaved Bromelia*.
Lin. spec. 409. *Reich.* 2. 7. *Mill. dict. n.* 2.
Plum. gen. 26. *ic.* 64. f. 1.
Leaves serrate-spiny obtuse, spikes alternate.
5. *Bromelia nudicaulis*. *Naked-stalked Bromelia*.
Lin. spec. 409. *Reich.* 2. 7. *Mill. dict. n.* 1.
Plum. gen. 46. *ic.* 62.
Radical leaves tooth-spiny; stem-leaves quite entire.
[6. *Bromelia humilis*. *Dwarf Bromelia*.
Lin. syft. 313. *Reich.* 2. 7. *Jacqu. vind.* 306.
Almost stemless; flowers aggregate, sessile; axillas stoloniferous.
7. *Bromelia Acanga*.
Lin. spec. edit. 1. 285. *syft.* 313. *Reich.* 2. 7.
hort. upf. 73.
Caraguata. *Pis. bras.* 90. t. 91.
Mexocotl. f. Manguei. *Hern. mex.* 272. *Mor.*
hist. 2. f. 4. t. 22. f. 7. *Raii hist.* 1200. n. 3.
Panicle diffused; leaves ciliate-spiny mucronate re-
curved.
8. *Bromelia bracteata*.
Swartz prodr. 56.
Leaves serrate-spiny, bractes ovate-lanceolate, scape
elongated, raceme compound, racemules subdivided,
flowers sessile.
9. *Bromelia paniculigera*.
Swartz prodr. 56.
Leaves serrate-spiny, bractes lanceolate, raceme com-
pound, racemules subdivided, flowers peduncled.

DESCRIPTIONS, &c.

These are herbaceous plants, and some of them parasitical; the root-leaves are channelled, and mostly toothed and spiny about the edge. Plumier and others have separated this genus into three, and in that have been followed by Mr. Miller, who treats of it under three separate articles, *Ananas*,

Bromelia, and *Karatas*. The original *Bromelias* of Plumier have the flowers on a loose spike or panicle, on a scape or stalk, and the fruits can hardly be called berries. In the *Karatas*, the flowers are in a close radical corymb; and the fruits are ovate berries. The flowers of the *Ananas* are in a close spike on a scape which is leafy at top; as the spike ripens, it takes the form of a fleshy scaly strobile, vulgarly called the fruit, and composed of many coadunate berries, which have scarcely any cells, or seeds.^a

1. The fruit now so well known in Europe, by the name of *Ananas* or *Pine-Apple*, and so much esteemed for the richness of its flavour, is produced from an herbaceous plant, which has leaves somewhat resembling those of *Aloe*, and for the most part serrate on their edges; but much thinner, and not so succulent as those of the *Aloe*. The fruit resembling in shape the cone of some species of the *Pine-tree*, has its vulgar name of *Pine-Apple* from that circumstance.

As some of the fruits produce seeds in England, when the greater number have no appearance of any, I doubt whether there may not be some with male, and others with hermaphrodite flowers; because those fruits which have seeds are remarkably different from the others, when cut through the cells in which the seeds are lodged; for in these they lie near to the centre of the fruit, whereas in those which have abortive cells they are chiefly close to the rind.

Where this plant is a native is hard to determine, but it is probably an indigenous plant of Africa, where it grows in uncultivated places in great plenty. [Linneus ascribes it to New Spain and Surinam: and Acofta says, that it was first sent from the province of Santa Croce in Brasil into the West, and afterwards into the East Indies. Probably it is common to the tropical parts of the three continents, of Asia, Africa, and America.]

It is commonly said, that Sir Matthew Decker of Richmond was the first who raised the *Ananas* here; but it was introduced into England, so far back as the year 1690, by Mr. Bantick.^b

A picture is reported to be extant of King Charles (I suppose the second) with his gardener presenting him a *Pine-apple*; but the fruit might come from Holland, or the picture might be painted abroad.]

There are many varieties of this fruit, and I doubt not but if the seeds were sown frequently in their native country, the varieties might be as numerous as those of Apples or Pears in Europe. This is rendered probable by some trials which I have made in sowing the seeds, which have always produced a variety of sorts from the same fruit.

α. The *Queen Pine* is the most common in Europe, but the *Sugar-loaf* is much preferable to it, the fruit being larger and much better flavoured; the juice also is not so astringent as that of the first, so that this fruit may be eaten in greater quantity with less danger.

β. The *Sugar-loaf Pine* is easily distinguished from all the others, by its leaves having purple stripes on their inside the whole length. The fruit is of a paler colour when ripe, inclining to a straw-colour. This was brought from Brasil to Jamaica, where it is esteemed far beyond the others.

The next in goodness to this is what the inhabitants of the islands in America call the *Montserrat Pine*. The leaves are of a dark brown, inclining to purple on their inside. The protuberances of the fruit are longer and flatter than those of the common sort. I raised several plants of this from seeds which I received from the island of St. Thomas, where this fruit is in greater perfection than in any of the British islands.

γ. The *King Pine* was raised from seeds taken out of a rotten fruit, which came from the West Indies to Henry Heathcote, Esq. from whom I received one plant, which has produced large fruit. I have since raised some plants of this sort from seeds, which were brought me from Jamaica.

^a Jussieu gen.^b Hort. kew.

2. The Smooth Pine is preserved by some curious persons for the sake of variety, but the fruit is not worth any thing.

3. The Green Pine is at present the most rare in Europe. This has been esteemed the best sort known, by some of the most curious persons in America, many of whom have thrown out all the others from their gardens, to cultivate this only.

The fruit, if suffered to ripen well, is of an olive colour; to have it green it must be cut before it is ripe, when it is not fit to be eaten. Plants of this may be procured from Barbadoes and Montserrat; but the fruit of the Sugar-loaf is much to be preferred to it.

[Loureiro mentions a variety that occurs in Cochinchina, not inferior in flavour to the best Pines, which continues quite green when ripe, with a white flesh.

Other varieties, most known among the growers of Pines, are the following.

1. Black Antigua or Ripley.
2. Granada Pine, with marbled leaves and very large fruit.
3. Bog-warp Pine, with broad green leaves.
4. Smooth, long, narrow-leaved Pine.
5. Montserrat.
6. Surinam Pine, with silver-striped leaves.
7. The same, with gold-striped leaves.

But it is unnecessary to be more particular in such varieties, because they are not permanent, new ones may be produced every day, and after all, the oval whitish-fleshed or Queen Pine, and particularly the pyramidal yellow-fleshed or Sugar-loaf Pine, are confessedly superior in flavour to all the rest.

2. The leaves of the *Pinguin* are very thick about the root; and from the centre of these springs the stalk, which generally rises to the height of twelve or sixteen inches above the foliage, and divides into many little lateral branches, bearing so many single flowers. When the plant begins to shoot into blossom, all the leaves become of a fine scarlet colour towards the stalk, and continue so until the fruit begins to ripen, but it then begins to change, and afterwards fades gradually away. The fruits are separate, each nearly of the size of a walnut; the pulp has an agreeable sweetness, but joined with such a sharpness, that if it be suffered to lie any time in the mouth, it will corrode the palate and gums, so as to make the blood ouze from those tender parts^c. The fruit is thus described by the accurate Gærtner. It is an inferior berry, of an ovate-pyramidal shape, obscurely three-cornered, covered with rind which is rugged with raised confluent dots, within three-celled. Rind thick, suberose-fleshy, producing three membranaceous partitions on the inside, which meet at the axis. Flesh pulpy-membranaceous of a pale watery colour, and divided into several partial cells. Receptacle none, but the seeds nestle in their proper cells, directing their navels towards the axis of the berry: they are of an ovate-globular form, swelling lenticular, narrower at the navel, having a small brown tubercle at the top, smooth, shining, of a ferruginous chestnut colour.]

This plant, having a tuft of leaves growing above the fruits, has the appearance of the Pine-Apple; but on a closer inspection, the difference is easily discerned, the fruits not being coadunate as in that, but produced separately in clusters.

[It is now very common in Jamaica, growing wild in most of the Savannas and on the rocky hills. It is commonly used there, and in the other islands of the West Indies for fencing pasture lands, its leaves being very formidable to cattle, the edges being very prickly, and the prickles arched backwards. These stripped of their pulp, soaked in water, and beaten with a wooden mallet, yield a strong thread, which is twisted into ropes and whips, and by the Spaniards is manufactured into hammocks; it has also been worked into good linen cloth.

A small quantity of the juice of the fruit in water, makes an admirable cooling draught in fevers; a tea-spoonful corrected with sugar, destroys worms in children, cleanses and heals the thrush, and other ulcerations in the mouth and throat; and is extremely diuretic: it also makes a very fine vinegar^d.

Dampier says, the Penguin fruit is of two sorts, the yellow and the red. The yellow grows on a green stem, as big as a man's arm, above a foot high; the leaves are half a foot long, and an inch broad, the edges full of sharp prickles. The fruit grows at the head of the stalk, in two or three great clusters, sixteen or twenty in a cluster: it is as big as a pullet's egg, round and yellow; the rind is thick, and the inside is full of small black seeds. It is a sharp pleasant fruit. The red, (B. Karatas, n. 3.) is of the bigness and colour of a small dry onion, and is in shape much like a nine-pin: it grows not on a stem, as the other, but one end on the ground, the other standing upright: sixty or seventy grow close together from the same cluster of roots. The leaves are a foot and half or two feet long, prickly like the former. They are both wholesome, and grow so plentifully in the bay of Campeachy, that there is no passing for their high prickly leaves.

The Penguin was cultivated in the Eltham garden; and before that, in 1690, in the royal garden at Hampton Court^e.

3. This species generally grows at the root of some shady tree, in hilly and woody places in America and the Caribbee islands. It is an elegant plant, producing numerous radical leaves, which are of a subulate-linear shape, sharp pointed, and edged with spines. The flowers are scentless, seated in the bosom or middle part of the plant, rose-coloured, with the calyx and germ downy. The length of the leaves is six or seven feet. The fruits are oval, two or three hundred in number, and grow sessile in a heap or central group, surrounded by paleaceous expanded leaves or bractes; they contain a succulent whitish or yellowish flesh, under a coriaceous and yellowish bark. When ripe they are far from unpleasant, but when unripe they set the teeth on edge, and excoriate the mouth. The œconomy of this plant in the preservation of its fruit to maturity is wonderful: being so protected by the spines of the surrounding leaves, as to be secure from all injuries. It propagates itself by mucus produced amongst the leaves, which become procumbent, after the fruit is ripened.]

4. This has shorter leaves than the next species, standing erect, narrow at the base, increasing in width gradually to the top, sharply serrate, and of a deep-green colour. The flower-stem arises from the centre of the plant, dividing at top into several branches; the upper parts of these have close spikes of flowers, which come out alternately from the sides, each having a narrow entire leaf just below it, which is longer than the spike.

5. The leaves both of this and the foregoing are very like those of the Aloe, but not so thick and succulent; the edges are indented, and armed with strong black spines. The flower-stem is near three feet high: the lower part has entire leaves, placed alternately at every joint: at the upper part are the flowers, set in a loose spike or thyrses. These are succeeded by ovate seed-vessels, having a longitudinal partition, in the centre of which, on every side, are fastened smooth cylindrical seeds.

Father Plumier found both these plants in the French West Indian islands. Dr. Houstoun observed them in Jamaica, and several parts of the Spanish West Indies. The fourth was sent from St. Christopher's, and the fifth from the coast of Guinea, to Mr. Miller, who cultivated them before the year 1733.

[6. The leaves of this species resemble those of the other kinds, but are the most strong and rigid of any. They are also somewhat shorter and more

^c Browne jam.

^d Long's Jamaica, 3. 738.

^e Hort. kew.

spreading. The flowers are blue, about thirty in number, situated in the same manner as in the *Bromelia Karatas* of Plumier. The first also is similar, but somewhat smaller. The plant readily propagates itself by runners or shooting processes, which proceed from the axilla of the lower leaves, and which produce a young plant from their extremities. It therefore differs in this respect from the *Bromelia Karatas* of Plumier, and from the *Bromelia Pinguin*, in having the flowers sessile. In other respects it much resembles that species.

7. Native of Brazil.]

PROPAGATION AND CULTURE.

The Ananas has been long cultivated in the hottest islands of the West Indies, where this fruit is in great plenty, and of extraordinary goodness; but it has not been many years in the European gardens, so as to produce fruit: the first person who succeeded in cultivating the fruit, was Monsieur Le Cour of Leyden in Holland, who, after a great many trials, with little or no success, did at length hit upon a proper degree of heat and management, so as to produce fruit equally good (though not so large) as that which is produced in the West Indies, as has often been affirmed by persons who have lived many years there: and it is to this worthy cultivator of gardening, who did not spare any pains or expense to accomplish it, that all the lovers thereof are obliged, for introducing this king of fruits amongst them; and it was from him that our gardens in England were first supplied, though we have since had large quantities brought from America. I cannot here avoid taking notice of a common error which prevails amongst many people, which is, that the plants brought from America are not so good as those which came from M. Le Cour; which is a great mistake, for were the people who send over these plants from America careful to send the best kinds, there would be found many better than those cultivated by M. Le Cour, who had his from thence at first, as his gardener assured me; and I have seen as good fruit produced from American plants, as any I have yet seen, and some three times larger than any I saw in M. Le Cour's garden.

The Ananas or Pine-apple is propagated by planting the crowns which grow on the fruit, or the suckers which are produced either from the sides of the plants, or under the fruit, both of which I have found to be equally good; although by some persons the crown is thought preferable to the suckers, as supposing it will produce fruit sooner than them, which is certainly a mistake; for by constant experience I find the suckers (if equally strong) will fruit as soon, and produce as large fruit as the crowns.

The suckers and crowns must be laid to dry in a warm place for four or five days or more (according to the moisture of the part which adhered to the old fruit;) for if they are immediately planted, they will rot, especially the crowns. The certain rule of judging when they are fit to plant, is by observing if the bottom be healed over and become hard; for if the suckers be drawn off carefully from the old plants, they will have a hard skin over the lower part, and need not lie so long as the crowns, or those whose bottoms are moist. But whenever a crown is taken from the fruit, or the suckers from old plants, they should be immediately divested of their bottom leaves, so high as to allow depth for their planting; so that they may be thoroughly dry and healed in every part. If they are taken off late in the autumn, or during the winter, or early in the spring, they should be laid in a dry place in the stove, for a fortnight or three weeks, but in the summer season they will be fit for planting in a few days.

As to the earth in which these should be planted, if you have a rich good kitchen-garden mould, not too heavy, so as to detain the moisture too long, nor over light and sandy, it will be very proper for them without any mixture: but where this is wanting, you should procure some fresh earth from a good pasture; which should be mixed with about

a third part of rotten neats dung, or the dung of an old Melon or Cucumber-bed, which is well consumed. These should be mixed six or eight months at least before they are used, but if it be a year, it will be the better; and should be often turned, that their parts may be the better united, as also the clods well broken. This earth should not be screened very fine, but only cleared of the great stones. You should always avoid mixing any sand with the earth, unless it be extremely stiff, and then it will be necessary to have it mixed at least six months or a year before it is used; and it must be frequently turned, that the sand may be incorporated in the earth, so as to divide its parts: but you should not put more than a sixth part of sand, for too much is very injurious to these plants.

In the summer season, when the weather is warm, the plants must be frequently watered, but you should not give them large quantities at a time: you must also be very careful, that the moisture is not detained in the pots, by the holes being stopped, for that will soon destroy the plants. In very warm weather they should be watered twice or three times a week; but in a cool season, once a week will be often enough: and during the summer season, you should once a week water them gently all over their leaves, which will wash the filth from off them, and thereby greatly promote the growth of the plants.

There are some persons who frequently shift these plants from pot to pot, but this is by no means to be practised by those who propose to have large well flavoured fruit; for unless the pots be filled with the roots, by the time the plants begin to show their fruit, they commonly produce small fruit, which have generally large crowns on them, therefore the plants will not require to be potted oftener than twice in a season: the first time should be about the end of april, when the suckers and crowns of the former year's fruit (which remained all the winter in those pots in which they were first planted) should be shifted into larger pots, i. e. those which were in halfpenny, or three-farthing pots, should be put into penny, or at most three-halfpenny pots, according to the size of the plants; for you must be very careful not to over-pot them, nothing being more prejudicial to these plants. The second time for shifting them is in the beginning of august, when you should shift those plants which are of a proper size for fruiting the following spring, into two-penny pots, which are full large enough for any of these plants. At each of these times of shifting the plants, the bark-bed should be stirred up, and some new bark added, to raise the bed up to the height it was at first made; and when the pots are plunged again into the bark-bed, the plants should be watered gently all over their leaves, to wash off the filth, and to settle the earth to the roots of the plants. If the bark-bed be well stirred, and a quantity of good fresh bark added to the bed, at this latter shifting, it will be of great service to the plants; and they may remain in the same tan until the beginning of november, or sometimes later, according to the mildness of the season, and will require but little fire before that time. During the winter season these plants will not require to be watered oftener than once a week, according as you find the earth in the pots to dry: nor should you give them too much at each time, for it is much better to give them a little water often, than to over-water them, especially at this season.

You must observe never to shift those plants which show their fruit, into other pots; for if they be removed after the fruit appears, it will stop the growth, and retard its ripening, so that many times it will be october or november before the fruit is ripe; therefore you should be very careful to keep the plants in a vigorous growing state, from the first appearance of the fruit, because upon this depends the goodness and size of the fruit; for if they receive a check after this, the fruit is generally small and ill tasted.

When

When you have cut off the fruit from the plants, whose kind you are desirous to propagate, you should trim the leaves, and plunge the pots into a moderate hot-bed, observing to refresh them frequently with water, which will cause them to put out suckers in plenty; so that a person may be soon supplied with plants enough of any of the kinds, who will but observe to keep the plants in health.

There is not any thing which can happen to these plants of a more dangerous nature, than to have them attacked by small white insects, which appear at first like a white mildew, but soon after have the appearance of lice: these attack both root and leaves at the same time, and if they be not soon destroyed, will spread over a whole stove in a short time; and in a few weeks will entirely stop the growth of the plants, so that the leaves will appear yellow and sickly, and have generally a great number of yellow transparent spots all over them. These insects, after they are fully grown, appear like bugs, and adhere so closely to the leaves, as not to be easily washed off, and seem as if they had no life in them. They were originally brought from America upon the plants which were imported from thence, and I believe they are the same insects which have destroyed the sugar-canes of late years in some of the Leeward islands. Since they have been in England, they have spread greatly in such stoves, where there has not been more than ordinary care taken to destroy them. They have also attacked the Orange-trees in many gardens near London, and have done them incredible damage; but I do not find they will endure the cold of our climate in winter, so that they are never found on such plants as live in the open air. The only method I have been yet able to discover for destroying these insects, is by washing the leaves, branches, and stems, of such plants as they attack, frequently with water, in which there has been a strong infusion of Tobacco-stalks, which I find will destroy the insects, and not prejudice the plants. But this method cannot be practised on the Ananas plants, because the insects will fasten themselves so low between the leaves, that it is impossible to come at them with a sponge to wash them off; so that if all those which appear to sight are cleared off, they will soon be succeeded by a fresh supply from below, and the roots will be also equally infested with them. Therefore, wherever these insects appear on the plants, the safest method will be, to take the plants out of the pots, and clear the earth from the roots; then prepare a large tub, which should be filled with water, in which there has been a strong infusion of Tobacco-stalks; into this tub you should put the plants, placing some sticks across the tub, to keep the plants immersed in water. In this water they should remain twenty-four hours; then take them out, and with a sponge wash off all the insects from the leaves and roots, which may be easily effected when the insects are killed by the infusion; then cut off all the small fibres of the roots, and dip the plants into a tub of fair water, washing them therein. Then you should pot them in fresh earth, and having stirred up the bark-bed, and added some new tan to give a fresh heat to the bed, the pots should be plunged again, observing to water them all over the leaves (as was before directed) and this should be repeated once a week during the summer season; for I observe these insects always multiply much faster where the plants are kept dry, than in such places where the plants are sometimes sprinkled over with water, and kept in a growing state. And the same is also observed in America, for it is in long droughts that the insects make such destruction in the sugar-canes. And in those islands where they have had several very dry seasons, they have increased to such a degree, as to destroy the greatest part of the canes in the islands, rendering them not only unfit for sugar, but poison the juice of the plant, so as to disqualify it for making rum, whereby many planters have been ruined.

As these insects are frequently brought over from America on the Ananas plants, those persons who

procure their plants from thence, should look carefully over them when they receive them, to see they have none of these insects on them; for if they have, they will soon be propagated over all the plants in the stove where these are placed: therefore, whenever they are observed, the plants should be soaked (as was before directed) before they are planted into pots.

It was formerly the practice to build dry stoves, in which the plants were kept in winter, placed on scaffolds, after the manner in which Orange-trees are placed in a green-house; and in the summer, in hot-beds of tanners bark under frames. But it is now the practice of those who are desirous to propagate the fruit, to erect low stoves, called the succession-house, with pits therein for the hot-bed, in the manner hereafter described and figured; but it will be also necessary to have a bark-pit under a deep frame, in which you should plunge the suckers, and crowns: so that this frame will be a nursery to raise the young plants to supply the succession-house. But these plants should not remain in these frames longer than till the beginning of november, unless the frame is built with brick-work with flues in it. Such are very useful, to keep the young plants till they are of a proper size to produce fruit; so that the stove may be every autumn filled only with bearing plants, whereby a much greater quantity of fruit may be annually produced, than can be where young and old plants must be crowded into the same stove. But where there are no conveniences of this kind, the young plants, about the middle or latter end of october, must be removed into the stove, and being small, may be crowded in among the larger plants; for as they will not grow much during the winter season, they may be placed very close together. The beginning of march, where there is no nursery for the young plants, they must be removed out into the hot-bed again, which should be prepared a fortnight before, that the tan may have acquired a proper heat: but you should be careful that the tan be not too hot, for that might scald the fibres of the plants. In this case you should not plunge the pots above two or three inches into the tan, letting them remain so until the heat of the tan is a little abated, when you should plunge the pots down to their rims in the bed. If the nights should continue cold after these plants are removed into the bed, you must carefully cover the glasses with mats; otherwise by coming out of a warm stove, they may receive a sudden check, which will greatly retard their growth; and the sooner the plants are set growing in the spring, the more time they will have to gain strength, in order to produce large fruit the following season.

You should not plunge the pots too close together in this frame, but allow them a proper distance, that the lower part of the plants may increase in bulk, for it is on this that the magnitude of the fruit depends; because when the plants are placed too close, they draw up very tall, but do not obtain strength; so that when they are taken out of the bed, the leaves are not able to support themselves; but all the outward long leaves will fall down, leaving the smaller middle leaves naked, and this sometimes will cause them to rot in the centre. You must also observe, when the sun is very warm, to raise the glasses of the hot-bed, in order to let out the steam of the bed, and to admit fresh air: for one neglect of this kind, in a very hot day, may destroy all the plants, or at least so scald them, that they will not get over it in several months. It will be also very proper, in extreme hot weather, to shade the glasses in the middle of the day with mats; for the glasses, lying so near to the leaves of the plants, will occasion a prodigious heat at such times.

During the summer season these plants must be frequently watered, giving them but little each time; and in hot weather, they must have free air admitted to them every day, from ten o'clock till four; for if they are kept too close, or have too much wet, they will receive a check in their growth, when the

insects

insects will immediately spread over them; for there are generally some of these insects on all these plants, which do not much injury to them while they are in a growing state; but whenever they are unhealthy, the insects multiply greatly, and contribute to their decay. There are some persons who regulate the heat of their stoves by thermometers in summer, but at that season this is unnecessary, for the outward air in hot weather is frequently greater than the Ananas heat marked on the thermometers, so that the heat of the stoves at that season will be much greater. The use of the thermometer is only in the winter, during the time the fires are continued, by which it is easy to judge when to increase or diminish the fires; for at that season, the stoves should not be kept to a greater warmth than five or six divisions above Ananas, nor suffered to be more than as many divisions below it. In winter the plants must have less water, but they will require to have it repeated once a week, giving them but little each time: when the plants are placed into the tan for the winter season (which should be done about the beginning of october) the tan-bed should be renewed, adding two-thirds of new tan, to one-third of the old. If this be well mixed, and the new tan is good, the bed will maintain a proper degree of warmth till february, at which time it will be proper to stir up the bed, and add a load or two of new tan, so as to raise the bed as much as it sunk since the autumn; this will give a fresh heat to the bed, and keep the plants growing; and as the fruit will now begin to appear, it will be absolutely necessary to keep the plants in a growing state, otherwise the fruit will not be large.

In april it will be proper to stir up the tan again, and if the bed has sunk since the last stirring, it will be proper to add some fresh tan to it; this will renew the warmth of the bed, and forward the fruit. At this time it will be proper to shift the young plants, which are designed to produce fruit the following year; the tan-bed into which these are plunged must be renewed, in order to forward their growth, that they may have strength enough in autumn to produce good fruit, for in this is the principal care required.

Those plants which show their fruit early in february, will ripen about june; some sorts are at least a month or five weeks longer in ripening their fruit than others, from the time of the appearance of the fruit: but the season in which the fruit is in greatest perfection, is from the beginning of july, to the end of september; though in march, april, and october, I have frequently eaten this fruit in pretty good perfection; but then the plants have been in perfect health, otherwise they seldom are well flavoured.

The method of judging when the fruit is ripe, is by the smell, and from observation; for as the several sorts differ from each other in the colour of their fruit, that will not be any direction when to cut them; nor should they remain so long as to become soft to the touch before they are cut, for then they become flat and dead, as they do also when they are cut long before they are eaten, therefore the surest way to have this fruit in perfection, is to cut it the same day it is eaten; but it must be cut early in the morning, before the sun has heated the fruit, otherwise it will be hot, observing to cut the stalk as long to the fruit as possible, and lay it in a cool, but dry place, preserving the stalk and crown unto it, until it is eaten.

2, 3. *Pinguin* and *Karatas*. These plants are propagated by seeds, for though there are often suckers sent forth from the old plants, yet they come out from between the leaves, and are so long, slender, and ill-shapen, that if they are planted they seldom make regular plants. These seeds should be sown early in the spring, in small pots filled with light rich earth, and plunged into a hot-bed of tanner's bark. When the plants are strong enough to transplant, they should be carefully taken up, and each planted into a separate pot filled with light

rich earth, and plunged into the hot-bed again, observing to refresh them frequently with water, until they have taken new root, after which time they should have air and water in proportion to the warmth of the season. In this bed the plants may remain till michaelmas, at which time they should be removed into the stove, and plunged into the bark-bed, where they should be treated in the same manner as the Ananas.

These plants will not produce their fruit in England until they are three or four years old, therefore they should be shifted into larger pots, as the plants advance in their growth; for if their roots are too much confined, they will make but little progress. They should also be placed at a pretty great distance from each other, for their leaves will be three or four feet long, which turning downward occupy a large space.

The leaves are strongly armed with crooked spines, which render it very troublesome to shift or handle the plants; for being some bent one way, and others the reverse, they catch both ways, and tear the skin or clothes of the persons who handle them, where there is not the greatest care taken.

4, 5, &c. *Bromelias properly so called*. These plants are propagated by seeds, which must be procured from the country where they grow naturally, for they do not produce any in England. These must be sown in small pots filled with light kitchen-garden earth, and plunged into a moderate hot-bed of tanners bark; the earth in these pots should be sprinkled over with water two or three times a week, according to the heat of the weather, but must not have too much moisture. If the seeds are good, the plants will appear in about five or six weeks, and in a month after will be fit to transplant, when they should be carefully shaken out of the pots, and each planted in a separate small pot filled with the same earth as before; then they must be plunged again into a moderate hot-bed, observing frequently to sprinkle them over with water, but be cautious of giving them too much, lest the roots should be thereby rotted.

During the summer season the plants should have a moderate share of air, in proportion to the heat of the weather; and, in autumn, they must be removed into the bark-stove, and treated in the same manner as the Ananas, or Pine-apple, with which management they will make good progress; but after the first winter, they may be placed upon stands in the dry stove, though they will thrive much better if they are constantly kept in the tan-bed, and treated like the Ananas, and will flower in three or four years; whereas those in the dry stove will not flower in twice that time.

The other parts of their culture is only to shift them into fresh earth when they require it; but they should by no means be put into large pots, for they will not thrive if they are over-potted; nor must they have much wet, especially in winter.

These plants making a pretty variety in the hot-house, those who have room, may allow a plant or two of each sort to have a place in their collection of exotic plants.

[BROMUS. (*Βρῶμα*, *esca*, food.)

Lin. gen. n. 89. *Reich.* 95. *Schreb.* 120. *Monti.* 32.

Dill. gen. 3.

Class. 3. 2. Triandria Digynia.

Nat. order of Gramina or Grasses.

GENERIC CHARACTER.

CAL. Glume many-flowered, bivalve, spreading, collecting the floscules into a spike: *valve* ovate-oblong, acuminate, awnless; the lowest smallest.

COR. bivalve: *lower valve* larger, the size and form of the calyx, concave, obtuse, bifid, putting out a straight awn, below the top: *upper valve* lanceolate, small, awnless.

Neclary two-leaved: *leaflets* ovate, acute, gibbous at the base.

STAM. Filaments three, capillary, shorter than the corolla. *Anthers* oblong.

Pist. Germ turbinate. Styles two, short, reflex, villose. Stigmas simple.
PER. Corolla very strictly closed, adhering, not gaping.
SEED one, oblong, covered, convex on one side, furrowed on the other.

ESSENTIAL CHARACTER.

Cal. two-valved. Spikelet oblong, columnar, distich: awn below the top.

SPECIES.

1. *Bromus fecalinus*. Field Brome-grass.
Lin. spec. 112. *Reich.* 208. *suec.* 96. *Huds. angl.* 49. *γ.* *With.* 103. *Relh. cantabr.* n. 86. *Leers herborn.* n. 81. t. 11. f. 2. *Pollich pal.* n. 108. *Neck. gallob.* 1. 63. *Hall. belv.* n. 1502. *Krock. files.* n. 160. *Villars dauph.* 2. 113. *Weig. obs.* 2. t. 1. f. 1. *Reliqu. Rudb.* t. 14. f. 1.
Festuca. Lin. lapp. 28. *Baub. pin.* 9. n. 1. *theatr.* 143. *Scheuch. gram.* 250. t. 5. f. 9. *Baub. hist.* 2. 438. *Raii hist.* 1289. n. 7. *syn.* 414. 8.
Gr. avenaceum, &c. Mor. hist. 3. f. 8. t. 7. f. 16.
β. B. hordeaceus.
Lin. suec. 1. n. 87. *spec.* 1. 77. *Mor. f.* 19. *With.* 104.
B. Polymorphus δ. Huds. 49?
Panicle expanding, spikelets ovate: awns straight: seeds distinct.
2. *Bromus japonicus*. Japan Brome-grass.
Lin. syst. 119. *Thunb. jap.* 52. t. 11.
Panicle spreading branching, spikelets oblong smooth: awns divaricate.
3. *Bromus mollis*. Soft Brome-grass.
Lin. spec. 112. *Reich.* 209. *With.* 105. *Relh. cantabr.* n. 87. *Curt. lond.* 1. 8. *Fl. rust.* t. 99. *Schreb. gram.* 60. t. 6. f. 1. *Neck. gallob.* 65. *Pollich pal.* n. 110. *Leers herborn.* n. 82. t. 11. f. 1. *Hall. belv.* n. 1504. *Weig. obs.* 7. t. 1. f. 4. *Krock. files.* n. 161. *Villars dauph.* 2. 114.
Fest. aven. hirsuta, panic. minus sparsis. Raii hist. 1289. *syn.* 413. n. 5. *Dill. giff.* 71.
Gr. avenaceum, &c. Scheuch. gram. 254. t. 5. f. 12. *Mor.* 213. f. 18.
Panicle rather erect, spikelets ovate pubescent: awns straight; leaves very softly villose.
4. *Bromus squarrosus*. Open-awned Brome-grass.
Lin. spec. 112. *Reich.* 210. *Huds. angl.* 49. *With.* 106. *Krock. files.* n. 162. *Villars dauph.* 2. 115.
Avena. Hall. belv. n. 1501.
Festuca. Scheuch. gram. 251. t. 5. f. 11. *Baub. prodr.* 64. *theatr.* 144.
Gr. phalaroides, &c. Barr. ic. 24. f. 1, 2. *Monti ic.* 32.
β. Gr. festuceum majus, loc. crassis languinosis. Buxb. cent. 5. 19. t. 38. f. 1.
Panicle nodding, spikelets ovate; awns divaricate.
5. *Bromus purgans*. Purging Brome-grass.
Lin. spec. 113. *Reich.* 210. *Krock. files.* n. 163.
Gr. bromoides catharticum. Feu. peruv. 705. t. 1.
Panicle nodding, curled; leaves naked on both sides; sheaths hairy; glumes villose.
6. *Bromus inermis*. Awnless Brome-grass.
Lin. syst. 119. *Reich.* 210. *mant.* 186. *Schreb. gram.* 97. t. 13. *Krock. files.* n. 166.
Panicle erect, spicules subcolumnar subulate naked, almost awnless.
7. *Bromus bifidus*. Bifid Brome-grass.
Lin. syst. 119. *Thunb. jap.* 53.
Panicle erect branching, spicules ovate subtriflorous; glumes bifid-setaceous; awn divaricate.
8. *Bromus asper*. Rough Brome-grass.
Lin. syst. 119. *suppl.* 111. *Reich.* 211. *With.* 108. *Krock. files.* n. 164. t. 24.
B. nemoralis. Huds. angl. 51. *Hall. belv.* n. 1503? *potius, n.* 1506. *Villars dauph.* 2. 117. & *giganteus. ejusd.* 118.
B. ramosus. Lin. syst. edit. 13. 102. *Huds. edit.* 1. 40. *Lightf. scot.* 1087.
B. hirsutus. Curt. lond. 2. 8. *Relh. cantabr.* n. 92.
B. giganteus. Scop. carn. n. 116. *var.* 2. *villosa & major.*

- B. sylvaticus. Vogler schediasm.*
B. altissimus. Wiggers.
B. montanus. Retz. obs. 2. n. 4. *Pollich pal.* 116.
Festuca. Baub. pin. 9. n. 4. *theatr.* 144. *Mor. hist.* 3. 213. f. 8. t. 7. f. 27.
Gr. aven. villosum, &c. Scheuch. agr. 253. t. 5. f. 10.
Gr. aven. dumetorum, pan. sparsa. Raii hist. 1289. *syn.* 415. *Sec. Curtis: see B. arvensis.*
Panicle branched nodding scabrous; spikelets linear roundish, ten-flowered hairy-awned, culm and leaves rough with hairs.
9. *Bromus ciliatus*. Ciliate Brome-grass.
Lin. spec. 113. *Reich.* 211.
Panicle nodding; leaves on both sides and sheaths somewhat hairy; glumes ciliate.
 10. *Bromus sterilis*. Barren Brome-grass.
Lin. spec. 113. *Reich.* 212. *Huds. angl.* 50. *With.* 108. *Curt. lond.* 1. 9. *Pollich pal.* n. 112. *Neck. gallob.* 65. *Leers herborn.* n. 83. t. 11. f. 4. *Hall. belv.* n. 1505. *Scop. carn.* n. 113. *Retz. obs.* 1. p. 11. n. 12. *Krock. files.* n. 165. *Villars dauph.* 2. 115. *Ger.* 69. 1. *emac.* 76. 1. *Park.* 1148. 1. *Baub. hist.* 2. 439. 2.
B. grandiflorus. Weig. obs. 9. t. 1. f. 6.
Festuca. Baub. pin. 9. n. 7. *Mor.* 212. t. 7. f. 11. *Raii hist.* 1289. n. 5. *syn.* 412. n. 1.
Gr. avenaceum, &c. Scheuch. agrost. 258. t. 5. f. 14.
Gr. loliaceum, &c. Monti 35. *ic.* 1.
Panicle spreading, spikelets oblong distich, glumes subulate-awned.
 11. *Bromus arvensis*. Corn Brome-grass.
Lin. spec. 113. *Reich.* 212. *suec.* n. 97. *lapp.* 27. *hort. cliff.* 25. *Huds. angl.* 50? *With.* 109. *Lightf. scot.* 104. *Hall. belv.* n. 1509. *Pollich pal.* n. 113. *Neck. gallob.* 62. *Leers herborn.* n. 84. t. 11. f. 3. *Weig. obs.* 6. t. 1. f. 3. *Oed. dan.* 293. *Krock. files.* n. 167. *Villars dauph.* 2. 116.
Festuca graminea, juba effusa. Baub. pin. 9. *prodr.* 19. *theatr.* 144. *Scheuch. agrost.* 262. t. 5. f. 15. *Rudb. elys.* 1. 87. f. 7. *Reliqu. Rudb.* t. 14. f. 2. t. 15. f. 2. t. 20. f. 1. *Baub. hist.* 2. 479. *Raii syn.* 414. 9.
Gr. aven. dumetorum panic. sparsa. Raii hist. 1289. *syn.* 415. *Vaill. par.* 93. *Mor. hist.* 3. 213. *See* n. 8.
Gr. av. pan. sparsa locustis majoribus & aristatis. Sch. agr. 258. t. 5. f. 14.
Panicle nodding, spikelets ovate-oblong.
 12. *Bromus geniculatus*. Kneed Brome-grass.
Lin. syst. 120. *Reich.* 213. *mant.* 33. *Schreb. gram.* 60. t. 31.
Panicle erect, floscules distant, peduncles angular, culm with a procumbent knee.
 13. *Bromus tectorum*. Wall Brome-grass.
Lin. spec. 114. *Reich.* 213. *suec.* 98. *Neck. gallob.* 64. *Pollich pal.* n. 114. *Leers herborn.* n. 85. t. 10. f. 2. *Hall. belv.* n. 1508. *Krock. files.* n. 172. *Villars dauph.* 2. 117. *Reliqu. Rudb.* t. 16. f. 1.
Festuca avenacea sterilis, humilior. Baub. pin. 10. *theatr.* 148. *Raii hist.* 1289. *Sch. agr.* 254. t. 5. f. 12.
Panicle nodding, spikelets linear.
 14. *Bromus giganteus*. Tall Brome-grass.
Lin. spec. 114. *Reich.* 214. *suec.* n. 99. *Huds. angl.* 51. *With.* 110. *Curt. lond.* 5. 7. *Hall. belv.* n. 1510. *Pollich pal.* n. 115. *Neck. gallob.* 66. *Leers herborn.* n. 86. t. 10. f. 1. *Weig. obs.* 11. t. 1. f. 5. *Scop. carn.* n. 116. *Schreb. gram.* 88. t. 11. *Retz. obs.* 1. p. 11. n. 11. *Krock. files.* n. 168.
Festuca gigantea. Villars dauph. 2. 110.
Gr. sylvaticum glabrum, panic. recurva. Vaill. par. 93. t. 18. f. 3. (Haller refers this fig. to his n. 1509. *B. arvensis*).
Gr. bromoides, &c. Sch. agr. 264. t. 5. f. 17. (f. 19. fig. non descr. *Retz.*)
Gr. avenaceum glabrum, &c. Raii hist. 1909. *syn.* 415. n. 11.
β. Bromus:

- β . *Bromus*. Hall. n. 1506. (see n. 8.) Sch. agr. 263. t. 5. f. 16.
 Panicle nodding, spikelets four-flowered: awns shorter.
15. *Bromus rubens*. Red or Spanish Brome-grass.
 Lin. spec. 114. Reich. 215. amæn. 4. 265. Cavan. hisp. n. 51. t. 45. f. 2. Reliqu. Rudb. t. 16. f. 2? Lamarck dict. 468. n. 11.
 Gr. panic. molli rubente. Baub. hist. 2. 464?
 Panicle fascicled, ovate; spikelets subsessile villose, seven-flowered: awns erect.
16. *Bromus scoparius*.
 Lin. spec. 114. Reich. 215. amæn. 4. 266. Lamarck dict. 468. n. 12.
 Panicle fascicled, spikelets subsessile smooth: awns spreading.
17. *Bromus rigens*. Stiff Brome-grass.
 Lin. syst. 120. Reich. 215. mant. 33.
 Panicle spiked, spikelets subsessile erect pubescent sub-quadriflorous.
18. *Bromus racemosus*. Racemed Brome-grass.
 Lin. spec. 114. Reich. 215. Villars dauph. 2. 121?
B. erectus. Hudf. angl. 49?
Festuca avenacea spicis strigosioribus e glumis glabris compactis. Raii syn. 414. Sec. Linn. (referred by Hudson to his *B. polymorphus* β .)
F. aven. sterilis spicis erectis. Raii syn. 413.
 Raceme entirely simple, peduncles one-flowered, spikelets six-flowered even awned.
19. *Bromus triflorus*. Three-flowered Brome-grass.
 Lin. spec. 115. Reich. 215. Hall. belv. n. 1511. Pollich pal. n. 119. Oed. dan. t. 440? Krock. fles. n. 170.
 Gr. bromoides, &c. Scheuch. agr. 511. t. 5. f. 19. —sec. Hallerum 266. t. 5. f. 18. & Gmelin 111. n. 45.
 Panicle spreading, spikelets subtriflorous.
20. *Bromus madritensis*. Madrid Brome-grass.
 Lin. spec. 114. Reich. 216. amæn. 4. 265. With. 107.
B. muralis. Hudf. angl. 50.—ciliatus edit. 1. 40.
B. villosus Forsk. Vahl. symb. 2. 23.
B. sterilis, erecta panicula, major. Barr. ic. 76. f. 1.
 Gr. bromoides, &c. Scheuch. agr. 260.
 Panicle thinner expanding-erect, spicules linear: the intermediate ones in pairs; pedicels thicker upwards.
21. *Bromus ramosus*. Branched Brome-grass.
 Lin. syst. 120. Reich. 216. mant. 34. Villars dauph. 2. 121.
 Gr. juncifolium loliaceum corniculatum veluti frutescens glabrum, orientale. Scheuch. agr. 38.
 Culm much branching; spicules sessile; leaves involute-subulate.
22. *Bromus pinnatus*. Pinnated or Spiked Brome-grass.
 Lin. spec. 115. Reich. 216. succ. 100. lapp. 29. Leers herborn. n. 87. t. 10. f. 3. Pollich pal. n. 117. Weig. obs. 14. t. 1. f. 10. Scop. carn. n. 118. Oed. dan. t. 164. D'Affo. arag. n. 84. Krock. fles. n. 169. Villars dauph. 2. 120.
Festuca pinnata. Hudf. angl. 48. With. 102, 110. Relb. cantabr. n. 84.
Triticum. Hall. belv. n. 1431, 2, 3.
Poa. Gmel. fib. 1. 112.
 Gr. spica brizæ majus. Baub. pin. 9. prodr. 19. (with a fig. in p. 18.) theatr. 133. Rudb. elyf. 1. 80. f. 1. Reliqu. Rudb. t. 11. f. 2. Raii hist. 1257. syn. 392. Petiv. gram. t. 3. f. 1. Mor. f. 8. t. 6. f. 4.
 Gr. loliaceum, &c. Scheuch. agr. 35. t. 1. f. 7. H. Monti 42. f. 16.—corniculatum. Tourn. par. edit. angl. 1. 285, 286.
 β . Gr. loliaceum, &c. Sch. agr. 36. (who gives as a synonym, Gr. aven. dumetorum spicatum. Raii hist. 1262. syn. 394. & *Festuca dum.* Baub. pin. 10. prodr. 19. n. 69. theatr. 148.) Scheuch. 38. n. 4. (With.)
Festuca sylvatica. Hudf. angl. 48. With. 102. (who refers to this the above synonyms of *Fl. dan.* Mor. & Petiv.) Leers 10. 3. Bar. 83. 2. (according to With.)

- B. sylvaticus*. Pollich pal. n. 118. Krock. fles. n. 171.
B. gracilis. Weig. obs. 1. 11.—dumofus. Villars dauph. 2. 119.
 Culm undivided, spikelets alternate subsessile columnar subawned.
23. *Bromus cristatus*. Crested Brome-grass.
 Lin. spec. 115. Reich. 217. amæn. 2. 339.
Triticum cristatum. Schreb. gram. 12. t. 23. f. 2.
Festuca. Gmel. fib. 1. 32. t. 50. f. 3.
 Gr. triticeum, &c. Buxb. cent. 1. 32. t. 50. f. 3. bad.
 Spikelets imbricate in a double row sessile depressed.
24. *Bromus distachyos*. Two-spiked Brome-grass.
 Lin. spec. 115. syst. 120. Reich. 217. amæn. 4. 304. 450. Ger. prov. 98. t. 3. f. 1. Weig. obs. 16. t. 1. f. 8.
Festuca ciliata. Gouan. hort. 48. 547.
 Gr. festuceum myurum elatius, sp. heteromalla gracili. Barr. ic. 99. f. 2.
 Gr. spica brizæ minus. Baub. pin. 9. prodr. 19. n. 59. Pluk. alm. 173. t. 33. f. 1.
 Spikes two erect alternate.
25. *Bromus stipoides*.
 Lin. syst. 121. mant. 557. Reich. 217.
 Panicle somewhat erect, peduncles ensiform.

DESCRIPTIONS, &c.

The species of this genus of Grasses are numerous and not well distinguished. Some authors have made several species out of one, whilst others have united under one several which are reputed different. They have a loose panicle, like the Oat, whence old writers called them *Oat-grasses*; the awn or beard proceeds from the back of the glume or chaff, or is an elongation of the keel or midrib, as in the genus *Avena*; but in that the awn is commonly twisted, whereas in this it is straight; modern writers therefore distinguish them by the name of *Brome-grasses*. The *Festuca* is scarcely different from the *Bromus* as a natural genus; in that however the chaff is either very much pointed, or terminates in an awn; whereas that of *Bromus* always comes out below the tip. The genus *Triticum* or Wheat agrees with it in this respect; and therefore Scopoli cannot discover any mark of distinction between them: it is however distinct enough from them all, in the inflorescence or manner of flowering, in a spike; whereas *Bromus*, *Festuca*, and *Avena* bear their flowers in a panicle. Amidst this variety of opinion, in consulting different authors, we shall meet with species of *Bromus* under all these genera.

1. *Field Brome-grass* has an annual root. Culm from one to two feet in height, in pastures; among corn three and even four feet high, upright, stiff, leafy, smooth; with from four to six subglobular, naked knots. Sheaths grooved, smooth, ending in a short, triangular, brownish strap, a little notched. Leaves half a foot in length, above two lines broad, flat and strong, having a few short hairs, and being roughish, especially round the edge. Panicle from four to six inches in length, spreading and finally nodding: peduncles long, spreading, some branching, others simple, compressed, rough; pedicels flexuose. Spikelets ovate-oblong, eight or ten lines long, roundish, naked; when ripe distich or two-rowed and three or four lines broad; composed of from seven to nine or sometimes eleven flowers, smooth, greenish, membranaceous at the edge. Calyx and corolla roughish. Calyx rather blunt, two to three lines long, ribbed. Outer valve of the corolla with seven ribs, dotted, edged with white, cloven at top: awn thickish, often somewhat flexuose, the length of the corolla, from the middle of the dorsal nerve, below the cleft. Nectaries two, ovate, acute. The seeds when ripe are distinct, by the elongation of the rachis^a.

β . Is a variety, according to Linneus, arising only from dryness of soil; and cultivated in a garden becomes the same with the other. Leers considers

^a Leers.

it as a variety of *Bromus mollis*. The culm is from nine to thirty-six inches long. The leaves pubescent on both sides, with soft longer hairs on the upper surface. Lower sheaths hairy, upper smooth. Panicle about four inches long simple. Spikelets yellowish, sometimes only two, or even a single one, five or six lines long, tapering to a point. Florets three or four, mostly six, sometimes seven. Native chiefly of barren pastures^b.

Weigel is of opinion, that two species are here confounded under one. He separates them under the names of *B. vitiosus* and *multiflorus*. The first he describes as having ovate spikelets, distinct glumes, the awns awl-shaped, shorter than the corolla, straight but flexuose. The second, as having lanceolate spikelets, the glumes edged and imbricate, acuminate at the end; and the awns capillary, equal to the corolla and straight.

Field Brome-grass is wild among corn, and among that only, according to foreign authors, and Dillenius in Ray's synopsis. It abounds particularly in Rie, whence its trivial name; and is a destructive weed to that crop in wet seasons. With us it is not so common, at least so far as my experience has reached. Varieties of *Bromus mollis* seem to have been taken for it in England.

When ground among flour, it is said to render the rie-bread bitter and unpleasant, and to have the same narcotic quality with *Lolium temulentum* or annual Ray-grass or Darnel. In Scania they use the panicles for dying green: and Linneus informs us it is a vulgar error there, that Rie degenerates into this grass; which is the more remarkable, because they have no resemblance to each other. It has been a popular notion in England, that the several species of corn degenerate into grasses which bear some resemblance to them; and that they are only these grasses improved by cultivation.

2. Japanese Brome-grass differs from the foregoing and following species in having oblong spikelets and divaricate awns; from the foregoing also in having the glumes imbricate, not distant: from the *Squarrosus* in having the spikelets much narrower and smooth, and the panicle branched. Root annual. Stem round, simple, upright, jointed at the base, almost decumbent, from seven to twelve inches in length. Leaves acute, entire, streaked, villose especially the sheaths, shorter than the stem. Spikelets smooth, having from five to seven flowers in each. Glume, a little membranaceous on the edge, streaked. Awn a little longer than the calyx. Native of Japan^c.

3. Soft Brome-grass resembles the first sort, but is white with downy hairs. The joints are thicker, cylindrical, very hairy especially on the lower part. The leaves are extremely soft on both sides, and the sheaths are streaked. The panicle is more shortly pedicelled^d.

It is of a lower stature than the *secalinus*, more hairy, and much less frequent: the panicle straighter and more compact; spikelets oval, pointed, manifestly hairy, composed of seven to nine florets; the awns often approximating, and shorter than the glume^e.

Root in corn fields annual, in uncultivated places biennial. Culms from one to two feet in height, upright, leafy, thickened at the joints, which are three in number, subcylindric, and villose. Leaves broadish, flat, seven-nerved, very soft and whitish with hairs on both sides, especially on the upper surface. Strap short, semimultifid. Sheaths streaked; the lower ones villose. Panicle upright, somewhat contracted. Internodes compressed, somewhat tomentose. Peduncles short, upright, depressed, pubescent, simple, one-flowered, seldom two-flowered. Spikelets upright, ovate, slightly compressed, pubescent, containing each from five to seven flowers: (some confine the number to seven or eight, whilst others extend it from five to fourteen.) Outer valve of the corolla sharply bifid at the tip.

Awn slender, straight, as long or a little longer than the valves. Nectaries two, ovate, obtuse. Germ villose at top. Styles inserted below the tip, spreading and reflex^f.

Our English writers observe, that the stalk is from one to three feet in height, with five or six joints; the panicle sometimes close, sometimes spreading, in meadows becoming perfectly smooth; the spikelets from four to eight lines long, and from one and a half to two and a half broad; the inner valve of the calyx three or four lines long, the outer narrower and about a line shorter; the outer valve of the corolla broad, hollow, striated, awned, the inner flattish, fringed at the edge with bristly hairs; the awn from three to five lines long, inserted half a line below the point of the valve; the filaments very small; the germ ovate with a slight depression at top; the styles feathered quite to the bottom, and proceeding from one side of the germ^g.

There are certainly many varieties of this Grass, both in degrees of pubescence from universal hoariness to almost perfect smoothness, and in size from three and even four feet in height, to that of a few inches, not to mention other concomitant and less striking circumstances.

Scopoli can discern no certain limits between this, the *secalinus*, *squarrosus*, *arvensis*, and *testorum*; he therefore unites them all under the name of *polymorphus*, and gives these as the common marks. Four knots on the culm, thick, and marked with a band of dusky red; the sheaths of the leaves villose; spikelets cylindric, lanceolate, thick; calyx the length of the first petal, both that and the corolla streaked; petals or glumes of the corolla equal, cloven, the inner flat, edged, truncate, ciliate; the nectary, composed of two bristle-shaped chaffs at the base of the germ; anthers yellow becoming ferruginous^h.

Mr. Hudson, though he does not go so far as Scopoli, joins however the *mollis* with the *secalinus*, under the same name of *polymorphus*. His first variety is the *mollis* of Linneus, and is covered all over with very soft hairs. His second has hairy leaves, and a smoothish panicle. These two are common in pastures. His third variety has the whole plant smooth; this is the *secalinus* of Linneus. His fourth has the lower leaves a little hairy, and the panicle smooth. These are weeds among corn.

Soft Brome-grass is a native of most parts of Europe, by way sides, on banks, in uncultivated places, on walls, in corn fields particularly among barley, in meadows and pastures especially in a dry sandy soil: flowering in may and june.

With us it forms a principal part of many mowing grounds. Mr. Curtis affirms, that it abounds in most of our best meadows; he remarks very justly that it springs early, and ripens its seeds about the time of haymaking; that the seed is large, each panicle containing nearly as much as a common oat: hence he observes, that although cattle may not be fond of the leaves and green panicle, yet that it may perhaps contribute to render the hay more nutritive. It has however a bad property, for the panicle is so heavy, that it is very apt to be laid by rain; it is also so much earlier than many other grasses, that by the ordinary time of mowing it is in a manner withered away, and what seeds have not fallen are lost in the making and carting: finally, the seeds are said to bring on a temporary giddiness in the human species and in quadrupeds, and even to be fatal to poultry; if this be in any degree true, it is an objection to the cultivation of this grass, which in other respects does not rank among the best kinds.

It is recommended for subduing or consolidating shifting sands; but surely a perennial grass with creeping roots would answer this purpose much better.

^b Withering. ^c Thunberg. ^d Linneus. ^e Villars.

^f Leers. ^g Curtis and Withering.
^h Fl. carn. n. 115. p. 79, 80.

Dr. Withering affirms, that it is known by the name of Oat-grass among the farmers, and that they sow it with clover. I have frequently observed it to come up abundantly among artificial grasses, as they are called, particularly among Saintfoin, but I always presumed that it came there by chance, and not by design. In this latter crop it wears out in two or three years, being an annual grass, and not spreading by the root.

4. This is an annual grass, but more robust than the foregoing sorts. Panicle scattered, nodding as it ripens. Spikelets smooth, thicker than the others, at first lanceolate, afterwards oblong. Pedicels filiform, thicker towards the top. Awns divaricating more or less, according to the age of the grass, or the dryness of the atmosphere¹.

Native of England, France, Germany, Switzerland, and Siberia. With us in corn fields near Glastenbury, in Somersetshire, and Maresfield in Suffex. Flowering in July.

5. Culm a foot high, firm. Leaves as broad as those of reed, keeled. Panicle flexuose, with from eight to fourteen flowers, oblong. Awn below the tip of the outer glume. The European differs from Feuillée's Canadian plant, in having fibrous, and not scaly roots, and narrower spikelets².

6. Root extremely creeping, like quich. Culms a foot or eighteen inches in height, upright, round, streaked, smooth, dark green, the joints sometimes tinged with purple, smooth. Leaves broad, acuminate, smooth, dark green, midrib whitish, rough; strap blunt. Panicle from six inches to a foot and more in length, at first contracted and upright; but afterwards spreading very much, and nodding a little at top. Pedicels several together, unequal, the lower ones very long, the upper ones very small, almost horizontal in flowering time, often quite simple, waved and bristle-shaped. Spikelets an inch in length cylindric or subconical, somewhat compressed, blunt, nodding, containing from seven to ten flowers. Glumes of the calyx unequal, lanceolate, concave, blunt, smooth, greenish, with broad, silvery, thin, membranaceous edges; the larger glume thrice the size of the smaller, with one green nerve, whilst the smaller has three. Glumes of the corolla also unequal; the larger glume concave, with seven greenish raised streaks, the middle one terminating in a very short awn, which however is frequently wanting; the smaller flat, membranaceous, narrower, the edges rolled back, and surrounded by two green, rough streaks³.

Native of Germany and Switzerland.

7. This has rather the habit of an *Avena* than of a *Bromus*. It differs from *squarrosus* in having a branched panicle, spikelets many times smaller, few-flowered, smooth, a bifid glume, not merely emarginate, but terminating in two bristles: it differs from the other species, by its bifid glume terminating in two awl-shaped segments, nearly the length of the glume itself, its minute smooth spikelets, and jointed, reflex awn. Native of Japan⁴.

8. Few plants have had a greater variety of names, or have been considered as more distinct species, than this Rough or hairy-stalked Brome-grass. It is the tallest of our English Grasses, according to the observation of Mr. Curtis; often exceeding six feet in height, and it is distinguished from them all by the hairiness of its stalk, and especially of the sheaths of the leaves which cover it.

Bromus giganteus, which is probably often mistaken for this grass, is not usually above half its height; the spikelets are not above one-third of the length, oval, green, four or five-flowered, the awns longer than the valves, white, pliant, and full of flexures; and the whole plant much weaker and smoother.

This has the leaves a foot long, rough and hairy; the panicle a foot long or more, branched, and nodding one way in a curve; peduncles very long, in

pairs, rough when handled the wrong way; the spikelets linear and subulate, more than an inch long, slender, roundish, generally tinged dusky red, especially in decay, containing ten flowers, and marked at the base with a pellucid ring; they generally grow two together. Valves of the calyx unequal; the larger concave, shining within, having three rough ribs on the outside, and terminating in a short point, the smaller having only one rib, and a more tapering point. Valves of the corolla unequal; the outer having three prominent ribs, the middle one terminating in a straightish awn, shorter than the corolla, the inner flattish, edged with hairs, and shorter. Nectary, two little glumes at the base of the germ⁵.

It seems to be an annual grass, though Mr. Curtis asserts it to be perennial. Schreber observes, that the root is not at all creeping. The leaf-sheaths are covered with long, rigid hairs, bending backwards; the leaves themselves have fewer and shorter hairs, and those chiefly along the edges and midrib⁶.

It grows in hedges and woods in Britain, Germany, Switzerland, &c. and flowers with us from June to August.

It appears to be too coarse a grass to be cultivated for cattle⁷.

There is much confusion in the synonyms. Dr. Withering asserts, that it is not the *montanus* of Pollich; Dr. Stokes, that it is not the *versicolor* of the same author, nor 1503 of Haller. According to Retzius, it is 1506 of Haller, and 414. n. 7. of Ray's synopsis; the synonyms of Bauhin and Morison, according to him, are doubtful. Haller cites the above name of Ray under both numbers 1503 and 1506. Ray's plant cannot be this, because the panicles of that are compact, and it grows in meadows and pastures. It is much more likely to be n. 10. p. 415 of Ray's synopsis, as Mr. Curtis gives it. Krockers figure, is from a young plant, growing in the shade.

9. Culms slender. Leaves on both sides and sheaths scarce apparently pubescent. Panicle much nodding; peduncles not curled. Spikelets oblong, compressed, the edges of the petals but not the back very hairy. Flowers eight, awned under the tip. Calyxes naked. Glumes of the corolla lanceolate. Native of Canada, where it was found by Kalm⁸.

10. Root annual. Culms from one to two feet high, nearly upright, round and smooth, at bottom crooked, the joints swelled. Leaves flat, both they and their sheaths covered with short soft hairs; strap triangular, toothletted and ciliate. Panicle large, nodding, half a foot long. Peduncles generally simple, and swelled at their base. Spikelets two inches long, flattish, diverging towards the extremity, six or seven-flowered. Awn nearly twice the length of the corolla, straight. Valves of the calyx unequal, long and narrow; outer valve of the corolla longer, seven-nerved, at top membranous and sharply bifid, inner nearly flat, ciliate. Nectary, two small, acuminate glumes, with a gland at the base of each. Germ oblong, slightly emarginate at top; the bottom, whence the styles proceed, and which seems to be the true germ, smooth and shining. Seeds purplish brown⁹; asserted by some to arrive rarely at maturity, whence the name *sterilis* or barren. Mr. Curtis however asserts that this grass is so named, from its inutility with respect to cattle. Ray calls it great wild Oat-grass or *Drank*; which I presume should be *Drank* from the Flemish *Dravich*. It is very common under hedges, flowering in May and June.

It is a troublesome weed in Saintfoin, being so soft as to let the scythe slip over it, ripening very early, and being very difficult to separate from Saintfoin seed. It is called by the common people in some places *Black-grass*¹⁰.

Villars mentions a variety of this, with larger and less numerous spikelets, on a lower plant, known

¹ Linn. Hall. St. in With. Villars.

² Krockers.

³ Linn.

⁴ Thunberg.

⁵ Curtis and Lightfoot.

⁶ Curtis and Leers.

⁷ Curtis.

⁸ Ibid.

⁹ Linn.

¹⁰ Le Blanc in Young's ann. 7. 575.

to Monti, Micheli, and Scheuchzer under the name of *Gramen bromoides locustis maximis lanuginosum italicum*. Agrost. 261.

Leers has another, with a taller culm, broader leaves, all villose; panicle fuller of flowers, a foot long; spikelets smaller, with shorter awns, pubescent all over, and pendulous. He looks upon it as an intermediate link between *Br. sterilis* and *teetorum*; and thinks it may be n. 1507. of Haller, which that celebrated author thought might be only a variety of *Br. sterilis*. Allioni has given this as a species, under the name of *Bromus agrestis*. Weigel has joined it to *B. teetorum*, and has called it *Bromus grandiflorus*; observing no difference except the size, and that the peduncles in *sterilis* are rugged not hairy; in *teetorum* hairy, not rugged.

11. Root annual. Culms upright, often the thickness of a goose-quill, two, three, or four feet high, decumbent at bottom. Sheaths and upper surface of the leaves pubescent with white hairs. Leaves flat, the lower surface and the edges very rugged: strap sharpish, multifid. Panicle almost a foot in length, nearly upright, diffused, knotty at the ramifications, with filiform, spreading, divaricate, flexuose peduncles. Spikelets oblong, linear, gray above, green beneath, ten-flowered (six to ten), nodding, smooth, but viewed through a glass pubescent. Glumes membranous about the edge; the larger glume of the calyx ovate; awn a little longer than the corolla, straight^e.

By way sides, and on the borders of corn fields, flowering in July.

This species has been confounded with the first, but the culms are double the size, whereas the spikelets, which are twice as many, are less by half, more oval, and have a greater number of flowers^u.

According to Leers, it varies with smaller, more coloured, pubescent spikelets: perhaps Haller's n. 1503. Weigel says that it varies with and without awns. Lightfoot gives a small marine variety. Dr. Stokes thinks that three distinct plants may have been referred to this species.

1. *Fl. suec. n. 97. Leers n. 84.* Spikelets linear, at first ovate at the base, and tapering, three times as long as the calyx, pubescent in the microscope. Calyx ovate. Awn somewhat longer than the corolla.

2. *Scheuch. 262. Pollich, n. 113.* Spikelets linear-lanceolate, about as long again as the calyx, which is lanceolate. Awn somewhat shorter than the corolla, and almost from the very point of the valve.

3. *Fl. dan. t. 293. Scheuch. p. 251. n. 2.* variety without awns. *Lightf. p. 104.* Culms five inches high; root-leaves smooth, stiff, channelled, subulate, those on the stalks broader, sheathing them like spathes; the close panicle, or rather spike, consists of eight or ten spikelets, nearly sessile, smooth, awnless, growing on one side, with about five flowers in each^x. They are oblong-ovate, with smooth, imbricate blunt glumes; calyx ovate; awn half as long as the corolla, sometimes wanting^y, and sometimes of some length^z. Probably the sea water occasions the convolution of the leaves, and the poverty of the soil the other differences^a.

12. Culms scarcely four inches high, decumbent to the last knot, brown; thence rising. Leaves smooth and even. Peduncle shorter than the panicle, which is spreading; with the pedicels not attenuated, but compressed, ancipital, subtriquetrous, rugged. Spikelets oblong, four-flowered. Flowers rugged, scarcely pubescent. Awn straight, the length of the flower. Native of Portugal^b.

Bromus ambiguus, Cyrilli plant. rar. neap. fasc. 1. p. 10. t. 2. is probably this grass. He describes it as annual; the culms a span in height, the lowest joint short, procumbent, rufous, the rest upright, distant; leaves capillary, acuminate, even; culms

distant, each terminated by three pedicels, bearing five or six flowers; glumes of the calyx small, sharp, the outer larger; glumes of the corolla linear, one awnless, the other with a long divaricate awn. Native of the maritime hills near Naples.

13. Root annual, or at most biennial. Culms a span or a foot high, slender, upright, with three, four, or five swelling joints, after flowering lying on the ground, and becoming of a brownish red colour. Leaves narrow, flat, pubescent on their lower surface, white-villose on their upper, ciliate towards the base: strap truncate, semimultifid: lower sheaths villose, rufescent. Panicle, when it bursts from the sheath, almost upright, afterwards nodding one way. Peduncles capillary, loose, with the internodes pubescent, rugged, the lower ones in fives; when the seed is ripe somewhat squarrose. Spikelets five-flowered (four to eight); the upper ones commonly barren. Awn straight, very slender, the length of the corolline glume, which is awl-shaped^c.

It differs from *Br. sterilis* in having a shorter culm, and narrower leaves, soft on both sides, with villose sheaths. Panicle closer and smaller, nodding forward. Branches four or five, shorter, divided into much smaller pedicels. Spikelets less and villose, scarcely an inch long to the end of the awns. The larger glume of the calyx pubescent, four lines long, the smaller three. The outer valve of the corolla terminates in a very sharp bifid point, is pubescent, green and purple with a silvery edge, and is five lines long; half a line below the tip it puts forth a straight awn, near half an inch in length: all the glumes are striated^d.

Native of most parts of Europe on walls, buildings, and in dry pastures; but not of England. It flowers from May to July. Introduced in 1776, by Monf. Thouin^e.

Linneus quotes n. 2. p. 413. of Ray's synopsis, which is the *erectus* of Hudson: and Villars makes the *teetorum* of Linneus synonymous with the *muralis* of Hudson. See n. 18 & 20.

Wall Brome-grass, when approaching to a state of maturity, may be useful in dying, where it can be collected in sufficient quantity^f.

14. Root perennial. Culms almost the height of a man, upright, strong, smooth, with three or four knots, frequently tinged with russet colour. Leaves the breadth of a finger, flat, smooth, shining underneath, with two purplish-brown appendages or straps at the base on each side embracing the culm. Sheaths below (and the upper surface of the leaf, with the end of the lower surface) a little rugged to the touch, but not hairy; above smooth: the membrane very short, truncate and russet. Panicle ten or twelve inches and more in length, loose and nodding one way: peduncles usually in pairs, sometimes however single, and sometimes three from a joint, spreading, long, angular-compressed, rugged. Spikelets cylindric, half an inch long, when in flower linear-lanceolate, somewhat compressed, afterwards oblong, having from three or four to six or seven flowers in each: they are shorter by almost one half than in *Br. asper*, with awns longer in proportion and more crooked. Valves of the calyx unequal, pointed, green with white edges, the large valve marked with three, the smaller with one somewhat transparent line. Valves of the corolla nearly equal, smooth, green with white edges; the outer largest, hollow, faintly three-ribbed, with an awn longer than the glume springing from a little below the tip; the inner somewhat flat, and whitish: all the glumes are smooth. Nectary, two small, lanceolate, pointed glumes, at the base of the germ. Seed blackish-purple, with the glumes adhering^g.

For the difference between this and *Br. asper*, see n. 8.

Native of most parts of Europe; in woods and under moist hedges; flowering from July to September.

^e Linn and Leers.

^u Villars.

^x Lightfoot.

^y Stokes in With.

^z Woodw. in With.

^a Lightf.

^b Linn. mant.

^c Leers and Linn.

^d Pollich.

^e Hort. kew.

^f Dambourney.

^g Linn. Curt. Leers.

It is a productive grass, and cattle are said to be fond of it, but there is not much probability of its being a good grass for meadows or pastures^b.

β. Haller's n. 1506. is thought by Weigel, &c. to be a variety of this. Others refer it to the *asper*. He gives as a synonym, n. 7. p. 414. of Ray's synopsis, which is *Br. secalinus*, but that it cannot be from the description: and adds, that it is very nearly allied to his n. 1505, which is *Br. sterilis*. Such is the confusion that reigns in this genus.

15. Root annual. Culms from eight to fourteen inches in height, prostrate at the base, and thence upright, reddish but deeper coloured at the joints. Leaves a line and half broad, three inches long, sharp and smooth. Panicle red. Valves of the calyx subulate, the lower smaller. Outer valve of the corolla oblong, concave, bifid, smooth, with a red awn half an inch in length; inner valve flat, ovate-acute, with a ciliate edge.

Native of the neighbourhood of Madrid, on the borders of corn fields; flowering in May¹. Introduced in 1776, by Monf. Thouin^k.

16. The awns in the same plant are sometimes upright, sometimes spreading; the corollas are smooth, especially the outer glume; the colour is sometimes green, often blood-red, but more frequently paler: wherefore *Br. ruber* and *scoparius* of Linneus are one and the same species¹.

17. Culms six or seven inches high, clothed with leaves, which are nerved, and slightly hairy on the upper surface; the sheaths covering the whole culm. Spike rather rigid, shortly peduncled, upright. Spikelets scattered, tenacious, four or five-flowered: awn below the tip, erect or a little spreading, the length of the spikelet. Native of Portugal^m.

18. The panicle consists of a simple raceme; the peduncles alternate, generally solitary. Flowers ovate, acuminate. Leaves villose underneathⁿ.

Mr. Hudson describes the leaves of his *erectus* as flat, and in very dry places rolled in and hairy. Panicle simple. Ray says that the lower leaves of the plant found by Bobart in the hedges beyond Botley near Oxford are beset with long hairs. Ray's plant referred to here by Linneus is generally agreed to be his *Br. secalinus*. The awns are a continuation of the keel, and form a connecting link between this genus and *Festuca*^o.

Mr. Hudson makes the *arvensis* of Linneus (n. 111.) a variety of his *erectus*; but his description does not accord with Linneus's; besides it is perennial^p.

Calcareous pastures in the neighbourhood of Oxford; flowering in June and July.

19. Stem five feet high. Leaves one or two lines broad, rough when rubbed the wrong way, dry and reedy. Panicle loose, sometimes a foot in length. Spikelets small, scarcely four lines in length, when young purplish, growing green afterwards, from three to five-flowered. Glumes of the calyx unequal, pointed; of the corolla broader, brown with a white sharp point. The awn of the outer glume is very short, or scarcely any^q. According to Pollich, the awns proceed from the tip, the back and the base of the valves; thus baffling the distinction between this genus and that of *Festuca*. Krocker affirms that in his specimens they spring only from the tip of the valves, which would make this grass to be a *Festuca*. He says that it differs from *Br. giganteus*, which it much resembles, in being only one-third of the size, in having the culm and leaves shorter, the panicle thinner, more divaricate, and a hand or finger in length, the spikelets smaller, with three flowers only in each, the awn shorter and more slender.

Native of Germany, and perhaps of Denmark, in woods; flowering in June and July.

20. Culms two feet high, smooth and even, with swollen joints. Leaves broadish, soft. Panicle loose, with no great number of spikelets: these are straight,

nearly upright, in threes, each of which is generally on a single peduncle; sometimes there is a fourth with two. Awns long, upright^r.

Hudson thus describes his *muralis*. Root annual. Culms several, a foot high, upright, cylindric. Leaves petioled, sword-shaped; petiole sheathing. All villose. Stipule or strap membranous, blunt. Panicle almost simple, when in flower spreading, when past flowering upright. Peduncles rugged, generally with one spikelet. Glume many-flowered (five or six), with a rugged keel. Outer valve of the corolla villose and rugged, sharp keeled, with a long rugged awn (seven or eight lines in length): inner oblong, ciliate, blunt, flat. It varies green and white.

Native of Spain; Italy, at Rome; and England about London, Oxford, and Severn Stoke in Worcestershire on old walls.

Dr. Stokes has given another *Bromus*, corresponding with the descriptions of the *madritensis*, except in the length of its awns, and probably a variety of it. He thus characterises the species. Panicle upright contracted. Spikelets linear; florets acuminate, rough; awns shorter than the florets. He refers to *Scheuch. agr.* 255. t. 5. f. 13. *Mor. hist.* f. 8. t. 7. f. 13. and Haller, *helv. n.* 1507. It must therefore be the *agrestis* of Allioni.

The leaf-sheaths have scattered hairs. The spikelets are as much as an inch long, and when the florets open three lines wide. Valves of the calyx tapering to a point, membranaceous at the edge, the inner five lines long. Peduncles pubescent. Florets woolly, with very short hairs, generally ten, tapering to a point at the base. Awns from one and a half to two lines long. The spikelets are very like those of *B. asper*^s.

In dry meadows very common, flowering in May^t.

21. Root perennial. Culms filiform, procumbent, even. Leaves as narrow or narrower than the culm. Scape upright, filiform, with one joint. Spikes generally three, alternate, having entirely the appearance of *B. pinnatus*, with a many-flowered sharp calyx, and pointed subciliate glumes^u.

This species may be distinguished from the next, by its being more stiff and hard; the spikelets are five in number in the stoutest plants, they are smooth, and have only a very short awn, which is commonly wanting in the lower flowers; in other varieties the stalks are branched at the base, their leaves rolled up, and their spikelets very few. In all the varieties of *Br. pinnatus* the leaves are soft, the culms simple, and the spikelets from eight to twelve, with awns longer or shorter to every flower^x.

According to Linneus it was found in the Levant by Schreber. Scheuchzer says, it was sent him from Smyrna by Consul Sherard. And Villars has observed it in Dauphiné.

22. Root perennial. Leaves flat. The flat side of the spikelets is turned to the culm. Awns terminating. Whilst it flowers the spikelets separate horizontally from the culm; before and after flowering they are pressed to it^y.

The Meadow spiked Brome-grass, according to Mr. Hudson is smooth, and yellowish green; the lower leaves sometimes a little hairy; the awn shorter than the floscules.

β. The Wood spiked Brome-grass, which by many is supposed to be a distinct species, is hairy; the awn longer than the floscules. The flowers in both from six to twelve. It is thus described by Dr. Stokes. Culms from eighteen inches to three feet high, slender; the upper part of the lower joints hairy where not covered by the sheath. Leaves rough downwards, the upper surface hairy, the lower less so but generally hairy towards the base. Spike-stalk or rachis slender, weak, and hence often pendulous. Spikelets from seven lines to an inch and half in length, somewhat hairy. Valves of the calyx

^b Curtis. ¹ Cavanilles. ^k Hort. kew. ^l Cavanilles.
^m Linn. mant. ⁿ Linn. spec. ^o Woodw. in With.
^p Id. Ib. ^q Haller.

^r Linn. ^s Stokes in With. 1. 107. ^t Scheuch.
^u Linn. mant. ^x Villars. ^y Linn.

tapering to a point, and often ending in a short awn. Outer valve of the corolla smooth along the back, but rough on the sides with minute hairs; the inner valve rounded at the end, edges ciliate except at the end, which is pubescent. Haller has placed these grasses in the genus *Triticum*, on account of the sessile spikelets in a double row. Hudson and others have removed them with more reason to the genus *Festuca*. But they are here continued with the other *Bromi*, with which they agree in the position of the awn. Dr. Stokes observes, that the *sylvaticus* has the habit of a *Bromus*, the artificial characters of a *Triticum*, but in its structure is truly a *Festuca*.

The first of these Grasses is found in pastures especially in a calcareous soil: the second in woods and hedges.

23. Native of Siberia and Tartary.

24. Spikelets sessile, with the flat side turned to the culm, as in the genus *Triticum*; with an acute calyx; in the wild plant two, in the cultivated three, awned. Native of the South of Europe and the Levant. Annual². Introduced in 1772, by Monf. Richard².

25. Root annual. Culms six or seven inches high, many, upright, with one or two joints, even: a leaf at each joint, shorter than the culm. Panicle oblong, brownish. Peduncles at the teeth in threes; the middle one having only one flower, the side ones two or three. Pedicels broader towards the top, flattened, blunt at the end. Spikelets four-flowered. Calyx awl-shaped, smooth. Outer glume of the corolla with a straight awn, the length of the flower. Anthers linear, yellow. Pistils white.

This though different from *Stipa membranacea* in genus and habit, agrees with it in its peduncles; the awn of that however is four times as long as the seed, whereas in this it is scarcely the length of the seed: that has the inner valve of the calyx very small and the other long; in this the valve is the length of the seeds. Native of Majorca^b.

Allioni has seventeen species of *Bromus* in his *Flora Pedemontana*: of which *ligusticus*, n. 2222. *agrestis*, n. 2224. (see our n. 10.) *dertonensis*, n. 2225. and *Plukenetii*, n. 2233. are names not in Linneus: but he has not described any except the last, thus:

Root creeping. Culms many, rigid, branching at the base. Leaves convolute, rigid, linear, glaucous, pungent. Culm more than seven inches high, almost naked except in the lower part. In the erect culm at the base a brown knot, where springs the sheath of the stem-leaf. Spikelets two, with the flowers in a double row, round but a little compressed on each side, smooth, with the flowers not much pressed. The lower spikelet subsessile, with ten flowers and no odd one; the upper one has sixteen, and is on a long peduncle. There is a short awn from the back of the glume. The shape of the glumes is ovate-oblong, and they are blunt. Bellardi found it in the county of Nice, near Villafranca. The others are from Scheuchzer; the first, p. 296. n. 3. t. 6. f. 13. the second, p. 255. t. 5. f. 13. the third, p. 290. t. 6. f. 10. of the *Agrostographia*.

PROPAGATION AND CULTURE.

See GRASS.

BROMUS. See *Dactylis*, *Festuca*, and *Triticum*.]

BROOM. See *Genista* and *Spartium*.

[— African. See *Aspalathus*.

BROSIMUM. (From *Βρωσιμος*, *edulis*, *esculentus*, *eat-able*.)

Swartz *prodr.* 12. *Lin. gen.* Schreb. n. 1486.

Class. 22. 1. Dioecia Monandria.

GENERIC CHARACTER.

* Male.

CAL. Ament common globular, covered on all sides with imbricate, orbicular, peltate, membranaceous, deciduous scales: three larger, surrounding the base of the ament; and others smaller, of an irregular shape, between each of which the stamens break out.

COR. none.

STAM. Filaments solitary, very short, cylindric. Anthers bilamellate: lamellas orbicular, peltate: lower gaping from the upper: dispersing a globular pollen.

PIST. Germ at top included in a spongy ament, very small, ovate, abortive. Style single, upright, bifid at the tip. Stigmas reflex, simple.

Female, on a different tree.

CAL. Ament like the male.

COR. none.

PIST. Germ globular (the scaly body of the ament itself). Style springing from the middle of the germ at top, long, bifid. Stigmas simple, sharp, a little reflex.

PER. Berry pedicelled, corticose, spherical, one-celled.

SEEDS solitary, with a two-lobed kernel, surrounded by a thin membrane, and bipartite.

ESSENTIAL CHARACTER.

MALE. Ament globular covered all round with orbiculate, peltate scales. Cor. none. Filam. solitary, between the scales.

FEM. Ament as in the male. Cor. none. Style bifid. Berry one-seeded.

SPECIES.

1. *Brosimum Alicastrum*.

Swartz *prodr.* 12. *Hort. kew.* 3. 387.

Alicastrum arboreum, &c. *Brown. jam.* 372.

Leaves ovate-lanceolate perennial, aments globular pedicelled solitary axillary, fruit corticose.

2. *Brosimum spurium*.

Swartz *prodr.* 12. *Brown. jam.* 369. n. 8.

Leaves lanceolate-ovate acuminate, aments pedicelled ovate axillary in pairs, fruit soft.

DESCRIPTION, &c.

1. This tree is frequent in the parishes of St. Elizabeth and St. James in the island of Jamaica; and in both is computed to make up about a third part of the woods. The timber is not despicable; but the leaves and younger branches are more useful, and a hearty fattening fodder for all sorts of cattle. The fruit, boiled with salt-fish, pork, beef or pickle, has been frequently the support of the negroes and poorer sort of white people, in times of scarcity; and proved a wholesome and no unpleasant food: when roasted, it eats something like our European Chestnuts, and is called *Bread-nut*. The leaves and younger shoots are full of gum, which renders them disagreeable to most cattle at first, but they soon grow very fond of them^c.

Introduced in 1776, by Mess. Kennedy and Lee^d.

2. The second sort is called *Milk-wood*, and is pretty common in St. Mary's parish Jamaica. It rises to a considerable height in the woods, is reckoned among the timber trees, and is sometimes used as such, though not generally valued^e.]

[BROSSÆA. (So named from Guy de la Brosse, intendant of the royal garden at Paris, at the beginning of the last century.)

Lin. gen. 1229. *Reich.* 261. *Schreb.* 330.

Plum. 17. *Juss.* 161.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Bicornes*. *Ericæ* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, five-parted: divisions ending in erect points the length of the corolla.

COR. monopetalous, conic, truncated at the end, entire.

STAM. five.

PIST. Germ pentacoccus. Style subulate, shorter than the corolla. Stigma simple.

PER. Capsule roundish, divided with five furrows, five-celled, covered with a large, converging, fleshy, succulent calyx bursting at the sides.

SEEDS very many, extremely minute.

ESSENTIAL CHARACTER.

Cal. fleshy. Cor. truncate. Caps. five-celled, many-seeded.

SPECIES.

1. *Brossæa eoccinea*.

Lin. syst. 219. *Reich.* 491. *Plum. gen.* 5. ic. 64. f. 2.

² Linn.

^a Hort. kew.

^b Linn.

^c Browne.

^d Hort. kew.

DESCRIPTION, &c.

Branches alternate. Leaves alternate, ovate, ferrate, petiolate. Flowers few, terminating the branches, alternate. An obscure plant, and the character doubtful, except in what Plumier has said of it. In stature it seems something like the *Codon*. Native of South America^c.]

BROWALLIA. (Given by Linneus in honour of Job. Browallius, bishop of Abo, who defended the sexual system against Siegesbeck, in a book entitled, *Examen epicriseos*, &c. Abo, 1739 & Leid. 1743. 8°.)

Lin. gen. 773. Reich. 834. Schreb. 1036. Gærtn. t. 53. Juss. 123.

Class. 14. 2. Didynamia Angiospermia.

Nat. order of *Luridæ*. *Scrophulariæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, short, five-toothed, permanent: *toothlets* a little unequal.

COR. monopetalous, funnel-form: *tube* cylindric, twice as long as the calyx; *border* flat, equal, five-cleft; *divisions* rounded, emarginate; the *upper* somewhat large, constituting the upper lip; the four others equal.

STAM. *Filaments* four, in the throat of the corolla; the two upper shortest; the lower broader, higher, coloured, reflex, closing the throat of the corolla. *Anthers* simple, bent in, converging; the inner ones twin, the outer opening at the top with a little hole, and closing the throat of the corolla.

PIST. *Germ* ovate, retuse. *Style* filiform, the length of the tube of the corolla. *Stigma* thick, four-lobed.

PER. *Capsule* ovate, obtuse, one-celled, covered, bursting into four parts at the top. *Partition* thin, parallel.

SEEDS numerous, small. *Receptacle* nearly columnar, compressed.

ESSENTIAL CHARACTER.

Cal. five-toothed. *Cor.* border five-cleft, equal, spreading; with the navel closed. *Anthers* two larger. *Caps.* one-celled.

SPECIES.

1. *Browallia demissa*. *Spreading Browallia*.

Lin. spec. 879. Reich. 3. 179. hort. cliff. 318.

t. 17. upf. 179. Sabb. hort. 2. t. 100.

Dalca. *Philos. transact.* n. 452.

Peduncles one-flowered.

2. *Browallia elata*. *Upright Browallia*.

Lin. spec. 880. Reich. 3. 179. Curt. mag. t. 34.

Peduncles one-flowered and many-flowered.

DESCRIPTIONS, &c.

[These are herbaceous annual plants with alternate leaves. The flowers are either axillary or terminating. They have the habit of the Solanaceous plants, and like them have the peduncle inserted either over against, or at the side of the petioles^f.]

1. This usually grows about two feet high, and spreads out into lateral branches, with oval entire leaves, ending in a point, and on short petioles. Toward the end of the branches the flowers are produced singly upon long axillary peduncles. The corolla is crooked and bent downward, the top of the tube is spread open, and the brim has some resemblance to a labiate flower. It is of a bright but pale blue colour, sometimes inclining to a purple or red; and often there are flowers of three colours on the same plant. [Gærtner calls the corolla salver-shaped. He describes the capsule as two-celled, ovate-oblong, and covered with the calyx; the partition seceding from the walls of the capsule, when ripe, so that it seems to be one-celled. Seeds angular, punctured with very minute holes and dots, rufous-yellow.]

The seeds were sent to Mr. Philip Miller by Mr. Robert Millar, from Panama, in the year 1735. When he first raised this plant in the Chelsea garden, he named it *Dalea*, in honour of Mr. Dale, an eminent botanist, and a great friend of Mr. Ray's. By the same name he communicated the seeds to Linneus, who changed the name to *Browallia*.

^c Linn.

^f Juss. and Gærtn.

2. The second sort rises about the same height as the first, but has stronger stalks, and sends out a greater number of branches, it is therefore much more bushy. The flowers are produced on axillary peduncles, some sustaining one, others three or more flowers, of a dark blue colour. [Mr. Curtis remarks, that it is a much taller plant than the *demissa*, whence its name; and that we cannot do justice to the brilliancy of the corolla by any colours we have. Linneus observes, that the lower branches are almost the length of the stem itself; and, that the floral leaves are almost smooth.]

This is a native of Peru; and was cultivated by Mr. Miller in 1768. They both flower from July to September^g.]

PROPAGATION AND CULTURE.

These plants being annual, their seeds must be sown every year upon a hot-bed in the spring; and the plants must be brought forward on another, to perfect seeds in England. Some of them may be transplanted in June into the borders of the flower-garden; where, if the season prove warm, they will flower and perfect seeds; but lest these should fail, there should be two or three plants kept in the stove for that purpose.

[**BROWNEA.** (From Patrick Browne, M.D. author of the history of Jamaica.)

Lin. gen. n. 833. Reich. 898. Schreb. 1115.

Jacq. amer. 194. Juss. 366. Hermefias. Loeft.

Class. 16. 4. Monadelphia Decandria.

Nat. order of *Lomentaceæ*. *Leguminosæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, turbinate, unequally bifid, acute.

COR. *Outer* monopetalous, funnel-form: *border* five-cleft: *divisions* oblong, concave, obtuse, erect. *Inner* five-petalled. *Petals* obovate, flat, obtuse, patulous, sitting on the tube of the outer corolla. *Claws* long.

STAM. *Filaments* ten or eleven subulate, alternately shorter, fastened to the tube of the outer corolla, united into a cylinder divided above. *Anthers* oblong, incumbent.

PIST. *Germ* oblong, acute, sitting on a pedicel fastened to the wall of the outer corolla. *Style* subulate, erect, longer than the corolla. *Stigma* obtuse.

PER. *Legume* oblong, compressed, narrowed about the partition, two-celled: *partition* membranaceous.

SEED solitary, ovate, compressed, somewhat wrinkled, involved in fungose fibres.

OBS. *Stamens* in *Br. coccinea* ten; in *Br. Rosa* eleven and very long. Paloue. *Aubl. guian.* p. 365. t. 141. seems to be of this genus.

ESSENTIAL CHARACTER.

Cal. unequally bifid. *Cor.* double: outer five-cleft; inner five-petalled. *Legume* two-celled.

SPECIES.

1. *Brownea coccinea*.

Lin. spec. 958. Syst. 619. Reich. 3. 330. Jacq.

amer. 194. t. 121. *Philos. trans.* vol. 63. p. 174.

Flowers disjoined umbelled.

2. *Brownea Rosa*.

Berg. in *philos. trans.* 63. p. 174. ic.

Hermefias. Loeft. it. 278.

Flowers aggregate in heads sessile, *stamens* very long.

DESCRIPTIONS, &c.

1. This is a shrub or small tree, growing to the height of about eighteen feet. The wood is covered by an ash-coloured bark. When in flower it has a beautiful appearance. The leaves are oval, entire, smooth, opposite, with short footstalks; they grow two or three pairs on a spray. The flowers grow about ten together, and are pendulous. The calyx is ferruginous, the corolla scarlet, and the stamens yellowish. This species grows in hilly and woody places in America.

2. This is also an American shrub or small tree, with an ash-coloured bark, opposite leaves, which are entire and smooth on both sides. The flowers are borne in a kind of aggregate manner, so as to

^g Hort. kew.

form heads or bunches of the size of one's fist. They are red and make a very beautiful appearance. The stamens are extremely long. It grows principally in hilly situations.

[BRUCEA. (So named by Sir Joseph Banks, in honour of James Bruce, Esq. the traveller into Abyssinia, who first brought the seeds thence into England.)

Lin. gen. Schreb. n. 1508. L'Herit. stirp. 19.

t. 10. Juss. 373.

Class. 22. 4. Dioecia Tetrandria.

GENERIC CHARACTER.

* Male.

CAL. Perianth four-parted, flat, villose: parts lanceolate, acute, spreading.

COR. Petals four, lanceolate, acute, ciliate, spreading, scarcely larger than the calyx.

Nectary, a body placed on the receptacle, flat, four-lobed; lobes obscurely emarginate, opposite to the petals.

STAM. Filaments four, upright, short, opposite to the calyx, inserted into the receptacle between the lobes of the nectary. Anthers roundish.

* Female.

CAL. and COR. as in the male.

Nectary, the inner margin of the receptacle thickened, four-lobed; lobes emarginate.

STAM. Filaments four, inserted into the receptacle on the outside of the divisions of the nectary, filiform but thicker towards the tip, sharpish, a little shorter than the petals; without any anthers.

PIST. Germs four, superior, ovate, compressed on the inner side. Styles subulate, reflex, lying on the germs. Stigmas acute.

PER. four, one-seeded.

SEEDS solitary.

ESSENTIAL CHARACTER.

Cal. four-leaved. Cor. four-petalled.

FEM. Peric. four, one-seeded.

SPECIES.

1. Brucea ferruginea.

L'Herit. stirp. nov. p. 19. t. 10. Hort. kew. 3. 397.

Brucea antidysenterica. Bruc. abyss. 5. 69. J. F. Miller ic. t. 25.

DESCRIPTION, &c.

Mr. Bruce thus imperfectly describes it. Leaf pinnate: leaflets oblong, pointed, smooth, and without collateral ribs that are visible; the upper side of a deep green, the reverse very little lighter, opposite with a single one at the end. The flowers come chiefly from the point of the stalk, on each side of a long branch.

Monf. L'Heritier has described it more completely. It is a shrub of the middling size. Stem upright; the bark ash-coloured, becoming yellowish: branches few, alternate, patulous, round, thick, with broad scars from the fallen leaves continuing long on them: shoots angular with the petioles, tomentose, rufous. Leaves alternate, spreading, unequally pinnate, consisting of six pairs of opposite lobes, one foot in length: petiole round, thickened at the base, tomentose, rufous. Leaflets on short petiolules, oblong-ovate, entire, acuminate, veined, villose, somewhat fetid when rubbed; the two lower ones smaller, the upper one on a longer petiolule, three inches long, and one inch broad; the midrib raised on both sides, especially beneath; the veins concentrically retuse towards the edges. Spikes of male flowers solitary, axillary, upright at first, then spreading, finally nodding, peduncled, almost simple, or scarcely compounded of many-flowered, very short spikelets, remote at bottom, but gradually approximating towards the top, tomentose, rufous, from six to eight inches in length: the flowers are crowded together, either sessile or on very short pedicels, of an herbaceous colour tinged with red or russet.

The male plant began to flower in the stove of the Paris botanic garden, when it was between two and three feet in height in may and june 1780 or 1781. The female plant has flowered in the royal

garden at Kew, in april and may; and was introduced there in 1775.

It is a native of Abyssinia, where it is known by the name of *Wooginoos*. The root is a specific in the dysentery. It is a plain simple bitter, without any aromatic or resinous taste; leaving in the throat and palate something of roughness, resembling *Ipecacuanha*.]

BRUNELLA. See *Prunella*.

BRUNFELSIA. (So named by Plumier, from Otto or Otto Brunfelsius, of Mentz, first a Carthusian monk, and afterwards a physician. He published the first good figures of plants in 1530, and died in 1534.)

Lin. gen. n. 260. Reich. 281. Schreb. 1013.

Plum. 22. Juss. 127.

Class. 14. 2. Didynamia Angiospermia.

Nat. order of *Personatae*. Solanæ Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, bell-shaped, five-toothed, obtuse, very small, permanent.

COR. one-petalled, funnel-form: tube very long, slightly curved inwards: border flat, five-cleft, blunt.

STAM. Filaments four very short. Anthers oblong, upright: two a little higher than the others, prominent from the mouth of the tube.

PIST. Germ roundish, small. Style filiform, the length of the tube. Stigma thickish.

PER. Capsule berried on the outside, globular, one-celled, two-valved.

SEEDS very many, compressed, convex on one side, angular on the other, rugged with dots. Receptacle fastened to the bottom of the capsule, chaffy: chaffs coadunate, subulate at the tip, separating the seeds.

OBS. The pericarp is called a berry by Linneus and others; but since it opens determinately by a distinct suture from the top to the base, it is rather a capsule.

ESSENTIAL CHARACTER.

Cal. five-toothed, narrow. Cor. with a very long tube. Caps. one-celled, many-seeded, with a very large fleshy receptacle.

SPECIES.

1. Brunfelsia americana.

Lin. spec. 276. Syst. 231. Reich. 1. 535. Hort.

kew. 2. 340. Swartz prodr. 90. obs. 91. Plum.

gen. 12. ic. 65. Brown. jam. 141. Catesbæa.

Leaves elliptic acuminate, on longer petioles; tube of the corolla erect, border entire.

[2. Brunfelsia undulata.

Swartz prodr. 90.

Leaves lanceolate-ovate, drawn to a point at both ends, petioles very short; tube of the corolla curved, border waved.

DESCRIPTIONS, &c.

1. This is a tree growing from ten to fifteen feet in height. Mr. Miller gives eight or ten feet, and Browne only five or six for the height. The trunk is smooth and even, and the branches loose. Leaves alternate, entire, smooth, somewhat shining; on cylindrical, short petioles, somewhat reflex. Flowers axillary and terminating, peduncled. Corolla yellow, turning white, very sweet-scented, having a tube four or five inches in length. Anthers globular, bifid; those of the upper filaments, together with the stigma close up the aperture of the tube. The fruit is green, with a red receptacle.

According to Mr. Miller, the leaves are unequal in size; on the lower part of the branches coming out single, but towards the extremity placed on every side. The flowers are produced generally three or four together: the tube is very long, narrow, and hairy; the brim is expanded in form of the great Bindweed (*Convolvulus sepium*), and is almost as large.

It grows naturally in Jamaica and most of the sugar islands in the West Indies; where they call it Trumpet Flower.

* Hort. kew.

† Bruce.

• Swartz obs.

[It was cultivated in 1739, by Mr. Miller, and flowers with us in June and July^d. In Jamaica it flowers in the spring^e.

2. This also is a native of Jamaica^f.]

PROPAGATION AND CULTURE.

These plants may be propagated from seeds, which should be sown early in the spring in pots filled with light earth, and plunged into a hot-bed of tanners bark, observing to water the earth as often as you find it necessary. When the plants are come up, they should be transplanted each into a separate small pot filled with fresh light earth, and plunged into the hot-bed again, observing to water and shade the plants until they have taken root; after which they must have air admitted to them every day, in proportion to the warmth of the season. When the plants have advanced so high as not to be contained in the frames they should be removed into the bark-stove, where, during the summer months, they should have a large share of free air, but in winter they must be kept very close. With this management the plants will be very strong, and produce their flowers every season. These plants may also be increased by planting cuttings in the spring, before they begin to make new shoots, in pots filled with fresh light earth, and plunged into a hot-bed of tanners bark, observing to water and shade them until they have taken root; after which, they must be managed as has been directed for other tender exotic plants from the same countries.

[BRUNIA. (Said to be so named from Cornelius Brun, a traveller into the Levant and Russia, at the end of the last and the beginning of the present century.)

Lin. gen. n. 274. Reich. 293. Schreb. 376. Juss. 381, 452.

Class. 5. 1. Pentandria Monogynia.

Nat. order of Aggregatæ. Rhamni Juss.

GENERIC CHARACTER.

CAL. Perianth common roundish, imbricate, many-flowered: leaflets ovate-oblong.—Proper five-leaved, inferior: leaflets oblong, villose.

COR. Petals five: claws slender; borders roundish, spreading.

STAM. Filaments five, capillary, inserted into the claws of the petals. Anthers ovate-oblong.

PIST. Germ very small, superior. Style simple, cylindrical. Stigma obtuse.

PER.

SEED.

RECEPT. common hairy.

ESSENTIAL CHARACTER.

Flowers aggregate. Filam. inserted into the claws of the petals. Stigma bifid. Seeds solitary, two-celled.

SPECIES.

1. Brunia lanuginosa. Heath-leaved Brunia.

Lin. spec. 288. Juss. 240. Reich. 1. 560. hort. cliff. 71. Berg. cap. 60. Pluk. phyt. t. 318. f. 4. (Tamariscus.)

Leaves linear, spreading, callous at the end.

2. Brunia ciliata. Ciliate-leaved Brunia.

Lin. spec. 288. Juss. 240. Reich. 1. 561.

Leaves ovate acuminate ciliate.

3. Brunia verticillata. Whorled Brunia.

Lin. Juss. 241. suppl. 156.

Leaves three-cornered, branchlets in whorls fastigate, heads terminating smooth.

DESCRIPTIONS, &c.

1. This resembles *Levisanus abrotanoides*, and has the nectareous chink as in that². The stem is about a foot high, and shrubby. The leaves linear-filiform, smooth, short, with black tips. The flowers, which are white, are borne in heads.

It was introduced in 1774, by Mr. Francis Masson^h.

2. The germ superior, and the style bifid².

3. Heads small, not globular. They are all shrubs, and inhabitants of the Cape. This was found there by Thunberg.

BRUNIA. For the other species, see *Levisanus*.

^d Hort. kew.

^e Swartz obs.

^f Swartz prodr.

^g Linn.

^h Hort. kew.

BRUNSFELSIA. See *Brunfelsia*.

BRUNSVIGIA. See *Amaryllis*.]

BRUSCUS. See *Ruscus*.

[BRYA. See *Amerinum*.

BRYANTHA and BRYANTHUS. See *Andromeda*.]

BRYONIA. (*Bryonia* Plin. *Bryonia* Dioscor. From *Bryon*, germino, pullulo. Others derive it from *Bryon*, extollo, because it raises itself by laying hold on shrubs, &c. with its tendrils: but the first derivation is the true one.)

Lin. gen. n. 1093. Reich. 1194. Schreb. 1480.

Gertn. t. 88. Juss. 394. Tournef. 28. Ray 72. n. 3.

Class. 21. 10. Monoecia Syngenesia.

Nat. order of Cucurbitaceæ.

GENERIC CHARACTER.

* Male flowers.

CAL. Perianth one-leaved, bell-shaped, five-toothed: toothlets subulate.

COR. five-parted, bell-shaped, fastened to the calyx: divisions ovate.

STAM. Filaments three, very short. Anthers five, two connate on each of two filaments, and a single one on the third.

* Female flowers.

CAL. Perianth as in the males, superior, deciduous.

COR. as in the males.

PIST. Germ inferior. Style trifid, the length of the corolla expanded. Stigmas emarginate, patulous.

PER. Berry subglobular, smooth and even.

SEEDS a few, fastened to the coat, subovate.

OBS. Our common English species is dioecous.

ESSENTIAL CHARACTER.

Cal. five-toothed. Cor. five-parted.

MALE. Filaments three. FEM. Style quadrifid. Berry subglobular, many-seeded.

SPECIES.

1. Bryonia alba. Black-berried white Bryony.

Lin. spec. 1438. Juss. 869. Reich. 4. 207. hort. cliff. 453. Juss. n. 876. mat. med. 210. Neck. gallob. 392. Scop. carn. n. 1200. Blackw. t. 533. a. b. Fl. dan. t. 813.

B. alba baccis nigris. Baub. pin. 297. Raii hist. 659. syn. 261. Park. 178. n. 2.

Leaves palmate, callous-scabrous on both sides: flowers monoecous: berries black.]

2. Bryonia dioica. Red-berried white Bryony.

Lin. Juss. 870. Jacqu. austr. t. 199. With. 1133.

B. alba. Hudf. angl. 437. Lightf. scot. 590. Hall.

helv. n. 574. Allion. pedem. n. 455. Leers herb. n. 744. Pollich pal. n. 915. Mill. fig. t. 71.

Blackw. t. 37. Sabb. hort. 1. t. 58. Ger. 720.

emac. 869. Park. 178. f. 1. Raii hist. 659.

Woodv. med. bot. 517. t. 189.

B. alba β. Reich. 4. 208.

B. aspera f. alba baccis rubris. Baub. pin. 297.

B. f. Vitis alba. Matth. 791. Cam. epit. 987.

Fuchs. 95.

Leaves palmate, callous-scabrous on both sides; flowers dioecous; berries red.

[3. Bryonia palmata. Palmated Bryony.

Lin. spec. 1438. Reich. 4. 208. Fl. zeyl. n. 353.

Burm. zeyl. 49.—fol. quinquepartito.

Leaves palmate, smooth and even, five-parted; divisions lanceolate repand-serrate.

4. Bryonia grandis. Great-flowered Bryony.

Lin. Juss. 870. Reich. 4. 208. mant. 126. Burm.

zeyl. 49. t. 19. f. 2. Rumph. amb. 5. 448.

t. 166. f. 1. Lour. cochinch. 595.

Leaves cordate angular smoothish glandular at the base underneath; tendrils simple.

5. Bryonia cordifolia. Heart-leaved Bryony.

Lin. spec. 1438. Juss. 870. Reich. 4. 208. Fl.

zeyl. n. 354.

Leaves cordate oblong five-lobed toothed scabrous, petioles two-toothed.

6. Bryonia laciniata. Lacinated Bryony.

Lin. spec. 1438. Juss. 870. Reich. 4. 208. hort.

cliff. 452. fl. zeyl. n. 355. Herm. lugdb. 95.

t. 97. parad. t. 107. Gertn. fruct. 2. 46.

Leaves palmate; divisions lanceolate serrate; petioles mucicate.]

7. Bryonia

7. *Bryonia africana*. *African Bryony*.
Lin. spec. 1438. *Reich.* 4. 209. *hort. cliff.* 453.
Herm. pas. 107. *t.* 108. *Gärtn. fruct.* 2. 47.
Leaves palmate five-parted smooth and even on both sides; divisions pinnatifid.
8. *Bryonia cretica*. *Cretan Bryony*.
Lin. spec. 1439. *Reich.* 4. 209. *hort. cliff.* 453.
B. alba maculata. *Baub. hist.* 2. 146. *Raii hist.* 660.
B. cretica mac. *Baub. pin.* 297. *prodr.* 135. *Park. theat.* 178. *n.* 3.
Leaves palmate, callous-dotted on the upper surface.
- [9. *Bryonia scabra*. *Rough or globe-fruited Bryony*.
Lin. syst. 870. *suppl.* 423.
Leaves cordate angled villose underneath, callous-scabrous on the upper surface; tendrils simple; berries globular; seeds smooth.
10. *Bryonia scabrella*. *Roughish or bristly Bryony*.
Lin. syst. 870. *suppl.* 424.
Leaves cordate angular and lobed callous-hispid; tendrils simple; berries globular; seeds muricate.
11. *Bryonia japonica*. *Japan Bryony*.
Lin. syst. 870. *Thunb. jap.* 325.
Leaves cordate, undivided and angular, toothed, unarmed-hispid.
12. *Bryonia latebrofa*. *Hairy Bryony*.
Ait. hort. kew. 3. 384.
Leaves subtrilobate hairy drawn to a point at the base.
12. *Bryonia verrucosa*. *Warted Bryony*.
Ait. hort. kew. 3. 385.
Leaves cordate angled, the upper surface and the veins underneath, callous-scabrous, the callosities remote; tendrils simple; berries globular.]
14. *Bryonia racemosa*.
Mill. dict. n. 4. *Swartz prodr.* 116. *Plum. fil.* 83. *t.* 97.
Leaves cordate three-lobed, the upper ones ovate and somewhat rugged, flowers in racemes, berries nodding oval.
15. *Bryonia variegata*.
Mill. dict. n. 5.
Leaves palmate with lanceolate segments, spotted on the upper but smooth on the under side; fruit ovate scattered.
16. *Bryonia bonariensis*.
Mill. dict. n. 6. *Dill. elth.* 58. *t.* 50. *f.* 58.
Leaves palmate five-parted hairy, with obtuse segments.
- [17. *Bryonia hastata*.
Lour. cochinch. 594.
Leaves hastate, toothblotted, smooth: peduncles many-flowered.
18. *Bryonia triloba*.
Lour. cochinch. 595.
Leaves three-lobed five-nerved, stipules roundish concave, peduncles one-flowered.
19. *Bryonia cochinchinensis*.
Lour. cochinch. 595.
Leaves five-cornered, rough; berries three-celled, ten-cornered.

DESCRIPTIONS, &c.

1. Black-berried White Bryony seems to differ from the red in little else besides the colour of the berries. There is a very particular description of it in John Bauhin's history from Cordus, agreeing with both in all material circumstances except the above, unless we admit the colour of the root, which in this is a pale colour of box within, in that a yellowish white*. If it be always an androgynous plant, that is a more material distinction.

Native of Sweden, Denmark, Carniola, and probably other parts of Europe, in hedges. According to Haller this is more common in Germany than the other. Plukenet says it is not unfrequent about Cambridge^b; but I never heard of any other botanist who found it there, or in any other place in England.

2. Red-berried White Bryony is easily distinguished by its prodigious root, its stems climbing by tendrils, leaves resembling those of the vine in shape, not smooth however as they are, but harsh

and rugged, and of a paler colour, and by its bunches of small berries; which are red when ripe, and produced on a different plant from the male flowers.

The stem is thick, grooved, rugged, divided into alternate branches, and climbs to the height of six feet and more, by means of spiral tendrils which occasionally turn different ways. Leaves alternate, on round hairy petioles two inches long, divided half way into five lobes, hairy and rugged on both sides, about four inches in length and three in breadth. They are not properly palmate, even the lower ones being truly lobed. The peduncles come out from the axils of the leaves^c. In the male plant, the peduncle is longer than the leaf, and has from ten to twenty flowers; the pedicels shorter than the peduncle, and scattered: the flowers larger and deciduous. The female flowers are on a very short peduncle, only from three to six together; pedicels umbellate or subcymose; at the time of flowering longer than the peduncle: corollas only one-third of the size, and paler than the male. Berry globular, red, with five or six seeds^d.

There are two species or rather varieties of the Bryony, says Mr. Ray, the one *male* or *barren*, in which little racemes of flowers are placed on a common peduncle which is a palm in length, whereas in the female or fertile plant, they are on a very short peduncle scarcely an inch long. The flowers also (of the male) are double the size of the others, and instead of a style a short *umbilicus* occupies the middle, divided into four broad blunt segments, surrounded with a yellow fringe about the edge. The other variety is *female* or *fertile*. The corolla is monopetalous divided into five sharp segments, of a whitish yellow colour with dark veins: it is placed on the top of the berry on a short pedicel issuing from the summit of the berry itself, and falls off entire soon after it opens^e. Here we see how accurately our learned countryman described, and how well he understood the doctrine of the sexes in plants above a century ago^f.

It is common in hedges in most countries of Europe: but with us I have not remarked it on very strong land. It flowers in may.

The dioecous plant with red berries seems to be more generally spread than the other. It is mentioned to grow in all the southern parts of Europe; and Dioscorides describes his Bryony with red fruit: whereas the monoecous plant with black fruit seems to be confined to the northern kingdoms, some parts of Germany and Carniola. By keeping them separate, I do not mean positively to assert that they are distinct species.

Linneus, as we have already seen, says that the Bryony in Sweden is androgynous, and has black berries. Scopoli removed a single plant from Gorizia into his garden, and found it to be androgynous: the berries were black. De Necker says, that he has seen it dioecous, but seldom: he does not say whether the berries be black or red. Haller affirms, that they have only the red-berried plant in Switzerland, and that it is always dioecous there: but that the other with black berries is more common in Germany. Pollich assures us, that it is always dioecous in the Palatinate, and that the berries are red. Villars insists, that the case is the same in Dauphiné.

Mr. Miller on the contrary^g, has observed, that several plants (with red berries) which he cultivated in different parts of the garden, were of different sexes while young; but that the plants which produced only male flowers the two first years, afterwards had flowers of both sexes; the number of female flowers the first year was small, but as the plants grew older, they became more fruitful. The case is the same in the Mulberry and other trees which produce flowers of both sexes.

I have observed many hundreds of wild plants

^a Pollich.^b Leers.^c Hist. 659.^d Before 1686.^e Figures, p. 48.^a Ray hist.^b Dillenius in Ray syn.

during a long course of years, and could never have the fortune to see an androgynous plant of Bryony: nor do I ever remember to have remarked a male and female plant to grow so near each other as to give a suspicion that they might spring from the same root. Male flowers seem to be much more abundant than females.

Goats alone are said to eat this plant. Two or three of the berries have been eaten without any observable effects^a.

The root of Bryony grows to a vast size. Our old herbalist Gerard says, "the Quene's chiefe Chirurgeon Master William Goodorous, shewed me a roote heereof, that waied halfe an hundred waighte, and of the bigneſſe of a childe of a yeere olde." To this Linneus ascribes the quickness of its growth, though it springs late¹. With us the young shoots begin to appear in march, and the plant flowers in may.]

The roots have been formerly, by impostors brought into an human shape, carried about the country, and shown for Mandrakes to the common people. The method which these people practised was, to open the earth round a young thriving Bryony plant, being careful not to disturb the lower fibres of the root, to fix a mould such as is used by those who make plaster figures close to the root, fastening it with wire to keep it in its proper situation, and then to fill in the earth about the root, leaving it to grow to the shape of the mould, which is effected in one summer. [See *Atropa Mandragora*.

This root is a famous hydragogue, is highly purgative and acrid. A dram of it in substance, or half an ounce infused in wine, is a full dose^k; others give two drams in dropſical caſes, and have used half an ounce of the fresh root, or three drams of it dry in decoction, without purging. Some it purges moderately, others violently, and it frequently becomes diuretic and diaphoretic¹. A cold infusion in water is used externally in sciatic pains. A cataplasm of it is a most powerful discutient. A decoction made with one pound of the fresh root is the best purge for horned cattle. The active virtues of this plant seem to give it a claim to more attention than is now bestowed upon it^m.]

The best season to take up the roots for use is in the autumn, as soon as the shoots decay; but the leaves and shoots are best in the spring, when they abound with juice.

[It is called in English Bryony, white Bryony, White wild Vine, wild Hops, wild Nep, and Tetterberry. In German, Zaunrube, Stickwurz. In Dutch, Witte Bryone, wilde Wyngaard. In Swedish, Hundroſva. In Danish, Valſkrove, Galdebær, Hundebær. In French, Bryone, Couleuvrée. In Italian, Brionia, Vite bianca. In Spanish, Nueza alba.

3. Leaves heart-shaped, the side divisions shortest; the upper surface is marked with dots, very close but scarcely visible: there are callous tubercles on the veins and peduncles. The berries are round and largeⁿ. Native of the island of Ceylon. Introduced in 1778, by Mess. Gordon and Græfer^o.

4. Stem shrubby, smooth, large, branching, climbing with simple tendrils. Leaves roundish, five-angled, not lobed, smooth on both sides, scarcely toothletted, obtuse, alternate petioled; some concave glands are directly under the base, and one or two farther off. Flowers large, whitish, androgynous, lateral, on one-flowered peduncles. Berry roundish, red, smooth, five-celled. Seeds few, oblong, obtuse, compressed. Native of India and Cochinchina^p. Introduced in 1783, by Mr. John Græfer¹.

5. Stem angular, rough. Leaves on long petioles, five-angled, the lower angles shorter; the tops of the petioles have two side teeth, which at first were glands, as in *Cucurbita lagenaria*. There are tendrils from the axils. Native of Ceylon^r.

6. Leaves rugged on the upper surface, more so beneath on the rib and nerves. Peduncles more mucronated than the stem, so as to be in a manner prickly. Corolla yellow, rough with hairs or tomentose within; on the outside smooth, as is also the germ. Fruit sessile, the size of a cherry, red with six milk-white lines^s: within three-celled; the pulp of the cells gelatinous-membranaceous, two-celled, green, easily separable from the cells themselves. Seeds six, one in each cell^t. Native of Ceylon.

7. Upper leaves rugged about the edge, with pinatifid, somewhat linear-shaped, acute divisions. Berries solitary, round with a point or beak^u: rind fleshy, thickish, orange-coloured on the outside, within separate from the pulp, which is membranaceous-spongy, regularly divided into six cells, but sometimes having only four. In each cell is one seed, which is ovate-globular, at the sides and especially towards the navel compressed to a sharp edge, pale brown, with little bristles or very minute scales scattered over it^v. Native of the Cape of Good Hope. Cultivated in 1759, by Mr. Miller^w.

8. Root long, running deep, but not so large as that of the common sort, covered with a brown bark. Twigs long and slender. The whole plant is rough. Leaves divided like those of the common sort, but less, they are streaked with white, or have white spots. Flowers pale, streaked, larger than in the common sort, on long pedicels. Fruit semi-globular, divided at top into two parts, red when ripe, and containing two seeds. Native of the island of Crete or Candia, whence the seeds were sent by Honorius Bellus to Caspar Bauhin, who sowed them in Zuinger's garden, having at that time intermitted the culture of his own garden^x. Cultivated here by Mr. Miller before 1759.

9. This is a native of the Cape, where it was found by Thunberg and Masson. It was introduced here in 1774, and flowers in september and october^y.

10. Stems five-cornered, hispid, very rugged, as is the whole plant. Tendrils simple. Leaves blunt, unequally toothed, with the edge a little curled: petioles hispid. Peduncles many, axillary, short. Calyx bell-shaped, five-toothed. Corollas small, very like those of *Melothria*, yellow. Fruits spherical.

It has altogether the stature of *Melothria*, but the whole plant is hispid and rugged, and has the stamens of Bryony^z.

It is a native of the East Indies, where it was found by John Gerard Koenig, M. D. and was introduced here in 1781, by Sir Joseph Banks, Bart. It flowers from may to july^{aa}.

11. The leaves have three angular lobes, sharp; with very minute hairs on the upper surface; pale underneath, dotted-scaly, an inch long. It creeps on walls. Native of Japan^{ab}.

12. This is very easily distinguished from its congeners by the leaves being not in the least cordate at the base, but subdecurrent along the petioles.

13. This, and the foregoing are natives of the Canary islands, where they were observed by Masson, and whence they were introduced here in 1779^{ac}.

14. This is a native of Jamaica^{ad}.

16. Root and stems like those of common Bryony, the latter the thickness of a quill at bottom and angular, towards the top deeply streaked, dark-green. Leaves resembling those of the Fig, but smaller, deeply cut into five lobes, narrower at bottom, broader at top, narrower and smaller at the ends of the twigs, here and there toothletted about the edge, hairy and very rough, the upper surface deep green, the lower whitish. Berries somewhat larger than those of the common sort. Native of Buenos Ayres. Cultivated in the Eltham garden about 1726^{ae}.

^a Withering.

^m Withering.

ⁱ Fl. suec. p. 344.

ⁿ Linn.

^o Hort. kew.

^r Hort. kew.

^k Withering.

^p Linn. and Loureiro.

^s Linn.

¹ Villars.

² Linn.

³ Hort. kew.

⁴ Linn.

⁵ Gærtn.

⁶ Bauh. prodr.

⁷ Hort. kew.

⁸ Swartz.

⁹ Linn.

¹⁰ Thunberg.

¹¹ Dillenius.

¹² Gærtn.

¹³ Hort. kew.

¹⁴ Hort. kew.

B R Y

17. Stem herbaceous, slender, scandent, cirrhose. Flowers androgynous, white, axillary. Calyx none. Corolla tubulous, with a five-parted, upright border. Filaments placed at the bottom of the corolla, with three alternate warted glands. Berry ovate, acute, small, red, one-celled; containing a few ovate arilled seeds.

Native of China, about Canton.

18. Stem shrubby, grooved, climbing by trifid tendrils. Leaves cordate, ferrate-repand, smooth on both sides. Stipules ferrate. Flowers androgynous, white, axillary, solitary. Berry ovate, sharpish, smooth, yellow, an inch and half long, five-celled, and many-seeded.

Native of Cochinchina.

19. Stem herbaceous, middle-sized, marked with four grooves, branching, scandent and cirrhose. Leaves cordate, toothletted, alternate, petioled. Flowers androgynous, white, large, axillary, solitary, on long peduncles. Calyx one-leafed, the tube at bottom cylindric, at top ovate, dilated; border five-cleft, with linear segments. Corolla almost wheel-shaped, fixed to the mouth of the calyx, segments ovate-oblong. Filaments placed on the middle of the tube of the calyx. Anther one, large, oblong-ovate, placed on the three filaments in form of a tripod. In the female flower, germ inferior, ovate-oblong, marked with several grooves. Style filiform, shorter than the tube. Stigma oblong, three-cornered, trifid at the tip. Berry ovate, sharpish at both ends, red, smooth, middle-sized. Seeds ovate-oblong, compressed, smooth. It differs from the other Bryonies, but cannot so well be placed in any other genus: we must therefore either leave it here, or constitute a new genus. In habit it approaches to *B. scabrella*.

Native of Cochinchina in hedges^b.]

PROPAGATION AND CULTURE.

1, 2. The common European Bryony may be cultivated in a garden for use, by sowing the berries in the spring, on a dry poor soil. In two years time the roots will grow to a large size, if the plants be not too close. But it is common enough on dry banks and in hedges, in many parts of England.

3, &c. The other species being natives of the East and West Indies, the Canary islands, or the Cape of Good Hope, require the protection of the bark or dry stove, according to the climate they come from.

These are also propagated by seeds, sown on a hot-bed. When they are fit to transplant, they should be put into pots, filled with light fresh earth. When they have taken good root, they should have as much air as possible, and may frequently be refreshed with water in dry weather. Several of them will endure the open air in the summer season; but in winter they must all be sheltered, and then they should have very little water. They mostly flower in july, and in favourable summers will perfect their seeds.

8, 10, 15, 16. Some of the sorts are annual plants; these must be raised on a hot-bed early in the spring, and when the plants are about three inches high, they should be each transplanted into a small pot filled with fresh light earth, and plunged into a hot-bed of tanners bark, observing to water and shade them until they have taken root. When the plants are grown so large, as to ramble about on the surface of the bed, and begin to entangle with other plants, they should be shifted into larger pots, and placed in the bark-stove, where their branches may be trained to the wall, or against an espalier, that they may have sun and air, which is absolutely necessary for their producing fruit. When these plants are full of fruit, they make a pretty variety in the stove among other exotic plants.

[BRYONIA. See *Cissus*, *Convolvulus*, *Cucumis*, *Melothria*, *Rajania*, *Tamus*, *Tournefortia*.

BRYONIAE SIMILIS. See *Dioscorea*.

^b Loureiro:

B U B

BRYONIOIDES. See *Cissus* and *Sicyos*.

BRYUM. (From *Bryon*, germino, on account of the many branches it produces.)

A genus of Moss, distinguished by a capsule covered with a lid, and over that a smooth veil. But these characters it has in common with the *Mnium* and *Hypnum*, two other genera, much resembling this. The peculiar note of the *Bryum* is, that the thread or little stem supporting the fructification, grows from a tubercle at the ends of the stem and branches.

Linneus has thirty-seven species. Hudson has forty-five, besides many varieties. Lightfoot has twenty-nine described particularly, with many good observations. Withering sixty-five, besides many varieties, well distinguished. Allioni has twenty-eight species. Haller enumerates thirty-three. Mr. Curtis has figured *Bryum scoparium* 1. 69.—*undulatum* 70.—*hornum* 71.—*truncatum* and *viridulum* 2. 70.—*subulatum* 3. 66.—*argenteum* 67.—*cæspitium* 67.—*barbatum* 4. 65. Many others are figured by Dillenius, Vaillant, in *Flora Danica*, by Dickson, Hedwig, &c.

Hedwig has separated many of Linneus's *Bryums* from this genus, and Schreber has adopted his corrections and improvements. See n. 1638. 1640. 1642. 1643. 1644. 1645. 1647. 1648. 1654. of his genera.

The character of this genus, as it stands there is as follows.

CAPSULE ovate-oblong. *Peristomium* double: outer with sixteen broadish, sharp teeth; inner membranaceous, plaited and keeled, jagged; jags broadish, capillary, alternate.

MALES, capitate, or discoid, or gemmaceous, on the same or a different plant.

OBS. *Bryum* Hedw. Males capitate.

Mnium Hedw. Males discoid.

Webera Hedw. Inner *Peristomium* with and without cilia.]

BUBON. (Βουβωνιον, Hippocr. & Diosc. From βουβων, inguen, the groin, or a tumour in that part, or elsewhere; which this herb was supposed to cure.)

Lin. gen. n. 350. Reich. 380. Schreb. 482. Gærtn. t. 23. Juss. 221.

Class. 5. 2. Pentandria Digynia.

Nat. order of *Umbellatæ*, or *Umbelliferae*.

GENERIC CHARACTER.

CAL. Umbel universal of about ten rays, the middle ones shorter. Partial of fifteen to twenty rays. Involucre universal five-leaved; leaflets lanceolate-acuminate, patulous, equal, much shorter than the umbel, permanent. Partial with rather more leaflets, of the same shape, the length of the umbellule. Perianth proper five-toothed, very small, permanent.

COR. universal uniform: all the floscules fertile.

Proper of five, lanceolate, inflex petals.

STAM. Filaments five, simple, the length of the corollule. Anthers simple.

PIST. Germ ovate, inferior. Styles two setaceous, permanent, hardly the length of the corollule, spreading and reflex. Stigmas obtuse.

PER. none. Fruit ovate, striated, villose; bipartile; crowned.

SEEDS two, ovate, flat on one side and convex on the other, striated, villose.

OBS. *B. Galbanum* has many-leaved involucre.

ESSENTIAL CHARACTER.

Fruit ovate, striated, villose.

SPECIES.

1. *Bubon macedonicum*. Macedonian Parsley.

Lin. spec. 364. Reich. 697. hort. cliff. 95. upf. 62.

mat. med. 81. Blackw. t. 382. Plenck, ic.

t. 194. Gærtn. fruct. 1. 102. Lour. cochinch.

179.

Apium macedonicum. Bauh. pin. 154. Raii hist. 463.

Daucus maced. Rivin. pent. t. 42.

Petroselinum maced. Lob. ic. 708. Ger. 864. 2.

f. 1. emac. 1016. f. 2. Park. 924. 1.

Leaflets rhomb-ovate; gash-toothed, teeth acuminate: umbels very numerous; seeds rough with hairs.

2. *Bubon Galbanum*. *Lovage-leaved Bubon*.
Lin. spec. 364. *syst.* 285. *Reich.* 697. *mant.* 335.
hort. cliff. 96. *mat. med.* 82. *Jacqu. hort.* 3. 21.
t. 36. *Berg. cap.* 77. *Woodv. bot. med.* 34.
t. 12. *Plenck, ic. t.* 195.
Anisum africanum, &c. *Pluk. alm.* 31. *t.* 12. *f.* 2.
Ferula afr. galbanifera, &c. *Herm. par. t.* 163.
Leaflets ovate-wedge-form acute finely serrated; um-
bels few; seeds smooth; stem shrubby glaucous.
3. *Bubon gummiiferum*. *Gum-bearing Bubon*.
Lin. spec. 364. *Reich.* 698.
Fer. afr. galb. fol. myrrhidis. *Comm. hort.* 2. 115.
t. 58.
Leaflets gashed acuminate; the lower ones broader;
seeds smooth; stem shrubby.
4. *Bubon rigidus*. *Stiff-leaved Bubon*.
Lin. spec. 364. *Reich.* 698. *hort. cliff.* 95.
Fer. durior, f. rigidis et brevissimis foliis. *Bocc.*
mus. 2. 84. *t.* 76. *Barr. rar.* 61. *t.* 77.
Leaflets linear.
- [5. *Bubon lævigatum*. *Smooth Bubon*.
Ait. hort. kew. 352.
Leaflets lanceolate very obtusely and obscurely crenated;
seeds smooth; stem shrubby.]

DESCRIPTIONS, &c.

1. Macedonian Parsley sends out many leaves from the root, the lower growing almost horizontally, spreading near the surface of the ground: the foot-stalk of each leaf divides into several other smaller, garnished with smooth rhomb-shaped leaves, which are of a bright, pale-green colour, indented on their edges. In the center of the plant arises the flower-stem, which is little more than a foot high, dividing into many branches, each being terminated by an umbel of white flowers, which are succeeded by oblong hairy seeds.

[They are of a bay-brown colour on the convex side, marked with five raised pale lines; and beset all about with hoary hairs; on the other side they are flat or very slightly concave*.

Loureiro says, that the stem is annual, upright, straight, with many ascending branches: the stem-leaves rhomb-ovate and gashed; the branch-leaves oblong, smallish, and irregular: the umbels many and flattish: the petals lanceolate-ovate and a little bent in: the fruit oblong-ovate, slender, and very strong-scented.

Native of Greece and Barbary, and probably of the East Indies. It flowers with us in July, or from June to August.] In warm countries it is biennial, but in England the plants seldom flower till the third or fourth year from seed; but whenever they flower they always die.

It was cultivated by John Gerarde in 1596^b.

In some parts of the east they use this plant to scent their clothes; the smell is very strong, and rather disagreeable to Europeans^c.

The plant, but especially the seed, is esteemed to be diuretic, emmenagogue, and carminative; the seeds are an ingredient in Theriacal.]

2. Lovage-leaved Bubon rises with an upright stalk to the height of eight or ten feet, which at bottom is ligneous, having a purplish bark, covered with a whitish powder, which comes off when handled; the upper part of the stalk is garnished with leaves at every joint, the foot-stalks half embracing them at their base: branching out into several smaller, like those of the common Parsley, and set with leaves like those of Lovage, but smaller, of a gray colour; the top of the stalk is terminated by an umbel of yellow flowers, which are succeeded by oblong channelled seeds, having a thin membrane or wing on their border. It flowers in August, but has not produced seeds in England. When any part of the plant is broken, there issues out a little thin milk of a cream colour, which has a strong scent of Galbanum.

[Linneus says, that the leaflets are sharply serrate, and rather rigid: the umbels dense and large: the involucre many-leaved: the fruit cylindric,

not streaked: the seeds even, without any membranous wing.

It is a native of the Cape of Good Hope, and was also cultivated by Gerarde in 1596^d.

This is the species from which the drug called Galbanum is obtained, though it is not perhaps entirely clear whether it may not also be gained from different species of this genus. It is obtained partly by spontaneous exudation from the stem, but more commonly by incision in the stalk a little above the root, from which it immediately flows, and soon becomes sufficiently concreted for gathering. This Gum-resin medicinally considered may be said to hold a middle place between Asafœtida and Ammoniacum; but it is far less fetid than the former. It has the credit of being highly useful in hysterical cases, and of promoting and correcting various secretions and uterine evacuations. Externally it has been applied to expedite the suppuration of indolent tumours, and especially as a warm, stimulating plaster. It is an ingredient in the pilulæ e gummi, the emplastrum lithargyri cum gummi of the London Pharm. and in the empl. ad clavos pedum of the Edin.]

3. Gum-bearing Bubon rises with a woody stalk about two feet high, with leaves at each joint branching out like those of the foregoing, but the leaflets are narrow and indented, like those of Bastard Hemlock. The stalk is terminated by a large umbel of small white flowers, which are succeeded by seeds like those of the former sort.

[This also is a native of the Cape; and, as appears from the first folio edition of Mr. Miller's dictionary, was cultivated in 1731. It flowers in July^e.]

4. This is a low perennial plant, having short stiff leaves, which are very narrow. The flower-stalk rises near a foot high, and is terminated by an umbel of small white flowers, which are succeeded by small, oblong, channelled seeds. It flowers in June, and the seeds ripen in September; but it is a plant of little beauty, and of no use that we are acquainted with. It grows naturally in Sicily, whence Mr. Miller received the seeds before 1759.

[5. This was observed at the Cape of Good Hope by Masson: and was introduced here in 1774. It flowers from December to February^f.]

PROPAGATION AND CULTURE.

1. It is propagated by seeds, which should be sown on a bed of light sandy earth, either early in the autumn, or in April; and if the season prove warm and dry, the ground should be shaded in the heat of the day, and frequently refreshed with water, which is a sure method to bring up the plants; but where this is not practised, the seeds often fail, or remain long in the ground. When the plants come up, they will require no other care but to be kept clean from weeds, till the beginning of October, when they should be carefully taken up, and planted in a warm border of dry ground; and a few of them should be put into pots, that they may be sheltered under a frame in winter; for in severe frost, those which are exposed to the open air, are frequently killed; though, in moderate winters, they will live abroad without covering.

2, 3. These are propagated by seeds, which should be sown in pots filled with light loamy earth, as soon as they arrive; if it happen toward autumn, they should be plunged into a bed of tanner's bark, where the heat is gone, and screened from frost in winter. In the spring the plants will come up, and by the middle of April will be fit to remove, when they should be carefully shaken out of the pots, being careful not to tear off their roots, and plant them each into a separate small pot, filled with the same earth as before; then plunge the pots into the tan again, and water them to settle the earth to the roots of the plants, and shade them from the sun in the day time, until they have taken new root; after this they must be inured gradually to bear the

* Gærtner.

b Hort. kew.

c Loureiro.

d Hort. kew.

e Ibid.

f Ibid.

open air; into which they should be removed in June, and placed with other exotic plants in a sheltered situation, where they may remain till autumn, when they must be removed into the green-house, and placed where they may enjoy as much of the sun and air as possible, but defended from frost.

In winter these plants should have but little water given them, for much wet is very injurious to them: in summer, when they are exposed to the open air, they must be frequently refreshed with water in dry weather; but at no time should have too much wet, for that will rot their roots.

These plants make a pretty variety in the green-house in winter, and when they are placed abroad in the summer with other green-house plants, they have a good effect, especially when they are grown to a large size. They generally flower the third year from seeds, but their flowers are produced so late in summer, that the seeds have seldom time to form before the cold comes on in the autumn; in warm summers however, the third sort will perfect seeds, if it stand in a warm sheltered situation.

4. The fourth sort is also propagated by seeds which should have a dry soil and warm situation, where the plants will continue several years.

BUBONIUM. See *Inula*.

[BUBRŌMA. (From βους, an ox, and βρωμα, food.)
Lin. gen. Schreb. n. 1216. Guazuma. Plum. 18.
Juss. 276. Theobromæ spec. edit. prior. Mill.
dict. & Houtt. reliqu. t. 14.

Class. 18. 2. Polyadelphia Dodecandria.

Nat. order of Columniferae. Malvaceæ Juss.

GENERIC CHARACTER.

CAL. Perianth three-leaved: leaflets ovate, concave, acute, spreading, deciduous; two a little larger than the rest.

COR. Petals five: claws large, narrow at the base, vaulted, helmet-concave, inflex at the tip, beaked, emarginate, converging, inserted into the nectary at the base; borders semibifid, with linear, spreading segments.

Nectary, a bell-shaped pitcher, divided into five, equal, lanceolate, sharp, minute, upright segments, spreading a little at the tip.

STAM. Filaments five, filiform, upright, bent outwards at the tip, outwardly fastened to the nectary, alternate with its segments and a little shorter, trifid at the tip; the divisions very short. Anthers on each filament three, two at the tip on each side, the third a little lower, each placed on one of the divisions of the filaments; the cells margined.

PIST. Germ superior, roundish, hispid. Style filiform, almost the length of the stamens. Stigma simple.

PER. Capsule subglobular, woody, muricated all round with club-shaped tubercles, terminated by a five-rayed leafy star, punched with a tenfold row of little transverse dots, five-celled, valveless, not opening: partitions woody-fibrous: cells covered on the inside with a thin membrane.

SEEDS very many, angular, fixed in a double row to a central, subglobular receptacle.

ESSENTIAL CHARACTER.

Cal. three-leaved. Pet. five, arched, semibifid. Anthers on each filament three. Stigma simple. Caps. muricate, ending in a five-rayed star, punched with holes, five-celled, valveless, not opening.

SPECIES.

1. Bubroma Guazuma. Elm-leaved Bubroma or Theobroma, or Bastard Cedar.]

Theobroma Guazuma. Lin. spec. 1100. Reich. 3. 582. mant. 445. hort. cliff. 379. Mill. dict. Swartz obs. 291. Brown. jam. 306. 1. Trew. Ebret. 40. t. 76.

Guazuma. Plum. gen. 36. ic. 144. [Reliqu. houtt. 6. Cenchamedia. Pluk. phyt. t. 77. f. 2.

Alni fructu morifolia, &c. Sloan. jam. 2. 18. Raii dendr. 11.]

DESCRIPTION, &c.

This tree rises to the height of forty or fifty feet in the West Indies, having a trunk as large as a middle-sized man's body, covered with a dark-

brown furrowed bark, sending out many branches toward the top, which spread out wide every way. Leaves oblong-heart-shaped, alternate, near four inches long, and two broad near the base, ending in acute points, ferrate, having a strong midrib, and several transverse veins, of a bright green on their upper, and pale on their under surface, on short petioles. The flowers are in axillary clusters; they are small and of a yellow colour.

[Linneus observes, that the branches have a nap scattered over them; that they have no buds; that the foliation is slightly involute, with the ferratures plaited and imbricate; that the leaves are bluntly and unequally ferrate, three-nerved, rugged, veined, shining, hanging down, having the appearance of those of the nettle; that the stipules are opposite, subulate-lanceolate, approximating to the branches, with a melliferous pore on the outside; that the petioles are round, only one-sixth of the length of the leaves, thicker towards the leaf; that the flowers are in corymbs, like those of Azenia.

The description of the flower by Swartz differs from that given above from Schreber. The calyx, according to him is four-leaved, (in Houttoun's figure it is three-leaved, Jussieu makes it five-parted), the leaflets bent down; the petals dusky yellow, five-nerved, pubescent, with lanceolate awns or bristles inserted into the divisions of the petals, and longer than them, upright and purple. Nectary goblet-shaped, smaller than the petals, inclosing the pistil, five-cornered and five-toothed. Filaments inserted into the base of the nectary, and of the same length with it, trifid from the middle, lying under the arched petals. Anthers three, deflex, simple. Germ ovate, rough at the end, echinate when viewed through a magnifying-glass. Style the length of the stamens. Stigma five-cleft. Fruit hard, rugged all over with tubercles, the rind perforated like a sieve. Seeds ovate, unequal.

It sleeps with the leaves hanging quite down, whilst the petioles remain entirely stiff and straight^a.

From the similitude of this tree to the Elm, it is called by the French *Orme d'Amerique* and *Bois d'Orme*. In Jamaica it is known by the name of *Bastard Cedar*, and is peculiar to the low lands there, forming a very agreeable shade for the cattle, and supplying them with food in dry weather, when all the herbage is burned up or exhausted. The seeds are very mucilaginous, but otherwise agreeable to the palate. The wood is light, and so easily wrought, that it is generally used by coachmakers (in Jamaica) in all the side pieces^b.] It is also frequently cut into staves for casks.

[A decoction of the inner bark is very glutinous, and very like that of the Elm; it is said to be excellent in the Elephantiasis, a disorder to which the negroes are much subject^c.

This tree was cultivated by Mr. Miller, in 1739. It flowers here in August and September^d.]

PROPAGATION AND CULTURE.

The seed should be sown on a good hot-bed in the spring, and when the plants are fit to remove, they should be each planted in a separate small pot, and plunged into a hot-bed of tanner's bark, observing to shade them from the sun till they have taken new root; then they should be treated in the same way as the Coffee-tree, keeping them always in the tan-bed in the stove.

BUCANEPHYLLUM. See *Sarracenia*.

BUCEPHALON. See *Trophis*.

BUCEPHALOPHORUS. See *Rumex*.

BUCERAS. See *Bucida* and *Trigonella*.

BUCCAFERREA. See *Ruppia*.

[BUCHNĒRA. (So named by Linneus in honour of A. E. Buchner, a German naturalist.)

Lin. gen. n. 772. Reich. 833. Schreb. 1035. hort. cliff. 501. Gart. t. 55. Piriepa. Aublet. 253. Juss. 100.

Class. 14. 2. Didynamia Angiospermia.

Nat. order of Personatae. Pediculares Juss.

^a Linn.

^b Browne.

^c Swartz.

^d Hort. kew.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, obscurely five-toothed, scarious, permanent.

COR. monopetalous. *Tube* very long, filiform, bowed. *Border* flat, short, five-cleft, equal: the two upper divisions very short, reflex; the three lower cordate, nearly equal.

STAM. *Filaments* four, very short, in the throat of the corolla; the two upper ones prominent outward, short. *Antlers* oblong, obtuse.

PIST. *Germ* ovate-oblong. *Style* filiform, the length of the tube. *Stigma* obtuse.

PER. *Capsule* acuminate, covered, two-celled, gaping at the top into two parts. *Partition* contrary.

SEEDS numerous, angular. *Receptacle* fastened to the middle of the partition.

OBS. *The calyx and corolla vary in figure, and the stamens in their insertion.*

ESSENTIAL CHARACTER.

Cal. obscurely five-toothed. Cor. border five-cleft, equal: lobes cordate. Caps. two-celled.

SPECIES.

1. *Buchnera americana*. North-American *Buchnera*.
Lin. spec. 879. *syft.* 571. *Reich.* 3. 177.
Cortusæ f. *Verbasci* species, caule non ramoso, flor. violaceis. *Gron. virg.* 74.
Leaves toothed lanceolate three-nerved.
2. *Buchnera cernua*. Drooping *Buchnera*.
Lin. syft. 571. *Reich.* 3. 177. *mant.* 251.
Leaves wedged five-toothed smooth, flowers spiked, stem shrubby.
3. *Buchnera cuneifolia*. Wedge-leaved *Buchnera*.
Lin. syft. 571. *suppl.* 288.
Leaves wedge-form smooth seven-toothed at the end.
4. *Buchnera cordifolia*. Heart-leaved *Buchnera*.
Lin. syft. 571. *suppl.* 287.
Stem four-cornered; leaves opposite cordate three-nerved serrate, racemes terminal subspiked.
5. *Buchnera grandiflora*. Great-flowered *Buchnera*.
Lin. syft. 571. *suppl.* 287.
Scabrous; leaves opposite sessile oblong entire; peduncles axillary one-flowered two-leaved; calyx funnel-form.
6. *Buchnera æthiopica*.
Lin. syft. 572. *Reich.* 3. 178. *mant.* 251.
Leaves three-toothed; flowers peduncled; stem shrubby.
7. *Buchnera capensis*.
Lin. syft. 572. *Reich.* 3. 178. *mant.* 88.
Leaves toothed linear; calyxes pubescent.
8. *Buchnera asiatica*. Eastern *Buchnera*.
Lin. spec. 879. *syft.* 572. *Reich.* 3. 179.
Leaves quite entire linear; calyxes scabrous.
9. *Buchnera pinnatifida*. Pinnatifid-leaved *Buchnera*.
Lin. syft. 572. *suppl.* 288.
Leaves pinnatifid smooth.
10. *Buchnera viscosa*. Clammy *Buchnera*.
L'Herit. stirp. nov. 2. t. 34. *Ait. hort. kew.* 2. 357.
Curtis magaz. t. 217.
Leaves linear-lanceolate loosely toothed somewhat glutinous; flowers peduncled; stem shrubby.
11. *Buchnera elongata*.
Swartz prodr. 92.
Piripea palustris. *Aubl. guian.* 627. t. 253.
Agératum. *Plum. ic.* 19. t. 17.
Leaves entire opposite, calyxes somewhat hairy longer than the fruit.

DESCRIPTIONS, &c.

1. Stem scarcely branching. Flowers in a spike remote from each other. Two of the stamens in the jaws of the corolla, and two in the middle of the tube. The herb grows black in drying. It is a native of Virginia and Canada^a.

2. This is a shrub, half a foot in height, branching regularly, a little jointed from the scars left by the leaves, purplish. Leaves opposite, but often in threes, sessile, smooth and even, not shorter than the internodes, with two sharp serratures on each side of the tip. Spikes terminating, solitary, oblong. Flowers sessile, erect; with a linear, sharp bracte, shorter than the calyx, and two shorter, la-

^a Linn.

teral bristles. Calyx tubular, oblong, semiquinquefid, equal; the segments connected by a membrane. Corolla white, with a filiform tube, twice as long as the calyx, and bent back; border flat, five parted; segments subovate. Anthers within the jaws, two lower than the other two. Stigma inclosed, reflex, thickish. Native of the Cape of Good Hope^b.

3. This was found at the Cape by Thunberg^c.

4. This was observed near gardens about Tanjaur or Tanjour in the East Indies by Koenig, on whose authority it is referred to this genus, from which in habit it is widely different; for it is more like the Vervains^d.

5. This is a very beautiful plant, with an upright, smooth, and very simple stem. Leaves five-nerved. Peduncles on the top of the stem, solitary, shorter than the leaves; in the middle, two opposite, linear-subulate bractes. Calyx cylindric, long, five-toothed, only half the length of the tube of the corolla, which gradually spreads out into a flat, large, five-lobed border; the lobes rounded. Linneus, not having seen the fruit, is not certain that it belongs to this genus; and observes, that it is not much unlike the Gerardias, drying black like *G. nigra*. It was found in South America, by Mutis^e.

6. Stem suffruticose, half a foot high, extremely branching; branches scarce apparently pubescent. Leaves opposite, sessile, lanceolate, the size of those of knot-grass (*Polygonum aviculare*), smoothish, and generally having a tooth on each side below the tip. Flowers towards the tops of the branches, lateral, opposite. Peduncles one-flowered, longer than the leaves, erect. Calyx somewhat hispid. Corolla yellow, the tube quite as long as the calyx. Capsule ovate-oblong, scarcely longer than the calyx. Native of the Cape of Good Hope^f.

7. This is a small plant, with the flowers in terminating spikes, and is allied to *Rhinanthus africanus*. It differs from the foregoing, in having a pubescent, viscid stem, branching only at top, two remote teeth on each side to the leaves, and an annual root. It is also a native of the Cape^g.

8. The corolla has a bifid purple border, one of the segments almost upright, and trifid, the other spreading, and widely cordate^h: the tube is filiform, twice as long as the calyx, bent in at the neck, inclosing the four stamens. The spikes are long, with the flowers alternate and remote. Leaves rugged, alternate, but towards the base opposite. Stem with alternate branches, and the habit of *Euphrasia*, obtusely four-cornered. Native of Ceylon and Chinaⁱ.

9. Found at the Cape of Good Hope, by Thunberg^k.

10. The flowers are purple with a yellow eye. It cannot boast much beauty, but it occupies little room, and flowers during most of the summer. It was found at the Cape by Masson, and was introduced here in 1774^l.

11. Native of South America and Jamaica^m.

PROPAGATION AND CULTURE.

Of these plants the tenth only has yet been introduced into culture among us, and that grows readily from cuttings, as probably many of the others will do. The first sort is hardy. The second, third, sixth, seventh, ninth, and tenth, being natives of the Cape, will require the protection of the dry stove, conservatory, or glass-case. The fourth and eighth being natives of the East Indies; the fifth and eleventh of South America and the West Indies, must be kept in the bark stove, whenever they shall be cultivated among us.]

[BUCIDA. (Browne had named this tree Buceras, from the shape of a process terminating the spike, like a bull's horn. Linneus, I know not why, changed it to Bucida. Nicander, in *Alexiph.* has a plant named Βουκερας or Βουκεραος.)

^b Linn.^c Linn. mant.^d Linn. suppl.^e Linn. suppl.^f Ibid.^g Linn. syft.^h Hort. kew.ⁱ Ibid.^j Linn. spec.^k Swartz.

B U D

Lin. gen. n. 541. Reich. 602. Schreb. 758.

Buceras. Brown. 1. 23. f. 1.

Class. 10. 1. Decandria Monogynia.

Nat. order of *Holoracea*. *Eleagni* Juff. p. 75.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, bell-form, obscurely five-toothed, superior, permanent.

COR. none.

STAM. *Filaments* ten, capillary, inserted into the base of the calyx, and longer than it. *Anthers* cordate, erect.

PIST. *Germ* inferior, ovate. *Style* filiform, the length of the stamens. *Stigma* obtuse.

PER. *Berry* dry, ovate, one-celled, crowned with the calyx.

SEED one, ovate.

ESSENTIAL CHARACTER.

Cal. five-toothed, superior. Cor. none. Berry one-seeded.

SPECIES.

1. *Bucida Buceras*. *Olive Bark Tree*.

Lin. syst. 409. Reich. 2. 303. amæn. 5. 397. Swartz obs. 180.

Buceras. Brown. jam. 221. t. 23. f. 1.

Mangle. Sloan. jam. 2. 67. n. 54. t. 189. f. 3. Raii dendr. 116. n. 2.

DESCRIPTION, &c.

This is a tree growing from twenty to thirty feet in height; the branches and twigs are divaricate or flexuose, roundish, smooth and even. The leaves are crowded at the forkings of the twigs; they are petioled, obovate, quite entire, nerved, veined, smooth, and the younger ones are hoary underneath. Flowers in racemes (spikes, *Lin.* *Browne*, and *Juss.*) from the axils of the crowded leaves, simple, longer than the leaves, spreading, many-flowered. Peduncles round, long, hoary; flowers yellowish. The ends of the twigs (flower-spikes, *Browne*) sometimes shoot out into a monstrous excrescence, something in the form of a bull's horn (whence the name of the tree); seldom less than three inches in length, though never above a line and half in diameter. Calyx hoary without, tomentose within. Filaments twice as long as the calyx. Anthers roundish, yellow. Germ flattened, with ten streaks at the base. Style subulate, hirsute at the base.

Browne observes, that this tree is remarkable for its slender crooked branches, and the tufted disposition of the leaves: that it grows to a considerable size, is reckoned an excellent timber tree, and that the bark is greatly esteemed by the tanners.

It is a native of the West Indies, in low swampy clayey lands near the coast; flowering in spring. In Jamaica it is called *Black Olive*; in Antigua, *French Oak*. In the French islands, *Grignon*.

BUCK-BEAN. See *Menyanthes*.

BUCKLER-MUSTARD. See *Biscutella* and *Clypeola*.

BUCK'SHORN. See *Plantago*.

[BUCKTHORN. See *Rhamnus*.

BUCK-WHEAT. See *Polygonum*.]

BUDDING. See *Inoculating*.

BUDDLEA. (Named by Dr. *Houssoun* from *Adam Buddle*, who is often mentioned in *Ray's synopsis*. His dried collection of British plants is preserved in the British Museum.)

Lin. gen. n. 140. Reich. 146. Schreb. 184.

Houss. philos. trans. & reliq. Houss. 1. 3. Gært. t. 49. Juss. 118.

Class. 4. 1. Tetrandria Monogynia.

Nat. order of *Personate*? *Scrophulariæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* very small, four-cleft, acute, erect, permanent.

COR. monopetalous, bell-form, four-cleft half way, erect, three times greater than the calyx: divisions ovate, straight, acute.

STAM. *Filaments* four, very short, placed at the divisions of the corolla. *Anthers* very short, simple.

PIST. *Germ* ovate. *Style* simple, shorter by half than the corolla. *Stigma* obtuse.

B U D

PER. Capsule ovate, oblong, two-furrowed, two-celled. SEEDS numerous, extremely minute; adhering to a fungous receptacle.

ESSENTIAL CHARACTER.

Cal. four-cleft. Cor. four-cleft. Stam. from the divisions. Caps. two-furrowed, two-celled, many-seeded.

SPECIES.

1. *Buddlea americana*. *Long-spiked Buddlea*.

Lin. spec. 162. Reich. 317. amæn. 5. 394. hort. cliff. 35. Amm. herb. 577. Brown. jam. 144. Swartz obs. 47.

Verbasci fol. minore arbor, &c. Sloan. jam. 2. 29. t. 173. f. 1. Raii dendr. 97.

Leaves ovate.

2. *Buddlea occidentalis*. *Spear-leaved Buddlea*.

Lin. spec. 162. Reich. 318. Gært. fruct. 1. 226. t. 49.

Ophioxylon. Pluk. alm. 270. t. 210. f. 1.

Leaves lanceolate.

[3. *Buddlea virgata*.

Lin. syst. 154. suppl. 123.

Leaves linear-oblong obtuse entire, racemes terminal, branches wand-like erect.

4. *Buddlea incompta*.

Lin. syst. 154. suppl. 123.

Leaves fascicled ovate hoary, branches flexuose rigid, racemes terminal.

5. *Buddlea globosa*. *Round-beaded Buddlea*.

Hope in æt. barlem. v. 20. par. 2. 417. t. 11.

Ait. hort. kew. 1. 150. Curtis magaz. t. 174.

Palquin. Feuillée it. 3. 51. t. 38.

Leaves lanceolate; heads solitary.

6. *Buddlea salviafolia*. *Sage-leaved Buddlea*.

Ait. hort. kew. 1. 150.]

Lantana salviafolia. Lin. spec. 875. Reich. 3. 167.

mant. 419. Mill. dict. n. 12.

Leaves lanceolate-ovate cordate wrinkled.

[7. *Buddlea asiatica*.

Lour. cochinch. 72.

Leaves lanceolate-linear wrinkled smooth, spikes full.

8. *Buddlea ternata*.

Lour. cochinch. 72.

Leaves ternate acuminate, peduncles one-flowered.

DESCRIPTIONS, &c.

1. This is a shrub, the height of a man (*Browne* says, four feet or better) branched, and all over hoary. Leaves ovate-lanceolate, opposite, serrate. Flowers in long, slender spikes, axillary and terminating; composed of little, opposite, many-flowered, crowded racemes. Corolla coriaceous, scarcely longer than the calyx; divisions upright, yellow within, hoary on the outside.

Sloane says, that it rises to nine or ten feet,] and *Miller*, ten or twelve feet in height, with a thick stem, covered with a gray bark, and sending out many opposite branches towards the top; that the leaves are covered with a brown hairy down; and that it was sent him by Dr. *Houssoun*, from Jamaica, in 1730.

[*Browne* informs us, that it is used in emollient baths and fomentations, and is thought to have all the properties of *Mullein*.

Swartz doubts whether it be different from the next species.]

2. This sort rises much taller than the first, and divides into a great number of slender branches, which are covered with a russet hairy bark, with long spear-shaped leaves, ending in sharp points: these grow opposite at every joint; at the end of the branches are produced branching spikes of white flowers, growing in whorls round the stalks, with small spaces between each. It has long, narrow, spear-shaped leaves growing between the spikes, whereas those of the other sort are naked. The leaves of this are much thinner than those of the first sort, and have scarce any down on their under side; the spikes of flowers grow more erect, and form a large loose spike at the end of every branch.

* *Swartz*.

It grows naturally in gullies or other low sheltered spots, in the West-Indies; the branches being too tender to resist the force of strong winds, are rarely seen in open situations.

It was sent to Mr. Miller from Carthage, by Dr. Houstoun.

[The capsule is described by Gærtner as small, pubescent with a short nap, covered with the calyx and corolla, which are also tomentose, elliptic, marked with a depressed furrow on each side: partition formed of the edges of the valves bent in, doubled and narrow. Receptacle fungous, oblong, in the axis of the fruit, strengthened by the partition. Seeds extremely numerous, irregular like sawdust, acuminate at both ends and outwardly as it were tailed, flattened a little, marked with raised rugged streaks, pale rufescent.

3. This has the habit of Hyssop. The branches and leaves are hoary with a very fine nap^b.

4. This and the foregoing were found at the Cape of Good Hope by Thunberg^c.

5. The leaves are ferrate, sessile, acuminate, tomentose underneath. The flowers are of a yellow or orange colour, in close peduncled heads from the axils two together on opposite sides of the stalk and branches.

It is a native of Chili; was introduced in 1774, by Mess. Kennedy and Lee; and flowers in may and june^d.]

6. This rises with a shrubby four-cornered stalk eight or ten feet high, covered with a pale loose bark, and sends out many side branches. Leaves five or six inches long, stem-clasping, acuminate, downy on the under side. The branches are terminated by loose spikes of pale purple flowers, covered with a mealy down.

[It has subovate stipules in pairs, which led Linneus to doubt whether it belonged to the genus *Lantana*, where he had placed it, before he had an opportunity of observing the fruit.

It is a native of the Cape of Good Hope; and was cultivated by Mr. Miller in 1760. It flowers in august and september^e.

7. Stem suffruticose, three feet high, with ascending branches. Leaves long, not interrupted. Calyx inferior, four-parted with subulate, upright segments. Divisions of the corolla rounded. Filaments placed below the mouth of the tube. Germ oblong. Style equal to the stamens. Stigma longish, bifid.

8. Stem suffruticose, two feet high, upright, round, branched. Leaflets lanceolate, ferrate. Flower white, on axillary peduncles. Segments of the calyx converging. Nectary hairy. Stigma bifid. These are both natives of Cochinchina^f.]

PROPAGATION AND CULTURE.

1, 2. They are propagated by seeds, which should be obtained from the countries where they naturally grow, for they do not perfect them in England. These should be brought over in their capsules or pods, for those which are taken out before they are sent seldom grow. They should be sown in small pots, filled with rich light earth, and very lightly covered with the same; for as these seeds are very small, if they are buried deep in the ground, they perish. The pots should be plunged into a moderate hot-bed, and must be every third or fourth day gently watered, being very careful not to wash the seeds out of the ground, by too hasty watering them. If the seeds are fresh and good, the plants will come up in about six weeks, provided they are sown in the spring; and if they grow kindly, will be large enough to transplant in about two months after. Then they should be carefully separated, and each planted into a small pot, filled with light rich earth, and plunged into the hot-bed again, observing to shade them from the sun until they have taken new root, as also to refresh them with water when they require it. After the plants have taken

^b Linn. suppl.

^c Ibid.

^d Hort. kew.

^e Ibid.

^f Loureiro.

fresh root in the pots, there should be fresh air admitted to them every day, in proportion to the warmth of the season; they must also be frequently, but moderately, refreshed with water. If the plants thrive well, they will have filled these small pots with their roots by the middle of august, at which time it will be proper to shift them into pots one size larger, that they may have time to take good root again, before the cold weather comes on. When these are new potted, the tan should be turned over to renew the heat; and if it is wanted, some fresh tan must be added to the bed, to encourage the roots of the plants. In this bed they may remain till autumn, when they must be removed into the stove, and plunged into the tan-bed; where they must constantly remain, for they are too tender to thrive in this country, if they are not so treated. During the winter they must have but little water, and should be kept warm; but in summer they should have fresh air admitted to them constantly when the weather is warm, and frequently sprinkled all over with water. With this management, the plants will flower the fourth year from seeds, and continue so to do every year after, and will make a good appearance in the stove.

5, 6. May be propagated by cuttings, on an old hot-bed in july, covered with a bell or hand-glass, and shaded from the sun: in a month they will have taken root, and may then be planted in pots, placed in the shade, till they have taken fresh root, when they should be removed to a sheltered situation till the winter; and then they must be preserved in the conservatory, or dry stove. The fifth will flower well and live through a mild winter in an open border, provided it be in a warm sheltered situation.

[**BUFFONIA.** (So named from the celebrated Count De Buffon.)

Lin. gen. n. 168. Reich. 180. Schreb. 225.

Juss. 300. Gærtn. t. 129. Sauvages. Alsinoides Raii.

Class. 4. 2. Tetrandria Digynia.

Nat. order of Caryophyllei.

GENERIC CHARACTER.

CAL. Perianth four-leaved, erect, permanent: leaflets subulate, keeled with membranaceous edges.

COR. Petals four, oval, emarginate, erect, equal, shorter than the calyx.

STAM. Filaments four, equal, the length of the germ. Anthers twin.

PIST. Germ ovate, compressed. Styles two, the length of the stamens. Stigmas simple.

PER. Capsule oval, compressed, one-celled, two-valved. SEEDS two, oval, compressed with a swelling, convex on one side.

OBS. Loeßling observed four stamens, but afterwards retracted; Alstroemer with attentive observation ever discovered that number; Gerard remarked sometimes two, seldom three, often four stamens. Villars four, sometimes two.

ESSENTIAL CHARACTER.

Cal. four-leaved. Cor. four-petalled. Caps. one-celled, two-seeded.

SPECIES.

1. *Buffonia tenuifolia.* Small *Buffonia*, or *Bastard Chickweed.*

Lin. spec. 179. syst. 167. Reich. 351. amæn. 1. 386.

Huds. angl. 72. With. 164. Ger. prov. 400.

Sauv. monsp. 141. Loeß. it. 44. Villars dauph.

650. Gærtn. fruct. 2. 220. t. 129.

Polygonum. Magn. monsp. t. 211. Raii hist. 1026. 9.

Herniaria. Magn. hort. t. 97.

Alsinoides, f. *Alfine polygonoides*, &c. Raii syn. 346. Pluk. alm. 22. t. 75. f. 3.

DESCRIPTION, &c.

Root annual, long, slender, firmly fixed, but having few, almost naked, filiform fibres. Stem half a foot to a foot in height, upright, round, commonly branched at the base; branches diffused, procumbent: there are also smaller branches higher up, which are straight, contracted, subdivided: the swelling

swelling joints are more frequent at bottom, and become very distant towards the top; the internodes are round, where there are no branches, but somewhat angular about the origin of the branches which are ancipital at the base; they are smooth and slightly streaked. *Leaves* in pairs at each joint, resembling grass leaves, coadunate at the base, with a short, subventricose, three-nerved sheath; they are linear-fetaceous, narrowing gradually, entire, smooth, very finely ciliate at bottom; the lower ones are longer, the upper ones shorter than the internodes; when the plant is in flower they are dry and shrivelled, but permanent. Rudiments of leaves and branches sometimes burst from the axils. *Flowers* in thin, filiform spikes (or contracted panicles), pressed close to the branches, at the base of the leaves; the lateral ones sessile and axillary, the terminating peduncled. Calyx herbaceous, quadrifid; segments lanceolate, sharp, concave within, white about the edge, diaphanous. Petals obtuse, membranaceous, diaphanous, shorter by half than the calyx, and fixed to the base of it; they are in pairs, approximating and opposite. Stamens two, sometimes four; filaments extremely slender, shorter than the corolla, fastened to the receptacle. Anthers saffron-coloured. Capsule splits at top into two parts. Seeds blackish, retuse at the end^a.

Linneus marks it as perennial, all other authors speak of it as annual. Ray first noticed this little plant, in England: he also found it near Montpellier. It is found wild in France, Italy, and Spain: and with us it has been observed by Mr. Ray on the sea coast of Lincolnshire about Boston; and by Mr. Doody on Hounslow heath. It flowers in may and june.

BUGLE. See *Ajuga*.

BUGLOSS, BUGLOSSA, and BUGLOSSUM. See *Anchusa*, *Asperugo*, *Borago*, *Lithospermum*, *Lycopsis*.

Viper's. See *Echium*.

BUGLOSSUM echioides. See *Picris*.

littoreum. See *Scævola*.

BUGULA. See *Ajuga*, *Cleonia*, and *Teucrium*.]

BULBINE. See *Anthericum*, and *Crinum*.

BULBOCASTANUM. See *Bunium*, and *Chærophylllum*.

BULBOCODIUM. (Βολβος a bulb, and κώδιον wool.)

Lin. gen. n. 407. Reich. 440. Schreb. 555. Juss. 54.

Class. 6. I. Hexandria Monogynia.

Liliaceous plants. Order *Spathaceæ*. *Narcissi* Juss.

GENERIC CHARACTER.

CAL. none.

COR. hexapetalous, funnel-form: claws very long, linear: throat connecting the petals: border erect; petals lanceolate, concave.

STAM. Filaments fix, subulate, inserted into the claws of the petals. Anthers incumbent.

PIST. Germ ovate-subulate, obtusely three-cornered, superior. Style filiform, the length of the stamens. Stigmas three, oblong, erect, channelled.

PER. Capsule triangular, acuminate, angles obscure, three-celled.

SEEDS numerous.

ESSENTIAL CHARACTER.

Cor. funnel-form, hexapetalous, with narrow claws bearing the stamens. Caps. superior.

SPECIES.

1. *Bulbocodium vernum*. Spring-flowering *Bulbocodium*.

Lin. spec. 422. Reich. 2. 28. hort. cliff. 133.

Jungh. ic. cent. 1. f. 1. Retz. obs. 2. 17. n. 44.

t. 1. Curt. magaz. t. 153.

Colchicum vernum. Clus. hist. 2. app. 203. Park. parad. 158. n. 18. t. 159. f. 7. Ger. emac. 160. n. 13. 163. f. 13. Raii hist. 1172. 11.—hispanicum. Baub. pin. 69.—fl. purpureo. Rudb. elys. 2. 128. f. 2.

Leaves lanceolate.

[DESCRIPTION, &c.

The bulb or hybernacle, commonly called the root, resembles that of the common *Colchicum* in

shape, but is much smaller; it is covered with a dark-brown skin. Some time in january, or not later than the middle of february, according to the season, the flower springs up inclosed within three brownish green leaves, which opening themselves as soon almost as they are out of the ground, show their buds for flowers within them very white oftentimes, before they open far, and sometimes also purplish at first appearing. There is frequently only one flower, but never more than two flowers on a root; they never rise above the leaves, nor the leaves much higher than they, whilst they last; they are smaller than those of *Colchicum*; at first are of a pale red or deep blush colour, but afterwards change to a bright purple: and continue long in beauty, if the weather be not severe. After the flowers are past, the leaves grow to the length of a man's longest finger; and in the middle of them rises up the seed-vessel, which is smaller, shorter, and harder than that of *Colchicum*, and contains many, small, round, brown seeds^b.

It has the habit of *Colchicum*, but differs in having only one style: from *Crocus*, which it much resembles, it is distinguished by the number of its stamens. The flower is radical, as in them; and varies in colour. Sometimes one-third part of the fructification is taken away; that is, the flower has only four petals and four stamens^c.

It is a native of Spain, and also of Russia, in mountainous situations. Mr. Miller cultivated it in 1731^d; but he says, that it has been long cultivated in gardens. It is well observed by Mr. Curtis, that Parkinson gives such a minute description of it as to convince us that he must have cultivated it himself (1629). And since Johnson, in his additions to Gerard's herbal (1633) tells us, that the *Colchicums*, of which this is one, may for the most part be found in the gardens of the florists among us^e; and refers such as desire their further acquaintance to the gardens of Parkinson, Tuggie, &c.^f We may fairly conclude, that the Spring Meadow-Saffron, as they call it, was then in our gardens, among other bulbous plants. At present it is a rare plant among us; the bulbs not admitting of much increase, and being liable to damage from frost^g.]

PROPAGATION AND CULTURE.

This plant is propagated by offsets, in the same manner as other bulbous rooted flowers. The time to remove them, is soon after their leaves decay, but the roots may be kept out of the ground two months without prejudice at that season. They should not be removed oftener than every third year, for the roots do not multiply very fast, by suffering them therefore to remain, they will flower much stronger, and make a greater increase than if they are often taken up.

It should have a warmer situation, and may be planted in a south border, in a fresh loamy soil, but not dunged. It may also be propagated by seeds, which should be sown in pots filled with fresh loamy earth in september, and the latter end of october, the pots should be placed under a frame, to protect them from severe frost; in the spring the plants will appear, when they may be removed out of the frame, and placed where they may have the morning sun, but screened from the south. In very dry weather, they should be refreshed now and then with a little water, while their leaves continue green; but, when these decay, the pots should be removed to a shady situation, where they may remain till autumn, observing to keep them clean from weeds. In october there should be a little fresh earth laid on the surface of the other, and the pots placed in shelter again till the following spring, when they must be treated in the same manner as the former year, till their leaves decay; then the roots should be carefully taken up, and transplanted into the borders of the flower-garden, treating them as the old roots; the spring following they will produce their flowers.

^b Parkinson parad.

^c Herbal, p. 162.

^d Pallas it. 651.

^e Idem. p. 161.

^f Hort. kew.

^g Curtis.

^a Gerard. fl. gallo-provinc.

BUM

BULLBOCODIUM. See *Anthericum*, *Ixia*, *Narcissus*.
[BULLBOCODIUM alpinum. See *Anthericum ferolinum*.
BULL-RUSH. See *Scirpus*.
BUMALDA.

Thunb. nov. gen. 62. jap. 8. Lin. gen. Schreb. 453. Juss. 381.

Class. 5. 2. Pentandria Digynia.

Nat. order of *Dumoseæ*. *Rhamni* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, five-parted almost to the base: divisions ovate, obtuse, concave, a little shorter than the corolla.

COR. five petalled. Petals linear-obovate, inserted into the germ.

STAM. Filaments five, inserted into the claws of the petals, filiform, erect, rough with hairs, almost the length of the corolla. Anthers inserted into the back, ovate, twin.

PIST. Germ superior, conic, villose. Styles two, erect, villose, the length of the filaments. Stigmas simple, headed, truncate.

PER. seems to be a two-celled capsule.

SEEDS

ESSENTIAL CHARACTER.

Cor. five-petalled. Styles villose. Caps. two-celled, two-beaked.

SPECIES.

1. Bumalda trifolia.

Lin. syst. 270. Thunb. jap. 114.

DESCRIPTION, &c.

Stem shrubby. Branches close, in all parts smooth. Branches obscurely angular, jointed, purple; divisions opposite, filiform, much spreading, leafy. Leaves opposite, petioled, ternate: leaflets ovate, acuminate, finely serrate, pale underneath, on very short, capillary petioles, spreading very much, or reflex. Flowers terminating the branches in racemes, on capillary peduncles. Native of Japan*.]

[BUMELIA. (*Boumelia*, *Bubula fraxinus*, the name of a tree in *Theophrastus*. *Bumelia*, *Plin.* supposed to be a sort of *Ash*.)

Swartz prodr. 49. Lin. gen. Schreb. n. 1736.

Class. 5. 1. Pentandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth five-leaved: leaflets roundish-ovate, incumbent, concave.

COR. one-petalled, five-cleft or five-parted. Tube very short, round. Border five-parted; parts ovate, entire, spreading, concave; with two little scales at the base of each.

Nectary five-leaved: segments smaller than the corolla, at the base of the filaments, surrounding the germ, acute.

STAM. Filaments five, inserted into the corolla, at the bottom of the tube, between the lower segments, the length of the tube. Anthers ovate, erect.

PIST. Germ superior, ovate. Style thick, erect, shorter than the stamens. Stigma obtuse.

PER. Drupe oval.

SEED. Kernel single, oblong, smooth, with a lateral scar.

ESSENTIAL CHARACTER.

Cor. five-cleft, with a five-leaved nectary. Drupe one-seeded.

SPECIES.

1. Bumelia nigra. Black Bumelia.

Swartz prodr. 49. 1.

Achras 6. Brown. jam. 201.

Branches wand-like spreading, leaves terminating oblong-lanceolate smooth, waved about the edge, branchlets flower-bearing.

2. Bumelia pallida. Pale Bumelia.

Swartz prodr. 49. 2.

Branches upright, leaves terminating elliptic obtuse, flowers crowded lateral.

3. Bumelia retusa. Retuse-leaved Bumelia.

Swartz prodr. 49. 3.

Achras 7. Brown. jam. 201.

Leaves opposite wedge-ovate retuse rigid, flowers crowded axillary.

* Thunberg.

BUN

4. Bumelia montana. Mountain Bumelia.

Swartz prodr. 49. 4.

Leaves scattered alternate oblong obtuse, flowers axillary peduncled.

5. Bumelia falcifolia. Willow-leaved Bumelia.

Swartz prodr. 50. 5.

Achras falcifolia. Linn.

Leaves lanceolate-ovate acuminate, flowers crowded axillary and lateral.

6. Bumelia rotundifolia. Round-leaved Bumelia.

Swartz prodr. 50. 6.

Leaves suborbiculate margined veined coriaceous smooth on both sides.

7. Bumelia pentagona. Pentagon-fruited Bumelia.

Swartz prodr. 50. 7.

Leaves lanceolate acuminate shining, flowers axillary, drupes five-cornered.

DESCRIPTIONS, &c.

These are all trees or shrubs, and natives of the West Indies.

1. Browne calls this Bastard Bully-Tree. He only describes the fruit, which he says is small, smooth, and scattered over the branches, containing roundish seeds, marked with a very small ovate scar. It is a native of Jamaica.

2. This also is a native of the same island.

3. Browne calls this the Mountain Bastard Bully-Tree; and says, that it has a small smooth fruit. It is a native of Jamaica and other islands of the West Indies.

4. Native of Jamaica.

5. This has been already noticed under the name of *Achras falcifolia*, which see.

6, 7. Natives of the West Indies: the last, of the island of St. Vincent.]

BUNIAS. (*Bouvis*, a bill.)

Lin. gen. n. 823. Reich. 887. Schreb. 1070.

Gertn. t. 142. Juss. 241. Erucago. Tournef. 103.

Class. 15. 2. Tetradyamia Siliquosa.

Nat. order of *Siliquosæ*. *Cruciferae* Juss.

GENERIC CHARACTER.

CAL. Perianth four-leaved; leaflets ovate-oblong, spreading, deciduous.

COR. tetrapetalous, cruciform. Petals obovate, twice as long as the calyx: claws attenuated, erect.

STAM. Filaments six, the length of the calyx; of which two opposite a little shorter. Anthers erect, bifid at the base.

PIST. Germ oblong. Style none. Stigma obtuse.

PER. Silicle irregular, ovate-oblong, four-sided, the angles with an acumen or two, not bursting, deciduous.

SEEDS few, one under each acumen of the silicle, roundish.

ESSENTIAL CHARACTER.

Silicle deciduous, four-sided, mucated with unequal acuminate angles.

SPECIES.

[1. Bunias cornuta. Horned Bunias.

Lin. spec. 935. Reich. 3. 285.

Bursa pastoris orientalis, drabæ fol., fil. cornutis. Tourn. cor. 15.

Silicles divaricate, two-horned, spiny at the base.

2. Bunias spinosa. Thorny Bunias.

Lin. syst. 603. Reich. 3. 286. mant. 96. Gertn. fruct. 2. 290.

Zilla myagroides. Forsk. ægypt. 121. n. 74. ic. t. 17. f. A.

Brassica spinosa. Alp. exot. 201. t. 200. Baub. pin. 111. prodr. 54. fig. Raii hist. 797. Park. 270.

Crambe spinosiff. arabica, &c. Shaw. afr. 179.

Racemes spinescent.]

3. Bunias Erucago. Prickly-podded Bunias.

Lin. spec. 935. Reich. 3. 286. hort. cliff. 340. upf. 182. Gertn. fruct. 2. 291. Hall. belv. n. 528. Sauv. monsp. 285. Jacq. austr. 4. t. 340. Allion. pedem. n. 939. Villars dauph. 308.

Myagrum Erucago. Crantz. crucif. 103. n. 7.

Sinapi echinatum. Baub. hist. 2. 858.

Eruca monspeliaca, fil. quadrangula echinata. *Bauh. pin.* 99. *prodr.* 41. *fig. Raii hist.* 804. *Park.* 821. f. 3.

Silicles four-cornered, angles two-crested.

4. *Bunias orientalis*. *Oriental Bunias*.

Lin. spec. 936. *Reich.* 3. 286. *hort. ups.* 186.

Gmel. fib. 3. 256. n. 16. t. 57. *Gærtn. fruct.* 2. 291.

Crambe orient. dentis leonis fol. crucaginis facie. *Tourn. cor.* 41.

Silicles ovate, gibbous, warted.

[5. *Bunias cochlearioides*. *Scurvy-grass Bunias*.

Lin. syst. 603. *Murr. in comm. gott.* 1777. p. 42. t. 3.

Silicles cordate-ovate, even, inflexed.]

6. *Bunias Cakile*. *Sea Rocket*.

Lin. spec. 936. *Reich.* 3. 287. *mant.* 430. *fl. succ.*

n. 613. *Huds. angl.* 298. *With.* 716. *Lightf. scot.* 363.

Raphanus. *Lin. hort. cliff.* 340. *Gron. virg.* 98.

Sauv. monsp. 285.

Cakile maritima. *Scop. carn.* n. 844.

C. serapionis. *Lob. ic.* 223.

C. f. Eruca marina & Raphanus marinus. *Bauh.*

hist. 2. 867. *fig.* 868. *Raii syn.* 307.

Eruca maritima italica, fil. hastæ cuspidi simili. *Bauh. pin.* 99.

E. marina. *Ger. emac.* 248. 5. *Raii hist.* 840.—

anglica. *Park.* 821. 1. *Pet. herb.* t. 46. f. 6.

E. fil. torosa. *Mor. hist.* 2. f. 3. t. 6. f. 20.

β. *Cakile f. Eruca maritima latifolia*. *Bauh. hist.* 2. 868.

γ. *With pinnatifid linear fleshy leaves.*

δ. *With lanceolate gasbed fleshy leaves.*

Silicles ovate even ancipital.

[7. *Bunias myagroides*. *Myagrum-like Bunias*.

Lin. syst. 603. *Reich.* 3. 287. *mant.* 96.

Silicles two-jointed, ancipital, torulose above, leaves pinnate with reflected sinuses.

8. *Bunias ægyptiaca*. *Egyptian Bunias*.

Lin. syst. 603. *Reich.* 3. 288. *Act. petrop.* 12. 509.

t. 9. *Jacqu. hort.* 2. t. 145. *Gouan. illustr.* 45.

Gærtn. fruct. 2. 289.

Silicles four-cornered, wart-muricate on every side, leaves runcinate.

9. *Bunias balearica*. *Minorca Bunias*.

Lin. syst. 603. *Reich.* 3. 288. *mant.* 429. *Jacqu.*

hort. 2. t. 144. *Gouan. illustr.* 45. t. 20. B.

Silicles hispid, leaves pinnate, leaflets slightly toothed.

DESCRIPTIONS, &c.

The species of *Bunias*, properly so called, have the fruit spherical, wrinkled or echinate, one or two-celled, with one or two seeds, and not opening. *Eruca* of Tournefort has the fruit four-cornered, rugged-crested at the angles, two-celled above and below, not opening, with one seed in each of the four cells. *Cakile* of Tournefort, has the fruit lanceolate and two-jointed, with one seed in each joint. Monf. Lamarck has united *Bunias* and *Eruca*, without *Cakile*, to the genus *Myagrum*. Might not *Bunias*, *Eruca*, and *Cakile* rather make three distinct genera?

1. This is a very singular plant. It has a silicle transversely oval, finishing on each side in a horn or very long and strong spine, so that the silicle resembles a pair of horns: in the middle of the silicle are four small spines, directed different ways^b. Native of the Levant and Siberia.

2. This is an annual plant. Stems a foot high, upright, branching, subdivided, round, rushy, very smooth and even, green. Leaves ovate-oblong, blunt, somewhat angular, even, petioled. Racemes upright, stiff, rigid, terminating the small branches, ending in compound spines, by the side of which are a few sessile flowers. Calyx oblong, closed. Petals lanceolate, whitish-violet. Germ heart-shaped: style cylindrical, the length of the germ, permanent: stigma thickish. Silicle heart-shaped twin; or rather a suberose, even, sharp drupe, inclosing a

two-celled, hexangular nut, two of the opposite angles broader than the other two, with one roundish seed in each cell^c.

Gærtner calls the fruit a drupaceous silicle, drawn up from a turgid, four-cornered, smooth belly, into a pyramidal point, and of a pale straw colour: rind thick, suberose: shell bony, with six flattened angles, the two middle opposite ones narrower than the rest. Seeds solitary, ovate, or roundish, plano-convex. Cotyledons conduplicate, leafy. Radicle inflex, lying on the groove of the duplicature, superior. Native of the Levant.]

3. This also is an annual plant, sending out many branches, which spread, and incline towards the ground. The leaves are glaucous, and deeply divided into many segments, almost like those of Swine's Cress. The flowers are produced singly from the axils of the leaves, towards the extremity of the branches; they are small, and of a pale yellowish colour. [A large gland surrounds the shorter stamens, and an eminent rim the longer ones. The fruit is short and echinate, with four wings, divided internally into four cells, containing one round, tailed seed in each cell: but one of the cells is sometimes wanting^d.

Gærtner describes the fruit, as a small ovate four-cornered drupaceous silicle, two of the sides narrower and warted-muricate; the two wider ones marked with a double elevated streak, which is crenulate or slightly tubercled: rind very thin and membranaceous: shell bony, muricate, two-celled, the cells collateral or placed side by side. Seeds solitary, ovate, plano-convex, rufescent.

Native of the South of France, Switzerland, Austria, and Italy. It was cultivated here in 1640^e.]

4. Root perennial; with an annual stalk. There are many oblong leaves, spreading on every side near the ground, and deeply jagged on their edges, like those of Dandelion. From among these arise the stalks, upwards of two feet high, sending out branches, and at each joint one oblong sharp-pointed leaf, eared at the base, and fitting close to the stalk. The branches are terminated by long loose spikes of yellow flowers shaped like those of the Cabbage, and succeeded by short, oval, rough pods, ending in a point, and inclosing one round seed.

[Gærtner calls the fruit a subglobular or ovate-oblong drupaceous silicle; it is gibbous and warted, ending in a short style; the rind is fungose, and of a whitish straw colour; the shell bony, smooth on the outside, within divided into two cells, one over the other, but the upper one usually obliterated in fruits that are subglobular. Seed rufescent. Cotyledons or lobes oblong, spirally convoluted.]

It grows naturally in the Levant, whence Tournefort sent the seeds to the royal garden at Paris. [Also in Russia. It was cultivated in 1739, by Mr. Miller, and flowers from may to july^f.

5. The seeds of this species were sent to Murray by Dr. Pallas, who found the plant in low meadows, near the Jaik:

It is about two feet in height. The root slender, and fibrous at the sides. The stem and branches cornered or obscurely furrowed, smooth, and branching from near the root. The branches alternate, slender, lengthened, spreading, lax, divided. Leaves in general oblong, veiny, and of an appearance between sinuated and toothed. The racemes are terminal and long on the stem and branches; the calyx spreading, the corolla white and veiny. The silicle cordate-ovate, glossy and sharp.

6. Sea Rocket is a smooth, glaucous, annual plant, with a saltish taste. Root slender, woody, running deep into the sand, and terminated by a few rigid fibres. Stem woody, about a foot high, often much more, divided from the base into widely divaricated branches. Leaves oblong-wedge-shaped, sessile, deeply cut or pinnatifid, fleshy. The flowers grow in short spikes or clusters, alternately on short pe-

^c Linn.

^d Haller.

^e Hort. kew. from Park.

^f Hort. kew.

^a Jussieu.

^b Linn.

dicels, and are of a pale red or flesh colour. The pods are short but large and fleshy, oval-pointed, two-celled, with one or two roundish seeds in each. The long compressed style forms afterwards the beak of the pod^s. This falling off leaves a cloven base behind. The varieties are constant, but the leaves of all are fleshy, and the fructifications alike^h.

It is a native of the sea coast in many parts of Europe and North America: with us on the coasts of Norfolk, Suffolk, Scotland, and Ireland, in deep sand, frequently near high water mark: flowering in June and July.

7. Root annual. Stem straight, two feet high, even, panicle-branched. Lower leaves pinnate or bipinnate, broader, not fleshy, deep green, even; divisions or pinnae oblong, toothed: the upper ones very like these, but narrow, linear: all have sinuses reflected down at the egress of the pinnae. Racemes terminal, long, straight. Flowers subsessile. Calyx closed. Petals quite entire, pale purple. Style ensiform. Stigma headed, purple. Silique subcylindric, very short, rigid, approximating to the rachis, on a short peduncle; consisting of two joints, the lower cylindric, bivalve, one-seeded (seldom with two seeds), the valves marked with one streak, the upper compressed, subcapitate, one-seeded (seldom with two seeds) obtuse, with a protuberant ear on each side. Native of Siberia^l.

8. Root annual. Stem a foot high, branched, hispid at bottom, smoother at top. Leaves runcinate, a little toothed, even; a few hairs underneath on the petioles. Racemes solitary, terminal, long. Flowers pedicelled. Calyx yellowish. Petals dark yellow, obtuse, spreading, with erect claws. Filaments yellow, distant. Germ ovate, four-cornered, green. Stigma headed, yellow. Silicle different from those of the next species, in being neither subulate-beaked, nor hairy^l.—Gærtner thus describes it: the silicle is drupaceous, small, ovate, four-cornered; the two narrower sides warted and muricate, the two broader marked with a longitudinal double elevated streak, which is crenulate or slightly tubercled: rind very thin, membranaceous: shell bony, muricate, with two cells placed side by side. Seeds solitary, ovate, convex on one side, flat on the other, rufescent. Native of Egypt. Introduced in 1787, by Mr. Zier. It flowers in August^k.

9. Root annual. Stem a foot high, very much branched, spreading, angular, even. Leaves petioled, pinnate; pinnae lanceolate, sinuate, obtuse, even. Peduncles racemed, very long, erect. Pedicels shorter than the flowers. Calyx closed, even, lanceolate, concave, testaceous. Corolla yellow; petals oblong, obtuse, the length of the calyx. Silicles globular, echinated on every side with weak spines crowded close together; beak subulate, stiff, longer than the silicle. Cotyledons large, slightly two-parted, like those of *Convolvulus*, with roundish lobes. It resembles the seventh: the silicle is like that of the third, only wholly echinated except the beak^l. Native of Majorca and Minorca. Introduced 1781, by P. M. A. Broussonet, M. D.^m]

PROPAGATION AND CULTURE.

These plants are all propagated by seed, to be sown where they are designed to remain, either in the beginning of April or in autumn. When the plants come up they should be thinned to the distance of one foot from each other; and after that they will require no other care but to keep them clean from weeds. They are all hardy enough to flower in the open air, but some of them will scarcely perfect their seeds unless they be sown in the autumn.

BUNIAS. See *Brassica*.

BUNIAM. (Bouvier *Dioscor.* Bunium. *Plin.* from Bouvos, a hill; from its affecting high situations.)

Lin. gen. n. 335. *Reich.* 366. *Schreb.* 468. *Juss.* 223. *Bulbocastanum.* *Tournef.* 161.

^k Woodw. M. S. Lightf. *Linn.*

^h Hort. kew.

^l *Linn.*

^m *Linn.*

ⁿ Hort. kew.

^o *Ibid.*

Class. 5. 2. Pentandria Digynia.

Nat. order of *Umbellatae*, or *Umbelliferae*.

GENERIC CHARACTER.

Cal. *Umbel universal* manifold, with rays fewer than twenty: *partial* very short, crowded.

Involucre universal many-leaved, linear, short: *partial* setaceous, the length of the umbellule.

Perianth proper scarcely apparent.

Cor. *universal* uniform: floscules all fertile.

Proper of five, inflex-cordate, equal petals.

Stam. *Filaments* five, shorter than the corolla, simple.

Anthers simple.

Pist. *Germ* oblong, inferior. *Styles* two, reflex: *Stigmas* obtuse.

Per. none. *Fruit* ovate, bipartite.

SEEDS two, ovate, convex on one side, flat on the other.

ESSENTIAL CHARACTER.

Cor. uniform. *Umb.* crowded. *Fruits* ovate.

SPECIES.

1. *Bunium Bulbocastanum.* *Earth-nut*, or *Pig-nut*.

Lin. spec. 349. *Reich.* 671. *hort. cliff.* 91. *Huds.*

angl. 122. *With.* 275, 276. *Lightf. scot.* 156.

Curtis lond. 4. 24. *Hall. helv. n.* 783. *Pollich*

pal. n. 274. *Sauv. monsp.* 256. *Oed. dan. t.* 220.

Allion. pedem. n. 1362. *Villars dauph.* 2. 602.

Gouan. illustr. 10. *Plenck, ic. t.* 182.

Bulbocastanum majus apii folio. *Baub. pin.* 162.

Baub. hist. 3. 2. 30. *Mor. hist. f.* 9. t. 2. f. 1.

Pet. herb. 25. 9. *Ger.* 906. 1. *emac.* 1064. 1. 2.

Raii hist. 440. *syn.* 209.

Nucula terrestris. *Lob. obs.* 429. *Park.* 892. 1, 2. f. 893.

Bulb. minus. *Baub. pin.* 162. 2. (This is given as a synonym to *Cherophyllum*, by Reichard.)

DESCRIPTION, &c.

Root perennial, tuberous, on the outside of a chestnut colour, within white, solid, putting forth slender fibres from the sides and bottom, of an agreeable sweetish taste, lying deep in the ground. Stem from one to two feet high, upright, round, stiffish, the thickness of a crow quill, slightly striated, smooth, throughout of a green colour and branched. Radical leaves on long petioles; stem leaves sessile, all very finely divided, deep green, the folioles edged with prickly hairs, visible only by a glass. Sheath short, grooved, smooth, the edge membranous and whitish. Umbels several; universal rays from seven to twelve; partial about twelve. Universal and partial involucre often wanting. Filaments longer than the corolla, deciduous. Styles white, nearly upright. Seeds oblong-ovate, smooth and somewhat aromaticⁿ.

To the above description we may add, that the root commonly grows four or five inches deep in the earth, the stem from the surface tapering towards it, flexuose or bending to and from, and of a white colour^o; that the stem is but little branched; the root-leaves tripinnate, with small lanceolate leaflets, which are simple or trifid, the extreme leaflet trifid; the stem-leaves bipinnate, with simple or linear leaflets, not wider than the nerve^p: that the universal involucre consists seldom of more than one, two, or three very slender leaves, but in most instances is altogether wanting: that the partial is mostly shorter than the umbel, and consists of three or four very small lanceolate leaves; that the partial umbel has sometimes sixteen and even twenty rays; that the petals are lanceolate, entire, but rolled inwards so as to appear as if they were emarginate; that the filaments are longer than the petals, and the pistils at first close, afterwards divaricate, but never bent back^q.

This description and these remarks apply to the plant as usually found in Britain. That *Bunium* which is most common in many parts of the continent is somewhat different from ours; the segments of the leaf are not so fine, and nearer to Parsley, whereas ours approach to Fennel^r. The root is not

ⁿ *Curtis.*

^o *Parkinson.*

^p *Woodw. M. S.*

^q *Withering.*

^r *Mart. Tourn. Par. t.* 1. 128.

so far within the ground, the leaves are larger and greener, and it sends forth some leaves from the bulb itself. Mr. Miller says] he could never observe any essential difference between them, and that when they have been transplanted into a garden, they have proved to be the same. [Professor John Martyn, who first remarked the broader-leaved *Bunium* in England, between Hornsey-wood and Old-Fall, thinks that the difference was probably owing to the root's growing nearer the surface than we commonly find it; and accordingly I have several times met with a plant having broader leaves, and somewhat different in appearance from the common sort, which on examination had a superficial root, and grew in a very loose soil. Perhaps they might be young plants, and on that account more vigorous; and the root may descend deeper into the ground every year.

Dillenius suspects that the greater and smaller *Bunium* may be distinct. Gouan, who cultivated them during eight years, is surprised that they have not been distinguished long since, and gives specific differences which to me scarcely appear sufficient. Villars makes them two species; and Dr. Withering does the same. The latter preserves Linneus's name to the greater *Bunium*, and gives that of *flexuosum* to the smaller one. They are both figured in Johnson's edition of Gerarde's herbal.]

Mr. Miller has two species besides the common one, both from Tournefort. 1. *B. creticum*; which is *Bulbocastanum creticum radice napiformi*. Tourn. cor. Native of the Levant, Crete, Zant, &c. From the last island Mr. Miller received seeds of it. 2. *B. saxatile*; which is *Bulb. minus saxatile peucedani folio*. Tourn. inst. 312.; and is a low plant, seldom above six inches high, from the Alps; [and differing only from situation.

This plant has several names in English besides the two given above: as, *Kipper-nut*, *Hawk-nut*, *Jur-nut* or *Ter-nut*, *Earth-Chestnut*, and *Ground-nut*. It had the name *Bulbocastanum* given it by the older botanic writers among the moderns, for it is a word unknown to the ancients, from its bulbous root like the fruit of the Chestnut in taste. Linneus changed it to *Bunium*, because it was taken for the *Bovviov* of Dioscorides, and the *Bunium* of Pliny. In German it is *Erdußs*: in Dutch, *Aardnoot*: in Swedish, *Jordnöt*: in Danish, *Jordolden*: in French, *Suron*, *Terre-Noix*: in Italian, *Castagna di terra*: in Spanish, *Castano di tierra*: in Portuguese, *Castanha de terra*.

With us it grows on heaths, in pastures, woods, and among bushes, in a gravelly or sandy soil. Foreign authors, as Haller, Pollich, &c. say that it grows among corn, which I have never known it to do in England. It flowers in may and june.]

The roots are frequently dug up, and eaten raw by the poorer sort of people. Swine are very fond of them, and will soon become fat with feeding on them. When boiled they are very pleasant and delicious, and are supposed to afford great nourishment. [Thus prepared, they are said to be eaten in Holland, in the Alps, and in some parts of England, in soup or broth. Roasted, they are little inferior to Chestnuts, and might be no disagreeable addition to our winter desserts.

The knobbed root, and finely divided leaves so distinguish this plant from all the poisonous species of the umbellate tribe, that it can hardly be mistaken, especially if the place of growth be attended to. *Oenanthe fistulosa* indeed, when thrown out on ditch banks, or cultivated in a garden, has roots so much resembling those of *Bunium*, that it may deceive even good judges; the root-leaves also are finely divided: but this is a water-plant, and it ought to be remembered that all aquatics of this tribe are of a suspicious character.

BUNIMUM Sauv. monsp. See *Sison*.

BUNUS. See *Æthusa*, and *Stilago*.

BUPARITI. See *Hibiscus*.

BUPHTHALMUM. (Βῦς and ὀφθαλμός, *Bull's-eye*.)
 Lin. gen. n. 977. Reich. 1059. Schreb. 1321.
 Gært. t. 169. Juss. 186. Asteriscus. Tournef.
 283. Vaill. æt. gall. 1720. Dill. elth. 38. f. 44.
 Asteroides. Tournef. 487. Vaill. æt. gall.
 Class. 19. 2. Syngenesia Polygamia Superflua.
 Nat. order of *Compositæ Oppositifoliæ*.—*Corymbiferae*
 Juss.

GENERIC CHARACTER.

CAL. Common various in the different species, imbricate.

COR. Compound radiated: *Corollules* hermaphrodite, numerous, forming a flat disk: *females* more than ten in the ray. *Proper* of the hermaphrodite funnel-form, with a five-cleft, patulous border.—Of the female ligulate, longer, spreading, three-toothed.

STAM. (of the hermaphrodite) *Filaments* five, capillary, very short. *Anther* tubular, cylindric.

PIST. of the hermaphrodite. *Germ* ovate, compressed. *Style* filiform, the length of the stamens. *Stigma* thickish, simple—of the female. *Germ* ancipital. *Style* filiform, of the same length as in the hermaphrodite. *Stigmas* two; oblong.

PER. none. *Calyx* unchanged.

SEEDS of the hermaphrodite solitary, oblong, crowned with a gashed manifold edge—of the females, solitary, compressed, with each edge cutting, crowned like the others.

REC. chaffy, convex.

ESSENTIAL CHARACTER.

Stigma of the hermaphrodite floscules undivided.

Seeds have the sides, especially in the ray, edged.

Down an obscure edge. *Recept.* chaffy.

SPECIES.

* *Asterisci* T.1. *Bupthalmum frutescens*. Shrubby Ox-eye.

Lin. spec. 1273. syst. 780. Reich. 3. 879. hort. cliff. 415. Gron. virg. 127. Mill. illustr. fig. Brown. jam. 320. 2.

Asteriscus. Dill. elth. 44. t. 38. f. 44.

Corona solis. Plum. spec. 10. ic. 107. f. 1.

Chrysanthemum. Pluk. alm. 102. t. 115. f. 4.

Mor. hist. 3. 25. n. 89. Raii suppl. 211. n. 23.

Sloan. jam. 1. 260. 22. Catesb. car. 1. t. 93.

Leaves opposite lanceolate, petioles two-toothed, stem shrubby.

2. *Bupthalmum arborecens*. Tree Ox-eye.

Lin. spec. 1273. Reich. 3. 879.

Asteriscus. Dill. elth. 43. t. 38. f. 43.

Chrysanthemum bermudense, fol. rigido viridi.

Mor. 3. 25.—leucocii virid. fol. crassis. Pluk.

alm. 102.

Corona solis frut. laureolo fol. fl. luteo. Plum.

spec. 10. ic. t. 106. f. 2.

Leaves opposite lanceolate, tomentose on both sides, toothless, quite entire, stem shrubby.

[3. *Bupthalmum sericeum*. Silky Ox-eye.

Lin. syst. 780. suppl. 379. L'Herit. fert. angl.

t. 37. Ait. hort. kew. 3. 245.

Leaves scattered wedge-shaped acute quite entire villose-silky.

4. *Bupthalmum spinosum*. Prickly Ox-eye.

Lin. spec. 1274. syst. 780. Reich. 3. 879. hort.

cliff. 414. Gouan. hort. monsp. 455. Blackw.

t. 272. D'Asso. aragon. n. 857. Mill. fig.

t. 249. f. 1. Villars dauph. 3. 261.

After luteus, fol. ad florem rigidis. Baub. pin. 266.

A. legitimus Clusii alter, f. spinosus luteus. Barr.

ic. 551.

A. atticus. Ger. 392. 1. emac. 486. 1. Park. theat.

128.

Calyxes acutely leafy; leaves alternate lanceolate stem-clasping, quite entire.

5. *Bupthalmum aquaticum*. Sweet-scented Ox-eye.

Lin. spec. 1274. Reich. 3. 880. hort. cliff. 414.

upf. 464. Sauv. monsp. 87. Gouan. hort. monsp.

455. Gært. fruct. 2. 434. Villars dauph. 3.

261.

After odoratus annuus creticus. Zan. hist. t. 24.

Asteriscus annuus lusitanicus odoratus. Seba thes.

1. 47. t. 29. f. 7.

Chysan-

- Chrysanthemum conyzoides* Luit. *Breyn. cent.* 157. t. 77.
Calyxes obtusely leafy, sessile, axillary; leaves alternate, oblong, obtuse; stem herbaceous.
6. *Buphthalmum maritimum.* *Sea Ox-eye.*
Lin. spec. 1274. *synt.* 780. *Reich.* 3. 880. *hort. cliff.* 414. *ups.* 264.
After supinus lignosus ficulus, conyzæ odore. Bocc. mus. 2. 161. t. 129. *Park. theat.* 128. 3. f. 129. *Ger. emac.* 588. 6.
A. sup. 2. *Clus. hist.* 2. 13.—*luteus. Baub. pin.* 267.—*massilioticus. Barr. ic.* 1151.
Calyxes obtusely leafy, peduncled; leaves alternate spatulate; stem herbaceous.
- [7. *Buphthalmum durum.*
Lin. spec. 1275. *Reich.* 3. 880.
Asteriscus afer, imo calyce non foliofo. Vaill. act. 606.
Chrysanthemum afr. asteris facie, &c. capit. duris. Pluk. alm. 101. t. 21. f. 3.
Leaves alternate, lanceolate, quite entire; stem under-shrubby.]
- * *Asterioidea* T.
8. *Buphthalmum falcifolium.* *Willow-leaved Ox-eye.*
Lin. spec. 1275. *Reich.* 3. 881. *hort. cliff.* 414. *Sauv. monsp.* 87. *Gouan. monsp.* 455. *Scop. carn. n.* 1088. *Jacqu. austr.* 3. t. 370. *Hall. belv. n.* 118. *opusc.* 312. *Gärtn. fruct.* 2. 434. *Villars dauph.* 3. 262.
After luteus major, fol. Succisæ. Baub. pin. 266. *Ger. emac.* 588. 7.
A. 3. austriacus 1. Clus. hist. 2. 13. *Raii hist.* 267. 8.
A. luteus major austriacus. Park. theat. 129. n. 4.
Asteroides hirsuta. Mich. flor. 12. t. 3, 4.
Conyza major altera. Thal. herc. 21. t. 2.
Leaves alternate lanceolate subserrate villosæ; calyces naked; stem herbaceous.
9. *Buphthalmum grandiflorum.* *Great-flowered Ox-eye.*
Lin. spec. 1275. *synt.* 780. *Reich.* 3. 881. *hort. cliff.* 415. *ups.* 264. *Villars dauph.* 3. 262.
Asteroides alpina, falcis fol. Tourn. cor. 50. *Mich. flor.* 12. t. 5.
After luteus angustifolius. Baub. pin. 266.
Chrysanthemum. Mor. 3. 21. f. 6. t. 7. f. 52.
Leaves alternate lanceolate subdentate smooth; calyces naked; stem herbaceous.
- [10. *Buphthalmum speciosissimum.*
Lin. synt. 781. *Reich.* 3. 881. *mant.* 177. 517. *Ard. spec.* 1. 26. t. 12.
Asteroides orientale, petasis fol., fl. maximo. Tourn. cor. 51.
Leaves alternate stem-clasping ovate naked serrate sub-ciliate; stem one-flowered.]
11. *Buphthalmum helianthoides.* *Sun-flower-leaved Ox-eye.*
Lin. spec. 1275. *Reich.* 3. 882. *hort. ups.* 264. *L'Herit. stirp. nov.* 93. t. 45.
Helianthus lævis. Lin. spec. 1278.
Silphium solidaginoides. Lin. spec. 1302.
Rudbeckia oppositifolia. Lin. spec. 1280.
Helianthus. Gron. virg. 127.
Corona folis. Mart. cent. t. 20.
Chrysanthemum. Pluk. alm. 99. t. 22. f. 1. *Mor.* 3. 24. f. 6. t. 3. f. 69. *Raii suppl.* 211.
Leaves opposite ovate serrate triply-nerved; calyces leafy; stem herbaceous.
- [12. *Buphthalmum oleraceum.*
Lour. cochinch. 506.
Calycine leaflets acute, connected laterally; leaves opposite, lanceolate, curved back.

DESCRIPTIONS, &c.

Some of these plants are shrubs, but most of them are herbs. The leaves are opposite in some, alternate in others, all simple. The flowers are commonly terminating; they are radiate, and mostly of a yellow colour. Jussieu doubts whether the shrubby species with opposite leaves, and the herbaceous species with alternate leaves be of the same genus. Gærtner observes, that if the down of the seed be not barely margined, but leafy, in all the *Asterisci* of Tournefort, they ought to be separated from this genus.]

1. The first sort rises with several woody stems from the root, and grows to the height of eight or ten feet, furnished with leaves very unequal in size, some of which are narrow and long, others broad and obtuse; these are intermixed, sometimes coming out at the same joint, and often at the intermediate one; they are soft, hoary, and placed opposite. The foot-stalks of the larger leaves have, on their upper side, near their base, two sharp teeth standing upward, and a little higher there are generally two or three more, growing on the edge of the leaves. The flowers are produced at the ends of the branches single; these are of a pale yellow colour, and have scaly calyces. It grows naturally in America. I received another sort of this from the Havannah, which was found growing naturally there by Dr. Houstoun, who sent it by the following title, *Chrysanthemum fruticosum maritimum, foliis glaucis oblongis, flore luteo.* Sloan. Jam. cat. 125. The leaves of this are shorter and thicker than those of the tenth sort, and have no teeth on their foot-stalks, but in other respects are very like it; the plants are not so hardy. This sort has been long preserved in the English gardens, and was originally brought from Virginia, as I was informed by the Bishop of London's gardener, who raised it in 1696 at Fulham.

[It is also a native of Jamaica, where it grows only near the sea-side, in a bushy tufted form, seldom rising above two or three feet in height*. That found by Houstoun in the Havannah, as above, is the same: nor does the tenth sort of Miller already mentioned, which he names *B. incanum*, seem to be different. He describes it] as having many slender shrubby stalks near three feet high; leaves opposite, linear-lanceolate, long and narrow, thick and succulent, very hoary, embracing the stalk; flowers yellow, produced at the ends of the shoots, on very short peduncles. [He received the seeds from the Bahama islands.]

2. This seldom grows much more than three feet high, sending out many stalks from the root, which are succulent, except near the root, where they are ligneous, garnished with thick, succulent, spear-shaped leaves placed opposite; the flowers are produced at the end of the branches upon foot-stalks which are two inches long. These flowers are larger than those of the first sort, of a bright yellow colour. They appear in July, August, and September, but often continue till the end of October.

[It was cultivated 1699 in the royal garden at Hampton-court: and is a native of Bermudas^b. Mr. Miller says,] that he has several times received the seeds from the Bahama islands.

[3. Branches thick, woody, covered with scars left by the falling leaves; the small branches are covered with leaves, which are quite entire and toothless; having white silky very soft hairs pressed to them. Flowers terminating, large and yellow. Calyx hirsute; the lower scales longer, and linear^c.

Found in Fuertaventura, one of the Canary islands, by Mr. Francis Masson, and introduced here in 1779. It flowers from May to July^d.]

4. This is an annual plant. The lower leaves are oblong, hairy, and rounded at the end, about four inches long and one inch broad, narrowed at the base. The stalk rises a foot and half or two feet high, is hairy and stiff, dividing into two or three alternate branches towards the top. The flowers are produced at the ends of the branches. The calyces are composed of nine stiff leaves, ending in prickles; they spread open immediately under the flower like the points of a star, [and each leaflet is three-nerved^e. The ray of the corolla is manifold and very slender^f:] it is of a bright yellow colour. The disk is of a gold colour.

The flowers appear from June to August, and the seeds ripen in September. It is a native of the South of France, Spain and Italy, [on the borders

^a Browne^b Hort. kew.^c Linn. suppl.^d Hort. kew.^e D'Affo.^f Linn.

of fields, and on ditch banks. It was cultivated in England in 1570^g.

The leaves were formerly used in medicine. In Aragon it is called *Cevadilla*, from its quality of exciting sneezing^h.]

5. This also is annual; seldom growing more than a foot high in gardens, and where it is wild not so high: it sends out many alternate spreading branches near the root: the leaves are hairy and sessile: the flowers which are sessile in the forks of the stem, have an agreeable odour. [Calyx leafy at the base. Chaffs obovate, membranaceous, pellucid. Seeds compressed, bay-coloured, hispid with whitish bristles, almost uniform: those of the disk smaller, ovate, acuminate downwards; those of the ray a little larger, triangular-wedge-shaped, very much compressed at the sides and produced into a kind of wing: both crowned with a many-leaved down; the leaflets of which are membranaceous, acuminate, ciliate-toothed, shorter by half than the seedⁱ.

Native of the South of Europe. It flowers in July and August; and was cultivated in 1731, by Mr. Miller^k.]

6. This is a low perennial plant, with a shrubby stalk, rarely rising a foot high, with many spreading branches. Leaves hairy, narrow at their base, but broad and roundish at the extremity. The flowers are produced at the ends of the branches; they are yellow, and shaped like those of the former sorts, but the leaves of the calyx are soft and blunt. [The stigma of the hermaphrodite flowers in this, as in the fourth sort is bifid^l.

Native of Sicily. Cultivated here in 1640; and flowering from July to September^m.

7. A shrub, native of the Cape of Good Hope.]

8. This is somewhat like the next sort, but the leaves are broader and obtuse; these also and the stalks are hairy.

[The root is perennial. The stem upright, round, a foot or eighteen inches in height, with upright, one-flowered branches. The root-leaves petioled, ovate; the stem-leaves embracing, oblong or lanceolate, slightly toothed, hairy or villose. Flowers naked, large, with the ray of a deep yellow, but the disk rather brown: calycine scales in two or three rows, ovate-lanceolate, strong, hairyⁿ. Receptacle slightly convex, with chaffs the length of the calyx, keeled, widening upwards, truncate, toothletted, the keel ending in a short flexile awn. Seeds in the disk smaller, oblong, narrow, three or four-cornered, a little flattened, straight: in the ray larger, curved inwards, three-sided, drawn out at the sides into a sort of wing, truncate at both ends, and crowned with a toothed rim. The rim of the seeds in the disk is sometimes so deeply gashed, that it seems to be composed of several chaffy bristle-shaped leaflets^o.

It is thought to be the yellow Aster of the Italians, the juice of which applied to the wounds, enabled a dog to bear the bites of a viper without injury.

Native of Italy, the South of France, Switzerland, Austria, and Carniola. It flowers from June to October, and was cultivated by Mr. Miller in 1759^p.]

9. This also is perennial, with an annual stalk: it grows near two feet high, with slender branching stalks, and oblong smooth leaves ending in a point; the flowers are produced at the extremity of the branches, and are of a bright yellow colour.

[Villars says, that it differs little from the foregoing; that the leaves are smooth, dark green and shining; that the flowers are a little larger; and that it is much more common.

According to Linneus, it very much resembles *Inula salicina*, but the calyx has only a double row of leaves, as in the foregoing species, with which Gouan joins it. The crown being a ciliate rim,

and the calyx being equal, it may be doubted whether it is not rather an *Inula*, with almost naked seeds.]

It flowers in June and July, and the seeds ripen in autumn. It is a native of Italy, Austria, and the South of France.

There are two or three varieties; differing in the breadth of their leaves and the size of their flowers; but they are all produced from the same seeds.

[It was cultivated in the botanic garden at Chelsea, in 1722^q.

10. Root fusiform, resembling a tuberous one. Stem two feet high, smooth and even, with very slender white lines; sheathed at bottom with the petioles; branched a little at top into peduncles. Leaves subcordate, acute, compact, reticulated with veins; the petioles dilated at the base, submembranaceous. Peduncles subtriquetrous. Common calyx imbricated with ovate, obtuse, large leaflets. Florets of the ray two-folded, two or three-toothed, yellow: of the disk four-cleft, erect, pedicelled. Stamens of the disk four, brown; no germ; style cylindric, obtuse, yellow, pubescent. Seed of the ray ovate, membranous subconcave. Receptacle hemispheric, with brown chaffs^r. Perhaps it may be a species of *Silphium*. The plant figured by Schreber, cent. t. 6. much resembles this, only the leaves in this are more deeply serrate. It grows wild in the mountains about Brixen in the Tyrol, and is perennial^s.

The leaves of this and the foregoing species have a taste somewhat like those of Tea, and may be used instead of them^t.

11. This is a perennial plant, a fathom in height. Root branched, whitish, fragrant. Stems several, upright, branched at top, naked at the base, round, the thickness of a quill, red with a sea-green bloom, pithy, jointed as it were with a ring of petioles: twigs opposite, stiff, like the stem. Leaves remote, acuminate, loosely serrate, but entire at the base and the point, decurrent, veined and wrinkled, the nerves and veins prominent beneath, scored above, almost naked or scarce apparently villose, beneath without hairs and paler, they are flat, reclining, four inches long, and two and a half broad. Petioles spreading, embracing the stalk by the ring which connects them with it, round on one side channelled on the other, edged at the top by the leaf running along it, one-fourth of the leaf in length. Flowers terminating on every side, yellow, from two to three inches in width. Peduncles commonly three from the last leaves, stiff, one-flowered, very long, obscurely angular or streaked, thickened at the top, fistulose. Sometimes there is a linear sharp bracte or two on the peduncle, but more frequently there is none. The common calyx is concave-spreading, pubescent, and composed of a double row of scales; these are lanceolate, acute, subserrate, those of the inner row spreading, and reflex at the tip, those of the outer row fewer (about eight) twice the length of the others, hanging down a little; it is permanent, and from twelve to eighteen lines in diameter. Corollules in the disk (which is convex) very numerous, with a sharp, revolute border: in the ray about twelve, lanceolate, retuse, two-furrowed above, two-nerved beneath, sessile, spreading very wide, twice or three times the length of the calyx. In the hermaphrodite florets, which are those of the disk, the germ is oblong, four-cornered and truncate, style the length of the corollule, stigma two-parted, subulate, standing out and revolute after flowering time; in the female florets, that is, those of the ray, the germ is three-cornered. Seeds in the disk four-cornered, concave-truncate, rufous, without any pappus or crown, except the rim, which is scarcely thickened: those of the ray are similar, only three-cornered. Receptacle conical: with membranaceous, linear, acute, channelled-concave chaffs, each covering a seed, erect and permanent.

^g Hort. kew. from Lobel. adv. 147. ^h D'Affo. ⁱ Gartner.
^k Hort. kew. ^l Linn. ^m Hort. kew. ⁿ Haller and Villars.
^o Gartner. ^p Hort. kew.

^q Hort. kew. ^r Zoega in Lian. mant. ^s Linn. ^t Villars.

This plant has the generic character of *Buphtalmum*, the calyx of *Silphium* or *Rudbeckia*, and the habit or appearance of *Helianthus*^a. Hence it was repeated four times by Linneus.

It is a native of North America, whence it was sent by Catesby to the botanic garden at Chelsea. It was cultivated in 1714, by the Dutchess of Beaufort, at Badminton; and flowers from July to October^z. It is said to be found wild every where within the tropics^y.

12. Stem herbaceous, two feet high, upright, round, whitish, smooth, branched. Leaves linear-lanceolate, unequally toothed, smooth, juicy, thick, ash-coloured. Flower large, solitary. Calyx hemispherical, with sharp leaflets, connected by a lateral membrane. Disk of the corolla flat, with yellow florets: ray wide, spreading, with many, white, trifid florets. Receptacle flattish, with very small chaffs. Crown of the seeds margined. The stigma in the hermaphrodite florets is simple.

It is an odorous plant, cultivated in the gardens of China and Cochinchina, as a pot-herb^z.

Forster, in Flor. austral. names two other species—*Buphtalmum uniflorum*, n. 541. found in Norfolk island; and *B. procumbens*, n. 542. found in the Friendly islands, in the South Seas.]

PROPAGATION AND CULTURE.

1, 2. As these sorts do not perfect their seeds in this country, they are propagated by cuttings. They should be planted in July, when the plants have been for some time exposed to the open air, whereby their shoots will be hardened and better prepared to take root, than when they first come abroad. The cuttings should be planted in small pots filled with light loamy earth, and plunged into a very gentle warmth, observing to shade them from the sun in the heat of the day, and gently refresh them with water, but it must be given to them sparingly, for much wet will rot them. In about six weeks these will have taken root, when they must be gradually inured to bear the open air; and soon after they should be each planted in a separate small pot filled with light loamy earth, and placed in the shade until they have taken fresh root; after which they may be removed to a sheltered situation, where they may remain till the middle of October, when they must be removed into the green-house. The first sort being hardier than the other, may be placed in a common green-house; but the other will thrive better in a warm glass-case, where it will receive more sun, and have a drier air. During the winter, they should have but little moisture, and in very mild weather they should have fresh air admitted to them. In the summer they must be placed abroad in a sheltered situation, and treated in the same manner as other exotic plants.

4, 5. The seeds of these should be sown the beginning of April, on open borders, where they are to remain, and will require no other care, but to keep them clear of weeds, and thin them to the distance of a foot and half, that their branches may have room to spread. If the seeds be sown in the autumn, or be permitted to scatter when ripe, the plants will come up soon after, and these will more certainly ripen seeds than the spring plants.

6. This is seldom succeeded by seeds in England, but the plant is easily propagated by slips during the summer season; if the cuttings are planted in a bed of fresh loamy earth, and covered with a hand-glass, observing to shade them from the sun in the heat of the day; and frequently refreshed with water, they will take root in about six weeks, when they should be carefully taken up, and each planted in a separate small pot filled with fresh undunged earth, and placed in a shady situation till they have taken fresh root; after which they may be removed to a sheltered situation, where they may remain till the end of October, when they must be removed to a frame for the winter season, being too tender to live

^a L'Heritier.

^z Hort. kew.

^y Forst. fl. austral.

^z Loureiro.

abroad in winter in this country; but as they only require protection from hard frosts, they will thrive better when they have a great share of air in mild weather, than if confined in a green-house; therefore the best method is to place them in a common frame, where they may be fully exposed in mild weather, but screened from the frost.

8, 9, 11. These may be propagated by parting the roots towards the end of October, when the stalks begin to decay. Those of the eleventh should be removed every other year, to prevent their spreading too far. It is hardy, and will thrive in any situation, but as the roots are apt to extend, it is not proper for the borders of small flower-gardens; but in large borders, on the sides of rural walks, or in spaces between shrubs, it will be ornamental during the season of flowering.

The others do not spread so much, a few roots therefore may be planted in the borders of the flower-garden, especially those which have little sun, where they will continue a long time in flower.

BUPHTHALMUM. See *Amellus*, *Anacyclus*, *Anthemis*, *Chrysanthemum*, *Oedera*, *Silphium*, *Verbescina*.

BUPLEURIFOLIA. See *Corymbium*.

BUPLEUROIDES. See *Phyllis*.

BUPLEURUM. (Βῦρος & πλεῦρον, *Bovis Costa*. From a supposed ill quality of bursting kine that feed on it.)
Lin. gen. n. 328. Reich. 358. Schreb. 460.

Tournef. 163. Gertn. t. 22. Juss. 224.

Class. 5. 2. Pentandria Digynia.

Nat. order of *Umbellatæ*, or *Umbelliferae*.

GENERIC CHARACTER.

CAL. Umbel universal with fewer than ten rays.—
Partial with scarcely ten rays, erect-expanding.

Involucre universal many-leaved—*partial* five-leaved, larger: leaflets expanding, ovate, acute.

Perianth proper obscure.

COR. universal uniform. *Floscules* all fertile.

Proper, of five, involuted, entire, very short petals.

STAM. Filaments five, simple. *Antbers* roundish.

PIST. Germ inferior. *Styles* two, reflected, small. *Stigmas* very small.

PER. none. *Fruit* roundish, compressed, striated, splitting in two.

SEEDS two, ovate-oblong, convex and striated on one side, flat on the other.

OBS. Most of the species have specious involucrellas frequently longer than the corolla.

ESSENTIAL CHARACTER.

Involucres of the umbellule larger, five-leaved.

Petals involuted. *Fruit* roundish, compressed, striated.

SPECIES.

* Herbaceous.

1. *Bupleurum rotundifolium*. Common Thorough-wax.

Lin. spec. 340. Syst. 273. Reich. 654. hort.

cliff. 104. upf. 64. mat. med. 77. Hudf. angl. 111.

With. 267. Sowerby, Eng. Bot. t. 99. Gertn.

fruct. 1. 97. Hall. herb. n. 767. Gmel. sib. 1.

208. Scop. carn. n. 346. Crantz. austr. 202.

Pollich pal. n. 266. Plenck, ic. t. 187. Blackw.

t. 95. Raii syn. 221. Allion. pedem. n. 1348.

Krock. fles. n. 400. Villars dauph. 2. 573.

Perfoliata. Dod. pempt. 104. Camer. epit. 888.

Riv. t. 45.

—vulgaris. Ger. 430. 1. emac. 536. 1. Park.

580. 1. Mor. hist. 3. f. 9. t. 12. f. 1. and umb.

t. 8. (very good). Raii hist. 471.

—vulgatissima f. arvensis. Baub. pin. 277.

—vulgaris annua. Baub. hist. 3. 198. 1.

β. *Perfoliata* minor, ramis inflexis. Baub. pin. 277.

prodr. 130.—et, fl. multiplici. Baub. pin. 277.

P. crispa f. muscosa. Cam. hort. t. 37.

Universal involucre none; leaves [or rather, stem]

perfoliate.

[2. *Bupleurum stellatum*. Starry Hare's-ear.

Lin. spec. 340. Syst. 273. Reich. 655. Hall. herb.

n. 771. t. 18. emend. 120. Villars dauph. 2.

576.

Perf. alpina angustifolia media. Baub. pin. 277.

prodr. 129. Raii hist. 473.

Involucels united; *universal involucre* three leaved.

3. *Bupleurum*

3. *Bupleurum petraeum*. *Rock Hare's-ear*.
Lin. spec. 340. *Reich.* 655. *Hall. belv.* n. 773.
Ger. prov. 232. 2. *Crantz. umb.* 87. *Segu.*
ver. 2. 15. & 3. 220. *Villars dauph.* 3. 576.
Perf. alp. gramineo folio. *Baub. pin.* 277. *Raii*
hist. 473. *Park. thecat.* 578. f. 3.
Sedum petraeum, bupleuri folio. *Pona bald.* 247.
Clus. hist. 347. *Ger. emac.* 517. f. 5.
Involucels united, universal involucre five-leaved.]
4. *Bupleurum angulosum*. *Angular-leaved Hare's-ear*.
Lin. spec. 341. *syft.* 273. *Reich.* 655. *Hall. belv.*
n. 770. a.
Perf. alp. angustif. major, fol. anguloso. *Baub.*
pin. 277. *prodr.* 129. *Raii hist.* 473.
β. *P. alp. angustif. minor.* *Baub. pin.* 277. *prodr.*
129. *Raii hist.* 473.
Involucels five-leaved orbiculate; universal involucre
three-leaved ovate: leaves stem-clasping cordate-
lanceolate.
- [5. *Bupleurum longifolium*. *Long-leaved Hare's-ear*.
Lin. spec. 341. *Reich.* 656. *Hall. belv.* n. 768.
Neck. gallob. 553. *Krock. files.* n. 401. *Villars*
dauph. 2. 573.
Perf. alp. magna longifolia. *Baub. hist.* 3. 198.
fig. 199. 1. *Raii hist.* 472.
P. montana. *Cam. hort.* 120. t. 38.—*latifolia.*
Baub. pin. 277.
Involucels five-leaved ovate; universal involucre with
about five leaflets: leaves stem-clasping.
6. *Bupleurum falcatum*. *Twisted-stalked Hare's-ear*.
Lin. spec. 341. *syft.* 273. *Reich.* 656. *Hall. belv.*
n. 776. *Scop. carn.* n. 347. *Jacqu. austr.* 2.
t. 158. *Pollich pal.* n. 267. *Crantz. austr.* 203.
Guett. stamp. 59. *Ger. prov.* 233. 5.
Bupleurum. Riv. pent. 44.—*latiore & angust. fol.*
Tabern. 872.—*fol. subrot. f. vulgatissimum.* *Baub.*
pin. 278. *Raii hist.* 473.
Auricula leporis umb. lutea. *Baub. hist.* 3. 200.
f. 1.
Involucels five-leaved acute: universal involucre with
about five leaflets: leaves lanceolate: stem flexuose.]
7. *Bupleurum Odontites*. *Narrow-leaved Hare's-ear*.
Lin. spec. 342. *Reich.* 656. *Gertn. fruct.* 1. 98.
Hall. belv. n. 772. *Scop. carn.* n. 348. *Willch.*
illustr. n. 40. *Jacqu. hort.* 3. t. 91. *D'Ajso.*
aragon. n. 237. *Ger. prov.* 233. 4. *Villars*
dauph. 3. 577.
B. minimum angustifolium. *Scheuch. alp.* 1. 32.
Perfoliata. *Baub. pin.* 277. n. 10. *Column. ecphr.*
1. 84. t. 247.
Auriculæ adfinis, &c. *Baub. hist.* 3. 201. f. 1.
Involucels five-leaved acute; universal involucre three-
leaved; the central floscule higher; branches diva-
ricated.
- [8. *Bupleurum femicompositum*. *Dwarf Hare's-ear*.
Lin. spec. 342. *Reich.* 657. *amæn.* 3. 405. *Gouan.*
illustr. 9. t. 7. f. 1. *Allion. pedem.* n. 1355.
Umbels compound and simple.
9. *Bupleurum ranunculoides*.
Lin. spec. 342. *Reich.* 657. *mant.* 349. *hort.*
cliff. 104. *Gmel. sb.* 1. 203. n. 23. *Scheuch.*
alp. 1. 31. *Villars dauph.* 2. 575. *Gouan.*
illustr. 8.
Perfoliata. *Baub. hist.* 3. 199. f. 2. *Baub. pin.* 277.
n. 11. *prodr.* 130. n. 5. *Lob. illustr.* 137. *Park.*
581. n. 7. *Raii hist.* 472. n. 5.
Involucels five-leaved lanceolate longer; universal in-
volucre three-leaved; stem-leaves lanceolate.]
10. *Bupleurum rigidum*. *Stiff-leaved Hare's-ear*.
Lin. spec. 342. *syft.* 273. *Reich.* 658. *Sauv.*
monsp. 76. *Baub. pin.* 278. n. 1. *Raii hist.* 474.
n. 2. *Ger.* 608. f. 2. *Park.* 578. f. 2. *Dod.*
pempt. 633.
Auricula leporis altera f. rigidior. *Baub. hist.* 200.
f. 2.
Stem dichotomous almost naked: involucre very small
acute.
- [11. *Bupleurum Gerardi*.
Lin. syft. 274. *Jacqu. austr.* 3. t. 256. *Ger.*
prov. 233. n. 7. t. 9.
Stem erect panicled; leaves lanceolate-linear: invo-
lucre and involucels five-leaved.]
12. *Bupleurum tenuissimum*. *Least Hare's-ear*.
Lin. spec. 343. *syft.* 274. *Reich.* 658. *hort. cliff.*
104. *Hudf. angl.* 111. *With.* 267. *Hall. belv.*
n. 774. *Crantz. austr.* 204. *Gertn. fruct.* 1. 98.
B. minimum. *Col. ecphr.* 1. 85. t. 247. *Mor.*
hist. 3. 300. f. 9. t. 12. f. ult. *Raii syn.* 221.
B. angustissimo folio. *Baub. pin.* 278.
Auricula leporis minima. *Baub. hist.* 3. 201. f. 2.
Raii hist. 474.
Umbels simple alternate five-leaved, with about three
flowers.
- [13. *Bupleurum junceum*. *Linear-leaved Hare's-ear*.
Lin. spec. 343. *syft.* 274. *Reich.* 658. *Hall. belv.*
n. 775. *Pollich pal.* n. 268. *Ger. prov.* 234. 9.
Villars dauph. 3. 578. *Magn. monsp.* 42. *Raii*
hist. 474. n. 3. *Ger.* 608. f. 1.
Stem erect panicled; leaves linear; involucre three-
leaved; involucels five-leaved.]
* *Shrubby.*
14. *Bupleurum fruticosum*. *Common shrubby Hare's-*
ear, or Shrubby Ethiopian Hartwort.
Lin. spec. 343. *Reich.* 659. *hort. cliff.* 104. *Sauv.*
monsp. 60. *Gron. orient.* 77. *Mill. fig.* t. 74.
Ger. prov. 234. 10. *Villars dauph.* 3. 579.
Seseli æthiopicum. *Baub. pin.* 161. *Dod. pempt.* 312.
Raii hist. 476. *Ger.* 1233. *emac.* 1421. *Park.* 907.
f. 14.
S. frutex. *Mor. umb.* 16.
Leaves obovate, quite entire.
- [15. *Bupleurum frutescens*. *Grass-leaved shrubby*
Hare's-ear.
Lin. spec. 344. *Reich.* 659. *amæn.* 4. 269. *Loefl.*
it. 134. *Barr. rar.* 623. t. 1255. *D'Ajso aragon.*
n. 240.
Leaves linear; involucre universal and partial.
16. *Bupleurum difforme*. *Various-leaved Hare's-ear*.
Lin. spec. 344. *syft.* 274. *Reich.* 659. *Burm.*
af. 195. t. 71. f. 1?
Vernal leaves decompound flat gasbed; summer filiform
angular trifid.
17. *Bupleurum spinosum*.
Lin. syft. 474. *suppl.* 178. *Gouan. illustr.* 8. t. 2.
f. 3. *Tourn. inst.* 310.
Branches of the panicle when old naked and spinescent;
leaves linear.
18. *Bupleurum nudum*. *Naked-stalked Hare's-ear*.
Ait. hort. kew. 1. 331.
Stem branched leafless, root-leaves decompound flat
gasbed; involucre and involucels lanceolate-oblong.
19. *Bupleurum coriaceum*. *Thick-leaved shrubby*
Hare's-ear.
L'Herit. stirp. nov. 139. t. 67. *Ait. hort. kew.* 1.
331.
Frutescent; leaves lanceolate coriaceous oblique.
DESCRIPTIONS, &c.
- Most of the *Bupleurums* are herbaceous plants, some of them however (14—17) are shrubby, and one of these is thorny. The leaves are mostly simple and entire. The little flowers are yellow, and commonly but few in an umbel. The involucre is many-leaved and short, sometimes however it has only three or five leaves. The partial involucre or involucel is larger, five-leaved, sometimes coloured, sometimes coadunate at the base^a.
1. Our common or round-leaved *Hare's-ear*, is known in English by the name of *Thorough-wax*, from the singular circumstance of the stalk waxing or growing through the leaf, which alone may serve as a sufficient mark to distinguish this plant, it being the only one, as Ray has observed, among our indigenous herbs, which has a simple leaf perforated by the stem. We may add however that the root is annual, small and fibrous; the stem a foot high, upright, round, perfectly smooth, alternately branched, often flexuose; the leaves smooth, blueish green, alternate, ovate, quite entire, acuminate and ending in a little awn or spine; the lower ones only stem-clasping, the upper ones perfoliate; the partial involucre consists of three or five ovate, acuminate,

unequal leaflets, longer than the rays^b. Every part of the plant is remarkably hard and rigid, and has a slight aromatic smell. It had the reputation formerly of being a vulnerary herb; but this is a quality which no medicine can have, any otherwise than as a tonic strengthening the constitution; nor can any external application be specifically healing or consolidating, or be useful in any other way, except as a defence from the air^c.

Native of most parts of Europe, as a weed among corn, from Britain southwards. With us however it is not very common. Professor John Martyn says that he never discovered it near London; it has however been found near Lewisham, except this Dartford and between Queenhithe and Stone in Kent, and Harefield in Middlesex, are the nearest places to the metropolis that it has hitherto been seen at, as far as I have any information. In Cambridgeshire it appears in several fields in tolerable plenty. Ray observed it above one hundred and thirty years ago near Teverham. Professor John Martyn found it only once between Queye church and Botolpham, above sixty years ago. Since that time it has been remarked by the lower road to Gogmagog hills, by Linton, and near Kingston wood. Mr. Crowe has found it near Marham in Norfolk. Mr. Woodward at Carlby, between Stamford and Bourn in Lincolnshire. In Kent it is plentiful in many parts, and between Farningham and Ainsford, it grows in such quantity in the corn fields, that it may well be termed the infirmity of them^d. Dr. John Sibthorp marks it as growing in the Parks, at South Leigh, and Middleton Stoney in Oxfordshire. It grows about Epsom, Sutton, and Leatherhead in Surry; and doubtless in many other places in the southern counties. In Scotland and the northern counties we have no account of it. A dry calcareous soil suits it best; and I have never observed it except among wheat. It flowers in June and July.

2. Root perennial. Stem a foot or eighteen inches high. Root-leaves very long, grass-like, widening very gradually, and narrowing also gradually, some ending obtusely, others drawing to a point; scarcely any on the stem except one embracing leaf under a branch. Universal involucre of one, two, or three leaves^e. Partial involucre coloured, longer than the flowers, eight or nine-cleft^f, at the edge, but united at bottom so as to form a sort of basin, in which the flowers are lodged^g.

Native of the alps of Switzerland and Dauphiné. Introduced in 1775, by Doctors Pitcairn and Fothergill. It flowers from May to July^h.

3. Root perennial. Root-leaves very numerous, long, narrow and tender, like those of the most delicate grasses, spreading on the ground. The stem which rises from the midst of these is eight or ten inches high, simple and leafless, having commonly a single branch near the top, with one leaf at the base, and an umbel of flowers at the end smaller than that which terminates the stem. The universal involucre is three-leaved; the partial has seven (five to seven) small, nerved, lanceolate leaves which are very distinct. The umbellule bears about ten flowers.

Some authors seem to have taken a variety of the foregoing species, with narrow leaves, and a five-leaved involucre, for this sort; but that has always the partial involucre in form of a basin, whereas in this the leaflets are separated to the very bottomⁱ.

Pona, Seguiet, and Villars have distinguished and described this species. It is a native of Switzerland, monte Baldo, and the South of France: was introduced in 1768, by Professor de Saussure: and flowers from May to July^k.

4. This sort is large, being eighteen inches high, and is easily known by its awned involucre^l. The involucels are oval, and the length of the umbellule. It is very nearly allied to *B. stellatum*, though the

leaflets of the partial involucre are distinct in this. In variety β . the leaves are extremely narrow and streaked; but in α . they are lanceolate and not streaked^m.

According to Haller, *Perfoliata alpina angustifolia* minor *Baub.* is probably a variety of *B. petraeum*.

Villars has a species which he names *B. vapincense*; he thinks it may be the same with *B. angulosum* of Linneus, and perhaps a variety of *B. longifolium*; from which however it differs, in having the leaves more lengthened, and narrow as they approach the umbel; whereas in *B. longifolium* they become more rounded as they are higher on the stem.

The stem is stiff, whitish and branched; the leaves are bright green, moderately hard, nerved, elliptic, scarcely three times as long as they are broad; the involucre is almost round, stiff, and a little pointed.

He suspects his *B. angulosum*, as well as his *B. gramineum*, to be a variety of the *B. ranunculoides* of Linneusⁿ. Gouan has a sort which he names *B. pyreneum*, that he supposes to be different from this.

B. angulosum is a native of Switzerland. It was cultivated in 1759, by Mr. Miller; and flowers from May to July^o.

5. Long-leaved Hare's-ear bears a great similitude to our common sort (n. 1.); but the root is perennial, and the root-leaves are permanent and more lengthened out. The height of the stem is about a cubit, upright, and if branched, only at top. The lower leaves from a slender petiole spread into an ovate-lanceolate form, and are sharp-pointed at the end; the upper ones are deeply stem-clasping. Both involucre is usually composed of five elliptic, pointed, unequal leaflets, frequently tinged with red. The number of leaflets however varies, in the universal involucre from three to five; in the partial, from five to eight; in the latter they are the length of the florets^p.

Native of Germany, Flanders, Switzerland, Dauphiné, Savoy. It was cultivated here in 1713; and flowers from May to July^q.

6. Root perennial. Stem upright, two or three feet in height, slightly flexuose, round, very smooth, sometimes tinged with purple, the whole panicled. Leaves alternate, nerved, bright green, smooth; those next the root on long petioles, decurrent, ovate-lanceolate, frequently sickle-shaped; those on the stem almost linear, bent in or nodding forward. Universal umbel loose, of about seven rays; partial, of ten or twelve. Universal involucre short, composed of four or five (sometimes two) lanceolate, sharp leaflets; partial, of five, lanceolate, regular leaflets, the length of the umbellule. Flowers small, deep yellow^r.

Native of Germany, Switzerland, Austria, the South of France, and Italy. I gathered it in the torrents at Vevay and Aigle abundantly in May 1779. It flowers in our gardens from May to September; and was cultivated in 1739, by Mr. Miller^s.

7. Root annual. Stem very branching, angular, scarcely three inches high; the branches knotted at the base. Leaves linear-lanceolate, narrow, smooth, sessile. Involucre awned, concealing the umbels: universal has three to five broad rigid veined acute leaflets; partial like it, longer than the peduncles, with nine flowers, the middle one twice the height of the others^t. Seeds one-fourth only of the size of the first sort, without any streaks, either obscurely wrinkled or quite smooth, ovate-cylindrical, brown or blackish^u.

Native of the South of France, Switzerland, Carniola, Spain, Italy. Cultivated by Mr. Miller in 1759. It flowers from June to August^v.

8. Scarcely a span high. Branches divaricate. Leaves lanceolate. Compound umbel with five rays, and a five-leaved involucre, the length of the umbel. The partial umbel has besides the umbelliferous

^b Woodw. M. S. Engl. bot. Pollich. ^c Engl. bot.
^d Johnson upon Gerard. ^e Haller. ^f Linn. ^g Villars.
^h Hort. kew. ⁱ Villars. ^k Hort. kew. ^l Haller.

^m Linn. ⁿ Dauph. 2. 574, 575. ^o Hort. kew.
^p Linn. Hall. Krock. Villars. ^q Hort. kew. ^r Linn. Hall. Pollich.
^s Hort. kew. ^t Linn. Scop. ^u Gærtn. ^v Hort. kew.

peduncles, several simple ones, each bearing one flower. The petals are purplish^y.

It differs from the *Odontites* in being less. The branches in that are more divaricate, and almost at a right angle. The stems in that are evidently striated; in this smooth, scarcely striated at all. The leaves in the *Odontites* linear, sessile, acuminate; in this, from a linear origin, becoming ovate or elliptic, and ending in a small spine. In the *Odontites* the universal involucre is of five unequal leaves; the partial of five like them, but equal: the leaves of the partial involucre converge after flowering. The folioles of both involucres are transparent, with three remarkable green nerves, and transverse green lines between the nerves. The partial involucre expanding very much during the time of flowering. Usually eleven flowers in an umbel. The plants bear from four to six of these, with unequal rays; the inner ones shorter. Central umbel sessile. Petals yellow with an inflected hook. In the *semicompositum* the leaves of the partial involucre are green, striated, not transparent, with the edges very even but subhirsute. Petals much smaller, almost white; flowers almost sessile, the central one only having something of a peduncle. Fruits subhirsute. Universal involucre of five unequal folioles, resembling those of the partial, but longer. Rays of the umbels hardly longer than the universal involucre, whereas in the *Odontites* they are much longer. Flowers in each umbel five or six^z.

Native of Spain, Montpellier, Villafranca. Annual. It was introduced in 1778, by Mons. Thouin; and flowers in July and August.

9. This is commonly a very small plant, not more than a few inches in height; in some situations it is scarcely more than one inch high, in others it rises to a foot. The root is perennial. The stem simple. The leaves grass-like and stiff. Umbel unequal. Universal involucre ovate acute short; partial, equal obovate acute. Umbellules equal, small, the length of the partial involucre^a.

Gouan insists that the involucre is not three-leaved, but two, four or five-leaved, and always unequal, inasmuch that the largest of the leaflets is almost half an inch, and the least scarcely half a line in length. The partial involucre is usually composed of five, but sometimes of six or seven leaflets.

Haller joins the *angulosum* with this, and Gouan adds the *petraeum*, affirming that the specimens in Seguiet's herbarium differ not in the least from those which he himself collected on the Pyrenees for the *ranunculoides*. Villars on the contrary insists that the true *B. petraeum* of Pona is really a distinct species, and that varieties of this have been mistaken for it. He gives two species, *B. angulosum*, and *gramineum*, which he suspects however may be only varieties of the *ranunculoides*.

Native of the South of France, Switzerland, and the Pyrenees.

10. Root perennial. All the leaves lanceolate, nerved, rigid, petioled. Universal involucre three-leaved, subulate, very short; partial bristle-shaped and short.

It grows naturally about Montpellier, and Frankfurt on the Mayne^b.

11. Root annual simple naked. Stem half a foot high, branched, diffused, smooth, slightly angular. Leaves linear, grassy, stem-clasping, ending in a very sharp point, marked with three very fine nerves. Peduncles long, both lateral and terminating. Leaflets of the universal involucre very narrow and sharp, unequal; the pedicels longer than the involucre. Leaflets of the partial involucre linear-setaceous, unequal, longer than the flowers; which are subsessile. Seeds oblong, streaked, cut off as it were at the tip^c. Native of Provence, and Austria.

12. Our Least Hare's-ear is an annual plant, with the stem a foot high, and much branching; the

branches alternate, long, and many-flowered. Leaves rigid, linear, acute. Universal involucre has three short unequal awl-shaped leaves: partial five, awl-shaped (or bristle-shaped), awned, longer than the rays. Umbellules axillary, small, only two or three together^d. Haller will not admit that it has properly any universal involucre; and remarks, that it can scarcely be said that the umbels are really compound.

Native of Germany, Austria, Switzerland, France, Italy, and England, near Huntingdon, Ellesley, Cambridge, Lynn, Holkham, Malden, Hastings, Pett; in the Isle of Thanet, and probably in many more places, where it has been overlooked; being a plant of little appearance or colour, lost in a manner in the grass among which it grows. It flowers in July and August.

13. Root annual. Stem six feet high (Haller says, from two to three feet, and others two feet only), rushy, of an even surface; with alternate upright branches. Leaves grassy, in two rows, smooth and even, milky. Involucre lanceolate; the length of the umbel, which has four rays. The umbellules have five or six yellow flowers^e.

Gerard adds, that the stem is straight, round, hollow within; that the leaves are gradually smaller and sheathing; that the branches are divaricate and leafy; that the lateral flowers are solitary or in pairs; the terminating ones umbelled, with few umbellules and unequal pedicels; that the involucre has about three linear acute leaflets; and the involucre about four linear-subulate leaflets^f.

Villars informs us, that the leaves are all long, weak, thin, and hanging down, and that the seeds are pointed and bigger than those of the other sorts.

Ray observes that it is a larger, taller plant than the foregoing, with stouter stems not branching from the bottom, but for some space having only narrow sharp leaves, two or three inches long, placed alternately. On the upper part of the stem branches spring from the axils of the leaves, subdivided into very slender twigs, bearing very small umbels, if they may be so called; at their ends, composed of two or three floscules, with an involucre of four or five very slender and short leaflets at their base. The seeds are almost of the size and colour of Parsley. At the base of each twig there is only one leaf, whereas in *B. tenuissimum* there are two. These are certainly distinct species, and are both very common about Montpellier^g. This is native of other parts of France, of Italy, Switzerland, and Germany. It flowers in July and August, and was cultivated in the botanic garden at Chelsea in 1722^h.]

14. Common shrubby Hare's-ear is an evergreen shrub rising to the height of five or six feet, and dividing into many branches so as to form a large regular bush. The stem is covered with a purplish bark; the branches are well furnished with oblong, smooth, shining, stiff leaves, of a sea-green colour, placed alternately, four inches long, and one broad in the middle; at the ends of these the flowers are produced in umbels: they are yellow at first, but fade away to a brown: they come out in July or August, but seldom perfect seeds in England.

Native of the South of France, Italy [and the Levant. Cultivated by Gerard, in 1596ⁱ.

15. The leaves of this are sharp and rather fleshy^k. It is a native of Spain; was cultivated in 1739, by Mr. Miller; and flowers in August and September^l.]

16. This rises with a shrubby stalk to the height of five or six feet, sending out some side branches, which in the spring have on their lower parts leaves composed of many small flat leaflets, finely cut like those of Coriander, and of a sea-green colour; these leaves soon fall off, and the upper part of the branches is closely covered with long rush-like leaves having four angles, coming out in clusters from each joint. The flowers grow in spreading umbels at the extre-

^d Linn. Hall. Woodw. M. S.

^e Hist. p. 474.

^f Linn.

^g Hort. kew.

^h Ibid.

ⁱ Hort. kew.

^j Prov. 234.

^k D'Ailo.

^y Linn.

^z Allioni.

^a Linn.

^b Ibid.

^c Gerard. prov.

mities of the branches; they are small, of an herbaceous colour, and are succeeded by oblong channelled seeds.

[According to Linneus, it has the winter leaves of Parsley, and the summer leaves of Broom. The involucre has many subulate leaflets, connected at the base and shrivelling: the involucels have five leaflets. Some of the umbels are simple; others compound.

It is a native of the Cape of Good Hope; flowers from June to August; and was cultivated by Mr. Miller in 1752^m.

Mr. Miller had many more species in the older editions of his dictionary, than in the two last; probably omitted because they were not worth cultivating either for their use or beauty.

17. Root perennial: Stem low, shrubby, unequal, streaked, rigid; with very frequent joints, and branches divaricate and bent back. Root-leaves linear-lanceolate, three-nerved, acute; stem-leaves very like them; those on the branches sharper and very short. Umbels terminating: universal with from three to five rays, four lines in length, and as many very short leaflets to the involucre; partial with from five to seven rays, a line in length, and five leaflets to the involucel, scarcely a third of a line long. When the fructification is completed, the rays of the universal umbel, and the branches, become thorny, as in *Alyssum spinosum*ⁿ.

Native of Spain.

18. Native of the Cape of Good Hope. Introduced in 1778, by Patrick Ruffell, M. D.

19. Stems upright, sparingly branched, round, dark-coloured, annulated with the scars left by the fallen leaves, from three to four feet in height: branches alternate, upright, marked with lines, fistulose, green. Leaves alternate, approximating, half-stem-clasping, quite entire, cultrate about the edges, with a sharp reflex point, attenuate at the base, having one whitish nerve, glaucous, permanent, five inches long and near an inch broad, when held up to the light appearing very finely netted. Scape or common peduncle in which the branches terminate furnished in the lower part with remote leaflets, branched at top into lateral umbels, marked with lines, a foot and half in length, more slender by half than the branch from which it springs. Umbels alternate, peduncled, the lower ones axillary, smaller, spreading; pedicels short, upright; flowers yellow, scarcely two lines in breadth. Each umbel has about fifteen rays. Universal involucre has about eight oblong, acuminate leaflets, which are slightly convex and hang down: partial five-leaved, smaller, ovate. Seeds oblong, rounded on one side with five wings, flat on the other. It differs from the common shrubby sort in the oblique situation of the leaves, and in having the peduncles branched. The whole plant is very fragrant when rubbed^{*}.

Native of Gibraltar; found there by Masson, and introduced in 1784^p.]

PROPAGATION AND CULTURE.

The Bupleurums in general are cultivated only in botanic gardens. The seeds should be sown in autumn, where the plants are designed to remain, for they do not bear transplanting well. To keep the plants clean from weeds is all the culture they require.

14. The European shrubby sort is commonly known among gardeners by the title of Shrubby Æthiopian Hartwort, and is now propagated in the nursery-gardens for sale. Being hardy it will thrive in the open air, and may be intermixed with other ever-green shrubs of the same growth, in the front of taller trees, where their stems are designed to be excluded from sight. It is propagated by cuttings, which should be planted in pots filled with fresh loamy earth, and in winter sheltered under a hot-bed frame; in the spring the cuttings will put out

roots, but they will not be fit to transplant till the autumn following; so the pots should be placed in a shady situation in summer, and in dry weather they must be refreshed with water. The young plants may be planted in a nursery-bed at two feet distance for a year or two to get strength, and then transplanted where they are to remain.

The fifteenth sort may be treated in the same manner: but it is not so hardy.

16. This also is propagated by cuttings, which readily take root, if they are planted in April, in pots filled with light earth, and plunged into a moderate hot-bed; when they have taken root, they should be inured to the open air by degrees, and after they have obtained strength may be planted each into a separate pot filled with light loamy earth, placing them in the shade, till they have taken fresh root, when they may be placed with other exotic plants in a sheltered situation, where they may remain till the autumn, and then they must be removed into the green-house or dry-stove.

If this plant be propagated by seeds, they should be sown in autumn, soon after they are ripe, in pots filled with light earth, which must be sheltered under a frame in winter, and in the spring removed to a very gentle hot-bed; the plants must be inured to the open air by degrees, and then treated in the same manner as those raised from cuttings.

[17, 18, 19. May all be propagated by cuttings, and treated as the sixteenth: or by seeds, when they can be obtained. They will probably bear the open air in mild seasons, but are not yet sufficiently common to run that hazard.

BURCARDIA. (*In memory of Jo. Henr. Burckhard, M. D. who published Character plant. 1702.*)

Scop. Lin. gen. Schreb. n. 530. Piriqueta. Aubl.

117. Juss. 295.

Class. 5. 5. Pentandria Pentagynia.

GENERIC CHARACTER.

CAL. Perianth five-leaved: leaflets ovate, externally villose, acute, deciduous.

COR. Petals five, roundish, obtuse, spreading, almost the length of the calyx.

STAM. Filaments five, capillary. Anthers ovate.

PIST. Germ three-cornered. Styles five or six, long. Stigmas flat, broadish, fleshy, with five prominent streaks.

PER. Capsule three-sided, one-celled, three-valved. Receptacle linear, fastened longitudinally to the middle of each valve.

SEEDS seven or eight, subovate, adhering to each receptacle.

OBS. The capsule is sometimes four-cornered.

ESSENTIAL CHARACTER.

Cal. five-leaved. Cor. five-petalled. Caps. angular, one-celled, three-valved, seven or eight-seeded.

SPECIES.

1. Burcardia villosa.

Piriqueta villosa. Aubl. guian. 1. 298. t. 117.

DESCRIPTION, &c.

This is an annual plant, with a branched stem, two feet high, hirsute with reddish brown hairs. Leaves alternate, subsessile, ovate-oblong, wrinkled, toothed, covered with hairs of the same colour with those on the stem. Flowers at the end of the stem and branches, axillary, solitary, on long hairy peduncles. The whole plant indeed is covered with stiff hairs: It is found on sandy coasts of Cayenne and Guiana^q.

BURCARDIA. Heist. See *Callicarpa*.

BURDOCK. See *Arctium*, and *Xanthium*.]

BURMANNIA. (*So named in honour of John Burmann, M. D. professor of botany at Amsterdam; author of Thesaurus Zeylanicus; Decades rariorum plantarum Africanarum, &c.*)

Lin. gen. n. 397. Reich. 429. Schreb. 542.

Class. 6. 1. Hexandria Monogynia.

Nat. order of Liliaceous flowers. Coronariæ. Linn. Bromeliæ Juss.

^m Hort. kew.

ⁿ Gouan. Linn. suppl.

^{*} L'Heritier.

^p Hort. kew.

^q Aublet.

BUR

GENERIC CHARACTER.

CAL. *Perianth* long, one-leafed, prismatic, coloured, with three longitudinal membranous angles; the mouth trifid small.

COR. *Petals* three, ovate, oblong, very small, placed in the mouth of the calyx, extremely minute.

STAM. *Filaments* six, very short. *Anthens* in the mouth of the calyx, very short, two always together, separated by a reflected point.

PIST. *Germ* cylindric, shorter by half than the calyx. *Style* filiform, the length of the corolla. *Stigmas* three, obtuse, concave.

PER. *Capsule* covered by the calyx, cylindric, three-cornered, three-celled, three-valved, gaping at the angles.

SEEDS numerous, very small.

ESSENTIAL CHARACTER.

Cal. prismatic, coloured, trifid: angles membranous. *Petals* three. *Caps.* three-celled, straight. *Seeds* minute.

SPECIES.

1. *Burmannia disticha*.

Lin. spec. 411. *Reich.* 2. 10. *fl. zeyl.* 128. *hort. cliff.* 128. *Burm. zeyl.* 50. t. 20. f. 1. *Raii suppl.* 559. n. 25. *Spike* double.

2. *Burmannia biflora*.

Lin. spec. 411. *Reich.* 2. 10. *hort. cliff.* 128. *Gron. virg.* 36. *Flowers* two together.

[DESCRIPTIONS, &c.]

1. Root composed wholly of capillary fibres, and very small. The plant has the habit or appearance of an *Anthericum*. Root-leaves six, eight, or nine, grass-like or ensiform, two inches long, quite entire. Stem upright, straight, quite simple, a span or a span and half in height, having six or seven very small, alternate, scale-like leaves, sheathing at the base, an inch long, scarcely separating from the stem, but in a manner embracing it. Two equal, simple, divaricating spikes, each composed of about nine flowers, terminate the stem. The flowers are sessile, in a single row, pointing upwards; they are blue, very elegant, and do not fall off.

Native of Ceylon, in open watery places. Called in the country *Jawel*, *Jawul*, or *Dyajawul*; that is *Water Jawul**. Cultivated by Mr. Miller, in 1768.]

2. Root strong and fibrous, with several oblong, oval leaves arising from it, which are smooth and entire, four or five inches long; among these springs the flower-stem, six or eight inches high, terminated by blue flowers, growing two together in each sheath.

It grows naturally in Virginia and Carolina, in watery places; and was cultivated by Mr. Miller with the former.

PROPAGATION AND CULTURE.

These plants are very difficult to preserve in gardens, for as they naturally grow in marshy places, which are covered with water great part of the year, they will not thrive when planted in dry ground, and being too tender to live abroad in England, they must be planted in pots, plunged in troughs of water, so deep as to cover the surface of the mould about three inches. The troughs in which the first sort is planted should be placed in a warm stove, where the plants should constantly remain, being careful to supply the water as it diminishes. Those in which the second sort is put should be placed in a green-house in winter to protect the plants from frost, but in summer they may be exposed to the open air. With this management, if carefully attended to, the plants may be preserved, and sometimes may be brought to produce flowers.

BURNET. See *Poterium* and *Sanguisorba*.

[BURNET-SAXIFRAGE. See *Pimpinella*.

BUR-REED. See *Sparganium*.

BURSA PASTORIS. See *Bunias*, *Draba*, *Iberis*, and *Tblaspi*.

BURSÆ PASTORIS SIMILIS. See *Arabis*.

* Linn. zeyl. and Burm. zeyl.

BUR

BURSERA. (So named in memory of Joachim Burser, the disciple of Caspar Bauhin, a great collector of plants. His herbarium in thirty volumes is now at Upsala.)

Lin. gen. n. 440. *Reich.* 475. *Schreb.* 1608.

Jacqu. amer. 94. *Swartz obs.* 130. *Juss.* 372.

Class. 23. 2. Polygamia Dioecia.

GENERIC CHARACTER.

* Hermaphrodite.

CAL. *Perianth* one-leafed, minute, three-parted: parts ovate, acute.

COR. *Petals* three, ovate, acute, spreading, entire, deciduous.

STAM. *Filaments* six, subulate, erect, fixed round the base of the germ. *Anthens* ovate, erect.

PIST. *Germ* ovate. *Style* short, thick, trifid at the tip. *Stigmas* very short, simple.

PER. *Capsule* fleshy, obovate, three-cornered, three-celled, three-valved.

SEEDS berried solitary (commonly only one), compressed.

OBS. There are obscure vestiges of two cells, but a single seed occupies the whole capsule.

* Male on a separate tree.

CAL. *Perianth* five-toothed, minute.

COR. *Petals* five, lanceolate, acuminate, reflex, shrivelling.

STAM. *Filaments* five, eight, ten, placed round a slightly convex surface, scarcely shorter than the petals, subulate. *Anthens* oblong, two-celled.

PIST. A rudiment. *Germ* none. *Style* trifid, caducous, or none.

ESSENTIAL CHARACTER.

HERM. Cal. three-leaved. Cor. three-petalled. Caps. fleshy, three-valved, one-seeded.

MALE. Cal. five-toothed. Cor. five-petalled. Stam. ten, (five to eight).

SPECIES.

1. *Bursera gummifera*. *Jamaica Birch Tree*.

Lin. spec. 471. *synt.* 342. *Reich.* 2. 105. *Jacqu. amer.* 94. t. 65. *piet.* 49. t. 96. *Swartz obs.* 131. *Plenck, ic.* t. 251.

Pistacia foliis pinnatis deciduis, foliolis ovatis. Lin. spec. edit. 1. 1026.

Terebinthus. Comm. hort. 1. 149. t. 77. *Brown. jam.* 345. *Sloan. jam.* 2. 89. t. 199. *Catejb. car.* 1. t. 30.

Betula americana, bacca triquetra, odore terebinthi. Petiv. Pluk. phyt. t. 151. f. 1.

DESCRIPTION, &c.]

This is a very lofty tree, with an upright, round, smooth trunk, covered with a livid, shining bark, peeling off in round pieces, like the European Birch. Branches terminating, smooth, horizontal. Twigs ferruginous, and villose. Leaves pinnate. Petioles round, villose, petiolules compressed, channelled, villose beneath. Leaflets two or three pairs, besides the odd one; they are ovate with a short point, entire, veined, and smooth. Racemes axillary and terminating, shorter than the petioles, upright, many-flowered, pubescent: pedicels alternate, short, one-flowered. Flowers small and white. Capsule red, resembling a drupe. On the male trees, the flowers are more copious and crowded in the racemes, but are scarcely larger^b.

According to Sir Hans Sloane, the roots run very superficially; the trunk is as thick as a hoghead or pipe; there are four or eight pairs of leaflets, an inch and half long, and half as broad near the round base where broadest; the petals are five in number, thick, yellowish and short; the berries three-sided, the size of a small pea, with a reddish-brown skin, very gummy, and smelling like turpentine; under which lies a white, very hard, triangular stone, containing a kernel. The tree having stood naked some time has first its flowers come out, and its leaves begin to bud a little after.

Authors differ very much in their descriptions of the fructification. The generic character given above is from Swartz.

^b Swartz.

This tree is common in all the sugar-islands of the West Indies. The bark is very thick, and exudes a clear transparent resin, which soon hardens in the air, and looks like the mastic of the shops; but by incision it yields a considerable quantity of a more fluid substance, which has much of the smell and appearance of turpentine, and may be used for the same purposes. The bark of the root is thought to be the *Sima-rouba* of the shops, which is an effectual remedy in bloody-fluxes: it is administered in decoctions; and one or two drams is sufficient for a quart of water; for if it be strong, it purges or vomits^c.

In the French islands it is called *Gommier blanc*, and an infusion of the buds and young leaves is recommended there in disorders of the breast.

It flowers from may to july^d. With us it has not flowered, although it was cultivated in the royal garden at Hampton Court, so long since as 1690^e.

BURSERIA. See *Verbena*.

BUTCHER'S-BROOM. See *Ruscus*.]

BUTOMUS. (*Βούτ & τούτος*, *Bovem scindens*: because the sharp leaves are said to wound the tongue and lips of kine.)

Lin. gen. n. 507. Reich. 550. Schreb. 693.

Tournef. 143. Gært. t. 19. Juss. 46.

Class. 9. 3. Enneandria Hexagynia.

Nat. order of *Tripetaloidæ*.—*Junci* Juss. One of the connecting links between *Lilies* and *Rusks*.

GENERIC CHARACTER.

CAL. Involucre simple, three-leaved, short.

COR. Petals six, roundish, concave, withering: three outer alternate, smaller, more acute.

STAM. Filaments nine, subulate. Anthers bilamellate.

PIST. Germs six, oblong, acuminate, ending in styles. Stigmas simple.

PER. Capsules six, oblong, gradually attenuated, erect, one-valved, gaping on the inside.

SEEDS very many, oblong-cylindric, obtuse at both ends, fixed to the wall of the capsules.

ESSENTIAL CHARACTER.

Cal. none. Petals six. Caps. six, many-seeded.

SPECIES.

1. *Butomus umbellatus*. Flowering Rush or Water Gladiole.

Lin. spec. 532. Reich. 2. 233. lapp. 159. suec. 350.

Huds. angl. 174. With. 420. Curt. lond. 1. 29.

abr. t. 1. Lightf. scot. 211. Relb. cantabr. 164.

Hall. belv. n. 1186. Scop. carn. n. 475. Pollich

pal. n. 391. Krock. siles. n. 619. Villars dauph.

2. 278. Fl. dan. t. 604. Mill. illustr. fig.

B. *Casalp.* 553. Neck. gallob. 189. Raii syn. 273.

Juncus floridus. Matth. 1037. Camer. epit. 781.

Baub. hist. 2. 524. Raii hist. 701.—major. Baub.

pin. 112. Park. 1197. 1. Rudb. elyf. 1. 109. f. 1.

Sedo affinis juncoides umbellata palustris. Mor.

hist. 3. f. 12. t. 5. f. 3.

Gladiolus aquatilis. Dod. pempt. 600.—palustris

Cordi. Ger. 27. 2. emac. 29. 2.

[DESCRIPTION, &c.

Root perennial. Leaves ensiform, long, triangular, smooth, quite entire, spongy, at bottom sheathing, at top flat and twisted. Scape upright round, smooth, from one to three or five and six feet high. Flowers to thirty, each on a single round smooth peduncle, from an inch to about a finger's length, forming an upright umbel, surrounded at bottom by an involucre of three withering membranous sheaths; besides a smaller stipule to each peduncle. Corolla handsome, near an inch in breadth; commonly of a bright or pale flesh-colour, purple or rose-colour. Filaments placed in a regular circle on the receptacle. Anthers before the shedding of the pollen, reddish, four-grooved, and terminated by a short point; appearing afterwards somewhat heart-shaped, flat and bilamellate. The pollen is of a bright yellow colour. Germ nearly triangular, the outer side broad and roundish: the stigma has a small channel in it, which afterwards spreads into

^c Browne.

^d Swartz.

^e Hort. kew.

two lips^f. Capsules within the permanent corolla; ovate and beaked, connected below near half their length, membranaceous. Seeds small, subcylindric, grooved, on one side furnished with a very narrow membranaceous rib or hilum, rufescent, fixed, without any proper receptacle to the inside of the capsule all round: skin double; outer crustaceous, hard, brittle; inner membranaceous, very thin, adhering closely to the seed: albumen almost cylindric, but thinner towards the navel, fleshy, white: embryo one-lobed, ovate-globular, minute, in the thicker part of the albumen or white, opposite to the umbilicus or navel, greenish^g.—In and by the sides of watery ditches, moats, lakes, ponds; and brooks, in most parts of Europe, from Lapland to Italy. It flowers with us from july to september. The corolla varies in different shades of red, or purple mixed with white; and is sometimes entirely white. The stem at bottom, and the peduncles at top are often tinged with red. The number three is evidently predominant in the fructification: the corolla being doubly tripetalous; the stamens thrice three; the pistils six; the capsules six in a hexagon form; the involucre three-leaved. We know not of any use to which this plant may be applied, but its beauty is acknowledged. "The Water-Gladiole or grassie Rush," says Gerarde, "is of all others the fairest and most pleasant to behold, and serveth very well for the decking and trimming up of houses, because of the beautie and braverie thereof."—It is the only plant of the class *Enneandria*, which grows wild in Britain.]

Mr. Miller mentions a variety, as found near London, intermixed with the common sort; which is not half so large in leaf, stalk, or flower.

PROPAGATION AND CULTURE.

Flowering-Rush may be propagated in boggy places; or by planting it in cisterns kept filled with water, and having about a foot thickness of earth in the bottom, into which the roots should be planted, or the seeds sown as soon as they are ripe; or on the sides of ponds or flow-flowing streams, where it will have a good effect in diversifying the scene.

BUTNERIA. See *Calycanthus*.

[BUTONICA. See *Barringtonia*.

BUTTER-BUR. See *Tussilago*.

BUTTER-WORT. See *Pinguicula*.

BÜTTNERIA. (From David Sigism. August. Eüttner, professor of botany at Gottingen.)

Lin. gen. 268. Reich. 288. Schreb. 366. Loefl.

it. 313. Jacqu. amer. 76. Juss. 277.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Columniferae*. *Malvaceæ* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, five-cleft, deciduous: divisions ovate, acute, spreading very much.

COR. Petals five, oblong, short, converging; above broadish, concave; ending in a long, subulate bristle, incumbent on the nectary at the base, then erect-exserting, longer than the calyx, and in two other small, lateral, short, reflex bristles.

Nectary five-leaved, ventricose-campanulate, shorter than the calyx: leaflets obovate, obtuse, flat, erect, semiconnate by the filaments.

STAM. Filaments five, subulate, on the outside of the nectary, each springing from two adjoining leaflets of it. Anthers twin, distinct, bifid, roundish.

PIST. Germ roundish, quinquangular. Style subulate, short. Stigma obtuse, obscurely quinqued.

PER. Capsule roundish, depressed, five-grained, five-valved, muricate.

SEEDS solitary, ovate, compressed.

ESSENTIAL CHARACTER.

Cor. five-petalled. Filaments at the top connate with the petals. Caps. five-grained, muricate.

SPECIES.

1. *Büttneria scabra*.

Lin. spec. 284. syst. 236. Reich. 551. Loefl.

it. 313. Aublet. guian. 1. 241. t. 96.

Leaves lanceolate, rib and petioles prickly.

^f Curtis, Withering.

^g Gärtner.

B U X

2. *Büttneria carthagenensis*.
Lin. syst. 236. *Jacqu. amer. pict.* 41.—*aculeata*.
amer. 76.
Leaves ovate, rib and petioles prickly.
3. *Büttneria microphylla*.
Lin. syst. 236. *Reich.* 551. *mant.* 209. *Jacqu.*
hort. 10. *t.* 29.
Branches flexuose even, leaves unarmed.

DESCRIPTIONS, &c.

1. This is a perennial plant, shrubby at bottom, from three to five feet high, with alternate, long, angular branches, armed with short, reflex, cartilaginous prickles. Leaves linear-lanceolate, alternate, toothletted, pale green especially underneath, where the midrib has recurved prickles along it; the largest are four or five inches long and four or five lines in breadth; the lower ones are petioled, the upper subsessile; at the base are two deciduous stipules. At the axils of the leaves, stem and branches, the flowers are produced singly on short peduncles. Found by Aublet between Cayenne and Couron, in June^a.

2. Jacquin affirms this to be different from the foregoing. He describes it as a shrub with branches spreading on every side in the manner of the common Bramble. Stems perennial, rather woody, five-cornered, the furrows and angles obtuse, armed with crooked reflex prickles: the tender branches round, prickly, alternate. Leaves smooth, quite entire, or with one or two serratures only, alternate, deciduous, the petiole and midrib prickly at the back; on the old branches ovate, acute, four inches long or more, on the younger lanceolate-acuminate, less. Racemes short, aggregate and axillary on the younger branches. Flowers without smell, small, white, very numerous. Native of Carthage and St. Domingo: flowering September and October^b.

3. Spines of the stem solitary, by the side of the leaves, horizontal. Leaves alternate, or in pairs, remote, oval, very blunt, subsessile, spreading. Peduncles lateral, axillary, capillary, many, equal to the leaves. Calyx five-leaved, spreading. Petals linear, lobed on each side at the base. Fruit thorny all over^c.

It differs from the foregoing, in having unarmed leaves, the trunk and branches larger and round, the peduncles one-flowered, and the corolla purple and white variegated.

Found by Jacquin, in February 1757, near Port au Prince in the island of St. Domingo; and introduced by him into Europe^d.

BUTTON-TREE. See *Conocarpus*.

BUTTON-WEED. See *Spermacoce*.

BUTTON-WOOD. See *Cephalanthus*.

BUXBAUMIA.

A kind of Moss, of which there are only two species. 1. *B. aphylla*, figured in *Fl. dan.* *t.* 44. *Dill. musc.* *t.* 68. *f.* 5. and, 2. *B. foliosa*, figured by *Dillenius*, *t.* 32. *f.* 13. Both are to be found in the dissertation of the younger Linneus on Mosses, p. 25 and 33. and the latter is figured there, *t.* 1. *f.* 4.]

BUXUS. (βύξος; from βύξα, *dense, spissé*: δια, το πυκνόν του ξύλου, *the timber being very dense and close.*)

Engl. Box. Fr. Buis.

Lin. gen. *n.* 1053. *Reich.* 1148. *Schreb.* 1420.

Tournef. 345. *Juss.* 388. *Gartn.* *t.* 108.

Class. 21. 4. Monoecia Tetrandria.

Nat. order of *Tricocceæ*.—*Euphorbiæ* Juss.

GENERIC CHARACTER.

* *Male flowers prominent from the buds of the plant.*

CAL. *Perianth* three-leaved: *leaflets* roundish, obtuse, concave, spreading.

COR. *Petals* two, roundish, concave, very like the calyx, but larger.

STAM. *Filaments* four, subulate, erect-expanding, rather larger than the calyx. *Anthers* erect, twin.

PIST. Rudiment of a germ without style or stigma.

B U X

* *Females in the same bud with the males.*

CAL. *Perianth* four-leaved: *leaflets* roundish, obtuse, concave, spreading.

COR. *Petals* three, roundish, concave, very like the calyx, but larger.

PIST. Germ superior, roundish, obtusely three-cornered, ending in three, very short, permanent styles. Stigmas obtuse, hispid.

PER. Capsule coriaceous, roundish, three-beaked, three-celled, bursting elastically into three parts.

SEEDS twin, oblong, rounded on one side, flat on the other.

ESSENTIAL CHARACTER.

MALE. Cal. three-leaved. Petals two. The rudiment of a germ.

FEM. Cal. four-leaved. Petals three. Styles three. Caps. three-beaked, three-celled. Seeds two.

SPECIES.

1. *Buxus sempervirens*.

Lin. spec. 1394. *Reich.* 4. 128. *hort. cliff.* 441. *upf.* 283. *mat. med.* 200. *Gartn. fruct.* 2. 125. *Huds. angl.* 417. *With.* 1068. *Hall. herb.* *n.* 1610. *Scop. carn.* *n.* 1173. *Allion. pedem.* *n.* 2097. *Du Roi barbecc.* 1. 118. *Dukam. arb.* 1. 115. *t.* 46. *Pallas. ross.* 1. 17. *Villar's dauph.* 2. 336. *Raii hist.* 1693. *Ger.* 1225. *emac.* 1410. *Park.* 1428. *f.* 1. 1429. *Camer. epit.* 601.

α. *B. arborescens*. *Baub. pin.* 471. *Mill. dict. n.* 1. *Blackw. t.* 196. *Common Box-tree.*

β. *B. angustifolia*. *Raii syn.* 445. *Huds. β.* *Mill. dict. n.* 2. *Narrow-leaved Box-tree.*

γ. *B. suffruticosa*. *Mill. dict. n.* 3. *Dwarf Box.*

B. fol. rotundioribus. *Baub. pin.* 471.—*humilis*. *Dod. pempt.* 782.

DESCRIPTION, &c.

[Box is well known in its dwarf state, and as a shrub about three feet in height; it becomes however, when left to itself, a tree, twelve or fifteen feet high, with a trunk equalling the human thigh in thickness, covered with a rugged, grayish bark, that of the branches yellowish. The wood is of a yellow colour, of an even close grain, very hard and ponderous. It is the only one of the European woods which will sink in water. Theophrastus ranks it with the Ebony; for closeness of grain. The leaves are ovate or oval in the common sort, hard, smooth, glossy, evergreen, very dark green above, pale green underneath, something resembling those of Myrtle, but blunt and commonly emarginate at the end, the edges are revolute, they are set on very short petioles, and on the twigs they come out regularly in pairs, so close as almost to conceal them. On these, from the axils of the leaves, come out the small herbaceous flowers, in round bunches; a female flower occupying the middle of the bunch, and being surrounded by several males. The female flower is succeeded by a capsule of a globular form, very smooth, shining, trilocular, and before it opens having three beaks, then resembling a tripod: the rind is three-valved, and the valves are two-horned: the cocci or grains are of the consistence of paper; two-valved, and opening with an elastic spring: receptacle central, three-sided, and short: in each cell is a pair of seeds, ovate, growing more slender upwards, triangular-compressed, obliquely truncate at the end, blackish brown or black, smooth.]

Mr. Miller insists that the Common Box-tree, the narrow-leaved, and the Dwarf or Dutch Box] are three certainly distinct species. The two sorts of Box Tree have been frequently raised from seeds, and constantly produced plants of the same kind from those the seeds were taken from; and the Dwarf Box will never rise to any considerable height with any culture, nor have I ever seen this sort flower, where the plants have been encouraged to grow many years in the greatest luxuriance. There are two or three varieties of the first, which are propagated in the gardens, one with yellow, and another with white striped leaves. The other has the tops of the

^a Aublet.

^b Jacquin.

^c Linn.

^d Jacquin.

^e Gartner.

leaves only marked with yellow, which is called Tipped Box.

[The Box-tree is a native of most parts of Europe from Britain southwards. I have seen whole mountains covered with it between Lyons and Geneva, in Savoy, &c. but none of any size. It is also very common in many parts of Burgundy, Dauphiné and Provence. It abounds in many countries of Asia, as about mount Caucasus, in Persia, China, Cochinchina, &c. Also in America. In England it was formerly much more common than it is at present. Gerarde says, "it groweth upon sundry waste and barren hills in Englande:" and Parkinson, "that it is found with us in many woods, and wood grounds; that it is also planted in divers orchards or house back-sides, where it never groweth high, but serveth as a bush to dry linnen on, &c." Many of these bushes however have grown up to trees of a reasonable size, about old mansions, and farm-houses, but are now for the most part destroyed.

"These trees rise naturally," says Evelyn, "in Kent, at Boxley, and in Surry, giving name to Box-hill. He that in winter should behold some of our highest hills in Surry clad with whole woods of them, for divers miles in circuit; as in those delicious groves of them belonging to the late Sir Adam Brown of Bechworth-castle, might easily fancy himself transported into some new or enchanted country."

The enchantment, alas! has been long broken.] Mr. Miller, in 1759, lamented, that the trees on Box-hill, had been then pretty much destroyed; though many remained of a considerable bigness. [The destruction since that time has been much greater.

It has been conjectured that Box-hill was planted with these trees by the Earl of Arundel: but there is the most authentic proof that they were there before his time, and the ground on which they grow was not his property^f.

Not only this hill near Dorking in Surry, and Boxley in Kent, but Boxwel in Cotswold, Gloucestershire, was named from this tree.

Mr. Woodward remarks it as plentiful on the chalk hills near Dunstable. It is fond of open dry situations, and a calcareous soil. In temperate climates and seasons it flowers in february and march.

The wood of the Box-tree sells at a high price, by weight. Being very hard and smooth, and not apt to warp, it is well adapted to a variety of nicer works. "It is of special use," says Evelyn, "for the turner, engraver, carver, mathematical-instrument-maker, comb and pipe or flute-maker; the roots for the inlayer, and cabinet-maker. Of Box are made wheels and shivers, pins, pegs for musical instruments, nut-crackers, button-moulds, weaver's shuttles, hollar-sticks, bump-sticks, and dressers for the shoemaker, rulers, rolling-pins, pestles, mallets, beetles, tops, tables, chess-men, screws, bobbins for bone-lace, spoons, knife-handles, nay the stoutest axle-trees, but especially combs:

"Non ultima belli
"Arma puellaris; laqueos hæc nescit amantum,
"Et venatricis disponit retia formæ."

The English wood is esteemed inferior to that which comes from the Levant; and the American Box is said to be preferable to ours.

The ancients made combs of Box, and musical instruments to be played upon by the mouth. The Romans likewise clipped it into form, for which nothing is more fit, says Pliny; *ut quæ (arbor) ob densè subnascentes surculos & frondes, in animalium aliorumve effigies componi & detonderi præ alia quæcunque apta est.* And Martial observes of the garden at Bassus's country-house:

"———— otiosis ordinata myrtetis,
"Viduaque Platano, tonsilique buxeto."

It was second to the Yew with us in former times for the purpose of being clipped into the shape of

^f Gentleman's Magazine, 57, 880.

^g Cowley.

animals, &c.: but the Dwarf Box stood unrivalled "for bordering up a knot, and was esteemed a marvellous fine ornament to the flower-garden." The branches were in request among our ancestors for decking up houses^a; they are still seen among other evergreens in churches at christmas, and in some countries they are borne by attendants at funerals.

In our plantations, the Box still keeps its place deservedly among ornamental evergreens. It will flourish under the deepest shade, and will thrive in any soil and exposure. Dr. Stokes affirms that it is fit to cut down in about thirty years.

Box has been much celebrated as a medicine in the venereal disease, colics, intermittent fevers, &c. Haller says, *vix credo serio in usum recipi.* Our Gerarde observes, "that it is more fit for daggers than to make medicines; though foolish empiricks and women leaches do minister it against the apoplexy and such diseases." He adds, "that turners and cutlers call this wood dudgeon, because they make dudgeon-hafted daggers with it."

Parkinson, in his first work says, "it has no physical use among the most and best physicians, although some have reported it to stay fluxes, and to be as good as Guaiacum for the French disease." Yet in his second work he sets it down "as a medicine for the bite of a mad dog! as a cure for the bots in horses; and the leaves and saw-dust boiled in lye, to change the hair to an Aborne (Auburn) or Abraham colour."

According to Dr. Withering, "an empyreumatic oil, distilled from the shavings, is often used as a topical application for the piles, and seldom fails to procure ease; it will frequently relieve the tooth-ach, and has been given internally in epilepsies; the leaves powdered destroy worms." Decoctions of the wood and bark are wholly disused, on account of their being very nauseous and disagreeable to the stomach.

Pliny affirms that no animal will touch the feed of Box^b. Gmelin relates that the branches are fatal to the camels that eat them^c. None of our animals seem to touch this tree. Corsican honey was supposed by the ancients to owe its infamy to the bees feeding on the Box.

The name varies very little from the Greek and Latin in the European languages; being *Bucks* or *Bucksbaum* in German; *Buxbom* in Swedish and Danish; *Buis* or *Bouis* in French; *Busso* or *Bosso* in Italian; *Box* in Spanish; *Bucho* or *Buxo* in Portuguese. The Russians have adopted *Samschit* from the Tartars. In Persian it is *Schimschat*; in Turkish *Tschemschir*. In Japanese *Ko tsuge*. In Chinese *Huynb duong*. In Cochinchinese *Hoam tuon*.]

PROPAGATION AND CULTURE.

All the varieties of Box may be propagated by cuttings planted in autumn in a shady border, observing to keep them watered until they have taken root, when they may be transplanted into the nursery, until they are fit for the purpose intended. [These cuttings may be planted so early as august, but the best time is when the autumnal rains fall, They should be a foot in length, and rather more than half should be planted in the ground, at the distance of four inches from each other. A slip of the last year's wood, stripped from an older branch, is an excellent set, and there is little fear of its growing. The cuttings or slips may stand three years, and then be transplanted into the nursery any time between august and april, choosing moist weather for the purpose, if this work be performed early or late. In the nursery the rows may be two feet asunder, and the plants a foot from each other in the rows^d.]

2. They may be propagated by laying down the branches. [This may be done between michaelmas and march; and it is the natural way by which Box frequently propagates itself; for when it breaks down

^a Parkinson parad. p. 606.

^b Hist. nat. l. 16.

^c Itin. 3. 103.

^d Hanbury.

by its own weight, or by a fall of snow, soon after it comes into contact with the ground, it sends forth fibres.]

3. Box may be propagated by seeds sown soon after they are ripe, in a shady border, and duly watered in dry weather. This is the best method to raise large trees. [The best soil for the seeds is a light loam or sand, and they should be sown half an inch deep. They will come up in the spring, though probably many will lie in the ground to a second season. They should stand two or three years in the seed-bed; and when they are strong enough to plant out, they may be removed into the nursery, and placed at the same distance as was prescribed for the cuttings.]

The best season for removing this tree is october, though it may be transplanted almost at any time, except in summer, if it be taken up with a good ball of earth.

Dwarf Box is increased by parting the roots or planting the slips; but as it makes so great an increase of itself, and so easily parts, it is hardly worth while to plant the slips that have no roots. It is so common that it may be purchased from the nurseries at a cheap rate. The manner of planting it in edgings is well understood by every working gardener.

[BYSSUS.

A genus of the Cryptogamia Algæ, and the last in the scale of vegetation in that class. The species in Linneus are fourteen, but there are certainly many more of them. They appear in form of threads or a kind of meal on rotten wood, the bark of trees, rocks, damp banks, and walls, especially of damp cellars. Hudson and Withering enumerate nineteen British species: and Lightfoot fourteen.

One sort is common on wine casks, at first is like flakes of snow, but turns yellow, and at last like a mouse's skin: in this state it has black grains at the base like gunpowder, rots the casks, and is excellent to staunch blood. The green paper Byssus is a farina concreting on the surface of the water, and forming a wide thin film on the surface. Weis denies it to be a vegetable^a. Withering is of opinion that it is a *Conferva*.

BYSTROPÖGON. (From *Buō*, obturo, and *Πωγων*, barba; the calyx being closed by a sort of beard.)

L'Herit. fert. angl. t. 22, 23.

Class. 14. 1. Didynamia Gymnospermia.

Nat. order of *Verticillate*. *Labiata* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, divided into five awl-shaped segments, closed by a beard at the opening.

COR. monopetalous, ringent. Upper lip bifid, lower trifid, the outmost segment most produced.

STAM. Filaments four, didynamous, distant. Anthers incumbent.

PIST. Germ superior, four-parted. Style subulate. Stigma bifid.

PER. none. Calyx closed with a beard, and cherishing the seeds.

SEEDS four.

ESSENTIAL CHARACTER.

Cal. five-subulate, bearded at the opening. Cor. upper lip bifid, lower trifid, Stamens distant.

SPECIES.

1. *Bystropogon pectinatum*. Balm-leaved B.

L'Herit. fert. 19. n. 1. Hort. kew. 2. 292.

Nepeta pectinata. Lin. spec. 799. Reich. 3. 34.

Swartz obs. 225. Sloan. jam. 1. 173. t. 108. f. 1?

Galeopsis. Brown. jam. 259. 2.

Panicles compact, flowers directed one way, leaves ovate.

2. *Bystropogon sidæfolium*. Sida-leaved B.

L'Herit. fert. 19. n. 2.

Panicles very loose, peduncles in whorls, filiform, leaves cordate.

3. *Bystropogon suaveolens*. Sweet-scented B.

L'Herit. fert. 19. n. 3.

^a Lightfoot.

Ballota suaveolens. Lin. spec. 815. Reich. 3. 63. Swartz obs. 225. Pluk. phyt. t. 306. f. 3. Plum. cat. 6. ic. 155. t. 163. f. 1. (Melissa.) Sloan. jam. 1. 171. t. 102. f. 2. (Mentastrium.) Brown. jam. 257. t. 18. f. 3. (Mesophærum.) Raii hist. 1332. (Erva Cidreira).

Peduncles axillary solitary, calyxes truncate awned, leaves cordate.

4. *Bystropogon plumosum*. Woolly-flowered B.

L'Herit. fert. 20. n. 4. t. 22. Hort. kew. 2. 292.

Mentha plumosa. Lin. suppl. 273.

Panicles dichotomous, calyxes feathered, leaves ovate subserrate tomentose beneath.

5. *Bystropogon origanifolium*. Marjoram-leaved B.

L'Herit. fert. 20. n. 5.

Panicles dichotomous, calyxes feathered, leaves ovate quite entire very white beneath.

6. *Bystropogon canariense*. Canary B.

L'Herit. fert. 20. n. 6. Hort. kew. 2. 292.

Mentha canariensis. Lin. spec. 807. Reich. 3. 46. cliff. 307. Pluk. phyt. t. 307. f. 2.]

Heliotropium canariense. Mill. dict. n. 5. Comm. hort. 2. 129. t. 65.

[Peduncles dichotomous, flowers in heads, leaves ovate crenate very villose beneath.

7. *Bystropogon punctatum*. Cluster-flowered B.

L'Herit. fert. 20. n. 7. t. 23. Hort. kew. 2. 293.

Panicles dichotomous, flowers in heads, leaves ovate toothed smooth finely dotted.

DESCRIPTIONS, &c.

1. Stem suffrutescent or herbaceous, generally five or six feet high or more, but varying in height, four-cornered, even, brachiate, scarcely fragrant. Leaves petioled, cordate, veined, naked, serrate. Spikes simple or manifold, terminating, directed one way, interrupted, scarcely leafy; composed of peduncled, fastigate whorls, supported by several bristle-shaped bractes, the length of the flowers; which grow very thick together, curiously disposed on the smallest slips of the branched tops; they are whitish, and all the parts are very small; the neck of the calyx and the filaments are commonly covered with down. The corolla is scarcely larger than the calyx; the border is five-cleft, four of the clefts being equal, sharp, spreading, the fifth or lip purplish and roundish. Stamens the length of the corolla and distant. Style purplish. Stigmas simple. Seeds roundish, black, glossy. Spikes very odorous, like those of White Horehound (*Marrubium album*)^b.

This plant is found in Sloane's herbarium, but the figure in his history does not correspond with it^c.

Native of Jamaica, in all the low lands and dry savannahs about Kingston and Spanish Town. It has also been found in Peru by Dombey. It flowers in december and january, and was introduced here in 1776, by Mr. Gilbert Alexander^d.

2. This also is a native of Peru, and was discovered there by Dombey^e.

3. Stem upright, becoming shrubby at bottom, branched, hirsute. Branches somewhat erect, and villose. Leaves opposite, roundish, sometimes elliptic, crenate, nerved, villose: petioles long, slender, lax. Peduncles axillary, towards the ends of the branches, three or five-flowered. Flowers approximating, blue: calyx ten-streaked, villose, viscid; teeth awned, upright, villose: tube of the corolla narrower at the base, from the middle to the opening spreading out; upper lip composed of the two upper erect lateral segments and the helmet, which is smaller than the segments, ovate, arched, bent down, keeled above; lower lip composed of the two lower segments, which are also bent down. Filaments from the bottom of the tube, standing up above the opening of the corolla, pubescent. Anthers blackish. Germ ovate: style shorter than the stamens: stigma simple, blunt. Seeds two, naked, ovate, black, slightly compressed. There are seldom four seeds. It is an annual plant, and

^b Linn. spec. Swartz, Browne.

^c L'Heritier.

^d Hort. kew.

^e L'Heritier.

the whole of it has a very strong smell like that of its congeners^f.

The Portuguese call it *Erva Cidreira*, from its smelling somewhat like a Citron. In Jamaica, where it is common about Kingston and Old-harbour, it is known by the name of *Spikenard*, on account of its strong but pleasant smell^g. It is one of the most grateful cephalics and alexipharmics; and may be used in disorders of the nerves and viscera, where such warm medicines are required^h.

It is a native of the continent of South America, as well as the islands of the West Indies.

4. This and the next species, connect the two last with the foregoing onesⁱ.

It is a native of the Canary islands, where it was found by Maffon. Introduced here in 1779, and flowers in June and July^k.

5. This is very nearly allied to the foregoing sort, but the leaves are quite entire, and snow-white underneath. It was also found by Maffon^l.]

6. Stem woody, three or four feet high, dividing into many branches. Leaves on long peduncles, hairy, and ash-coloured on their under side. The flowers are produced from the side of the branches on pretty long peduncles, each sustaining four roundish heads, dividing by pairs, and spreading from each other. They come out in June and July, but do not produce ripe seeds in England. The corolla is white. The leaves when bruised, emit an agreeable odour. The gardeners have given it the title of *Madam Maintenon*. It grows naturally in the Canary islands, [and in the island of Madeira. In 1714 it was cultivated by the Dutchess of Beaufort; and flowers from June to August^m.

7. The calycine segments are not subulate as in the other species; it is however of the same genus with themⁿ. Native of Madeira, and introduced here in 1775, by Sir Joseph Banks, Baronet: it flowers from July to September^o.

PROPAGATION AND CULTURE.

The three first sorts must be preserved in the bark-stove; the four last in the dry-stove or conservatory. They may all be propagated by cuttings during the summer months.

BYTTNERIA. See *Buttneria*.

C.

CAAPEBA. See *Cissampelus*.

CAAPOMONGA. See *Plumbago*.

CABBAGE. See *Brassica*.

CABBAGE-TREE. See *Areca* and *Cacalia Kleinia*.]

CACALIA. (Κακαλία, the name of an herb in Dioscorides, and Pliny.)

Lin. gen. n. 933. Reich. 1013. Schreb. 1269.

Gertn. t. 166. Juss. 178. Vaill. act. gall. 1719.

Tournef. 258. Raii meth. 34. Kleinia, edit.

prior. *Cacalianthemum*, Dill. elth. 54, 55.

Porophyllum, Vaill. act. gall. 1719. t. 20. f. 39.

Class. 19. 1. Syngenesia Polygamia Æqualis.

Nat. order of *Compositæ Discoideæ*. *Corymbiferae* Juss.

GENERIC CHARACTER.

CAL. Common simple, oblong, at the base only subcalyced, cylindric: scales five to ten, equal, lanceolate-linear, forming a tube; a few very short, incumbent on the base.

COR. Compound tubular: Corollules hermaphrodite, in number the same as the longer leaves of the calyx, uniform.—Proper funnel-form, gradually lessening to the tube: border four or five-cleft, erect.

STAM. Filaments five, capillary, very short. Anther cylindric, tubular.

^f Swartz.

^g Sloane.

^h Browne.

ⁱ L'Heritier.

^k Hort. kew.

^l L'Heritier.

^m Hort. kew.

ⁿ L'Heritier.

^o Hort. kew.

PIST. Germ oblong. Style filiform, the length of the stamens. Stigmas two, oblong, revolute.

PER. none. Calyx unchanged.

SEEDS solitary, oblong, ovate-narrow. Down capillary, very long.

REC. naked, flat, dotted.

OBS. *Cac. alpina* differs in having the leaflets of the calyx glued together, and the corollules four-cleft.—With the addition of a ray, this genus would be changed into *Cineraria*.

ESSENTIAL CHARACTER.

Cal. cylindric, oblong, at the base only subcalyced.

Down capillary. Recept. naked.

SPECIES.

* Shrubby.

1. *Cacalia papillaris*. Rough-stalked *Cacalia*.

Lin. spec. 1168. Reich. 3. 707. Kleinia 3. hort. cliff. 395.

Cacalianthemum caudice papillari. Dill. elth. 63. t. 55. f. 63.

Stem shrubby fortified with truncated petiolar spines.

2. *Cacalia Anteuphorbium*. Oval-leaved *Cacalia*.

Lin. spec. 1168. Reich. 3. 707.

Kleinia. Lin. hort. cliff. 395. 4.

Anteuphorbium. Baub. pin. 387. Dod. pempt. 378.

Mor. hist. 3. 345. n. 5. f. 7. t. 37. Dill. elth.

t. 55. f. 63. 2, 3. (flos).

Stem shrubby, leaves ovate-oblong flat, petioles having a triple line at the base.

[3. *Cacalia cuneifolia*. Wedge-leaved *Cacalia*.

Lin. syst. 733. Reich. 3. 708. mant. 110.

Stem shrubby, leaves wedge-form fleshy.]

4. *Cacalia Kleinia*. Oleander-leaved *Cacalia*, or *Cabbage-tree*.

Lin. spec. 1168. Reich. 3. 708. Gertn. fruct. 2. 400.

Kleinia. hort. cliff. 395. 1.

Cacalianthemum fol. nerii glauco. Dill. elth. 61.

t. 54. f. 62.

Arbor lavandulae folio. Clus. exot. 1. 5. p. 6, 7.

Baub. hist. 1. 265. f. 1.

Frutex. ind. orient. lavend. fol. Baub. pin. 401.

Linariae sim. Arbuscula canariensis, &c. Pluk.

phyt. t. 304. f. 3.

Tithymaloides frutescens nerii fol. Klein. monogr.

Burm. ind. 175.

Stem shrubby compound, leaves lanceolate flat, scars of the petioles obsolete.

5. *Cacalia Ficoides*. Flat-leaved *Cacalia*.

Lin. spec. 1168. Reich. 3. 708.

Kleinia. hort. cliff. 395. 2.

Senecio afr. arb., ficoides fol. & facie. Comm. var.

t. 40. Bradl. succ. 5. 11. t. 49. Dill. elth. 61.

Stem shrubby; leaves compressed, fleshy.

[6. *Cacalia repens*. Glauous-leaved *Cacalia*.

Lin. syst. 733. Reich. 3. 708. mant. 110.

Stem shrubby, leaves depressed fleshy.

7. *Cacalia suffruticosa*. Flax-leaved *Cacalia*.

Lin. syst. 733. Reich. 3. 709. mant. 109.

C. linifolia. Ard. spec. 2. 39. t. 19.

Stem undershrubby branching, leaves linear flat scattered.

8. *Cacalia laurifolia*. Bay-leaved *Cacalia*.

Lin. syst. 733. suppl. 351.

Shrubby, smooth; leaves petioled, ovate, triple-nerved, obtuse, quite entire, very smooth; thyrse terminal; calyx four-leaved, smooth.

9. *Cacalia cordifolia*. Heart-leaved *Cacalia*.

Lin. syst. 733. suppl. 351.

Shrubby, hirsute; leaves petioled, cordate-ovate, nerved, acute, scabrous; calyx four-leaved, four-flowered, pubescent.

10. *Cacalia asclepiadea*. Asclepias-like *Cacalia*.

Lin. syst. 733. suppl. 352.

Shrubby, tomentose; leaves petioled, ovate-lanceolate, quite entire, very smooth above, tomentose beneath, the edges rolled back, panicles terminal.

11. *Cacalia appendiculata*. Ear-leaved *Cacalia*.

Lin. syst. 733. suppl. 352.

Shrubby, tomentose; leaves cordate, ovate, acute, angular, tomentose beneath, petioles with leafy appendices.

12. *Cacalia tomentosa*. Woolly-leaved *Cacalia*.
Lin. syst. 733. *suppl.* 353.
 Shrubby, tomentose; leaves lanceolate, toothed, tomentose beneath, sessile.

* Herbaceous.

13. *Cacalia Porophyllum*. Perforated *Cacalia*.
Lin. spec. 1169. *Reich.* 3. 709. *Swartz obs.* 298.
Porophyllum fol. ellipticis. *Lin. hort. cliff.* 494.
Senecio indicus, atriplicis fol. glabro. *Mor. hist.* 3. 106. f. 7. t. 17. f. 7. *Raii suppl.* 184.
Chrysanthemum amer. frut., balsaminæ fol. &c. *Pluk. alm.* 100. t. 161. f. 1.
 Stem herbaceous undivided, leaves elliptic subcrenate.]
 14. *Cacalia sonchifolia*. Sowthistle-leaved *Cacalia*.
Lin. spec. 1169. *syst.* 733. *Reich.* 3. 709. *mant.* 463. *Murr. in comm. gott. nov.* 3. 79. t. 7. *Lour. cochinch.* 486.
Kleinia caule herb., fol. lyr. *Lin. fl. zeyl.* n. 305.
Muel Schavi. *Rheed. mal.* 10. 135. t. 68.
Senecio maderas. finapios fol., flor. parvis luteis. *Pluk. amalb.* 192. t. 444. f. 1.
Chondrilla zeyl. minor marina, fol. fin. *Burm. zeyl.* 61.
Sonchus amboinensis. *Rumph. amb.* 5. 297. t. 103. f. 1.
Tagolina luzonum, fl. purpureo. *Pet. gaz.* t. 80. f. 13. *Camell. luz.* 3. n. 8.
 Stem herbaceous, leaves lyrate stem-clasping toothed.
 [15. *Cacalia incana*. Hoary *Cacalia*.
Lin. spec. 1169. *Reich.* 3. 710.
 Stem herbaceous, leaves lanceolate toothed,
 16. *Cacalia faracenicæ*. Creeping-rooted *Cacalia*.
Lin. spec. 1169. *syst.* 734. *Reich.* 3. 710.
Solidago fol. lanc. decurr., caule angulato. *Monier. obs.* 168. *Sauv. monsp.* 84. *Gouan. monsp.* 444.
Senecio perennis, solidaginis fol. *Vail. æt.* 366.
Virga aurea max., rad. repente, &c. *Mor. hist.* 3. 123. 1.
V. f. Solid. far. latifolia ferrata. *Baub. hist.* 2. 1063.
Conyza montana, &c. *Chom. æt. par.* 1705. p. 394. fig.
 Stem herbaceous, leaves lanceolate ferrate decurrent.
 17. *Cacalia hastata*. Spear-leaved *Cacalia*.
Lin. spec. 1170. *syst.* 734. *Reich.* 3. 710. *Gært. fruct.* 2. 400.
Senecio fol. ex dentato trilobis acumin. ferr. *Gmel. fib.* 2. 136. t. 66.
 Stem herbaceous, leaves three-lobed acuminate, ferrate, flowers nodding.]
 18. *Cacalia fuaveolens*. Sweet-scented *Cacalia*.
Lin. spec. 1170. *syst.* 734. *Reich.* 3. 711. *hort. upf.* 254. *Kleinia*.
 Stem herbaceous upright, leaves hastate-sagittate tooth-letted, petioles dilated at top.
 19. *Cacalia atriplicifolia*. Orach-leaved *Cacalia*.
Lin. spec. 1170. *Reich.* 3. 711. *Gron. virg.* 118. *Mor. hist.* 3. 94. f. 7. t. 15. f. 7.
Porophyllum fol. deltoid. angul. *Gron. virg.* 1. 94.
Nardus amer. procerior, fol. cæsiis. *Pluk. alm.* t. 101. f. 2. *Raii hist.* 3. 242.
 Stem herbaceous, leaves subcordate, tooth-sinuate, calyxes five-flowered.
 20. *Cacalia alpina*. Alpine *Cacalia*.
Lin. spec. 1170. *syst.* 734. *Reich.* 3. 711. *Gouan. hort. monsp.* 429. *Jacqu. austr.* 3. t. 234. *Hall. belv. n.* 137. *Allion. pedem. n.* 644. *Mill. dict. n.* 1.
 a. *C. fol. crassis hirsutis* *Baub. pin.* 197. *Mor. hist.* 3. 94. f. 7. t. 12. f. 1. *Monn. obs.* 147. *Hall. opusc.* 207. (Jacquin gives these synonyms to his *C. tomentosa*, which is *C. albifrons*. *Lin. suppl.* see n. 22.)
C. Alliariæ. *Gouan. illust.* 65.
C. incano fol. *Clus. hist.* 2. 115. 1. *Raii hist.* 291. *Ger. emac.* 815. n. 1. *Park. 1221.* f. 1. *Hall. var. a.*
 β. *C. fol. cutaneis acutioribus & glabris.* *Baub. pin.* 198. *Mor. hist.* 3. 94. f. 7. t. 12. f. 6.
C. glabra. *Mill. dict. n.* 2. *Hall. d.*
Tussilago Cacalia. *Scop. carn. 2. n.* 1055.

- C. glabro* fol. *Clus. hist.* 2. 115. 2. *Lob. ic.* 592. *Raii hist.* 291. n. 2. *Ger. emac.* 815. n. 2.
 Leaves reniform-cordate acute toothletted.
 [21. *Cacalia echinata*.
Lin. syst. 734. *suppl.* 353.
 Herbaceous, leaves reniform cordate angular-toothed tomentose beneath, leaflets of the calyx tubercled.
 22. *Cacalia albifrons*. White-leaved *Cacalia*.
Lin. syst. 734. *suppl.* 353.
C. tomentosa. *Jacqu. austr.* 3. 20. t. 235.
 Herbaceous, leaves cordate biserrate acute tomentose beneath, stipules oblong rounded.
 23. *Cacalia bipinnata*. Bipinnate-leaved *Cacalia*.
Lin. syst. 734. *suppl.* 353.
C. pinnatifida. *Berg. cap.* 230. *Lin. mant.* 281. *Reich.* 3. 712.
 Herbaceous, leaves bipinnate linear.
 24. *Cacalia acaulis*. Stemless *Cacalia*.
Lin. syst. 734. *suppl.* 353.
 Stemless; leaves semicolumnar; scapes one-flowered.
 25. *Cacalia radicans*. Rooting *Cacalia*.
Lin. syst. 734. *suppl.* 354.
 Herbaceous, creeping, rooting, leaves columnar-ovate fleshy.
 26. *Cacalia articulata*. Jointed-stalked *Cacalia*.
Lin. syst. 734. *suppl.* 354. *L'Herit. stirp. nov.* 175. t. 83.
C. laciniata. *Lin. syst.* 733. *Jacqu. ic. collect.* 1. 77. Fleshy; stem decumbent jointed; lower leaves hastate, upper lyrate.]
 27. *Cacalia lutea*. Yellow *Cacalia*.
Mill. dict. n. 10.
 Stem herbaceous, leaves five-parted acute glaucous beneath, flowers terminal on very long peduncles.
 [28. *Cacalia carnosæ*. Narrow-leaved *Cacalia*.
Ait. hort. kew. 3. 156.
 Stem shrubby; leaves roundish fleshy bent in, peduncles terminating one-flowered naked.
 29. *Cacalia scandens*. Climbing *Cacalia*.
Ait. hort. kew. 3. 157.
 Stem herbaceous climbing, leaves sagittate toothed, petioles simple.
 30. *Cacalia ruderalis*.
Swartz prodr. 110.
Kleinia ruderalis. *Jacqu. amer.* 215. t. 127.
 Stem herbaceous branched, leaves lanceolate entire glaucous.
 31. *Cacalia procumbens*.
Lour. cochinch. 485.
Sonchus volubilis. *Rumph. amb.* t. 103. f. 2.
 Stem suffruticose, procumbent; leaves ovate-lanceolate, subserrate, fleshy; racemes elongated, interrupted.
 32. *Cacalia bulbosa*.
Lour. cochinch. 485.
 Leaves radical lyrate, stem almost naked, panicle few-flowered.
 33. *Cacalia pinnatifida*.
Lour. cochinch. 486.
 Leaves pinnatifid, segments lanceolate ferrate; stem herbaceous twisted.]

DESCRIPTIONS, &c.

1. This resembles the *Kleinia* (n. 4.) in its form and manner of growth, but the leaves are narrower and more succulent. These do not fall off entire, as in the other, but break off at the beginning of the foot-stalks, which are very strong and thick, and always continue; so that the main stalk of the plant, and the lower part of the branches, which are destitute of leaves, are set round on every side with three truncated foot-stalks: [and thus is the stem defended in a singular manner from external injuries^a.

This species was cultivated in the garden of James Sherard, M. D. at Eltham, about the year 1724. It was sent from Batavia, but probably came originally from the Cape of Good Hope, where it is known to be a native^b.] It has not yet produced any flowers in England.

2. This rises with many succulent stalks from the root, as large as a man's finger, branching out up-

^a Linn. cliff.

^b Dill. elth.

wards into many irregular stalks of the same form, but smaller. Leaves succulent, alternate, blunt; under each footstalk are three smooth lines or ribs which run along the branch. It is generally known by the name of *Anteuphorbium*, being supposed to have qualities contrary to Euphorbium.

[It has been cultivated in European gardens since the year 1570, when it was growing in Boisor's garden at Brussels^c. It appears in Gerarde's catalogue, and therefore was cultivated here in 1596^d. It very rarely flowers in Europe; in 1732 however it flowered in Mr. Blaithwait's garden at Dirham in Gloucestershire; and the flowers were sent up by Powers his gardener to Dillenius, who has figured them^e. This also is a native of the Cape of Good Hope.

3. Stem fleshy, smaller than in the fifth, seventh, and eighth species. Leaves scattered, veinless, without any rib, flat above but somewhat convex underneath, and fleshy. The leaves not being opposite, it cannot be a *Cotyledon*. Native of the Cape. Cultivated at Upsala, but it has not flowered there^f.]

4. This rises with a thick fleshy stem, divided at certain distances, as it were, into so many joints; each of these divisions swells much larger in the middle. The stalks divide into many irregular branches of the same form; which, towards their extremities have long, narrow leaves, of a glaucous colour, standing all round without order. As these fall off, they leave a scar at the place, which always remains on the branches. The flowers are produced in large clusters, at the extremities; they are of a faint carnation colour. [The receptacle is narrow, smooth, and has obsolete fleshy dots scattered over it. The seeds are almost cylindrical, smooth, and rufescent: the down is longer than the calyx, of a silky whiteness, with capillary rays very minutely toothletted^g.]

It grows naturally in the Canary islands, and flowers in august, september, and the greater part of october, but does not produce seed in this country. [It was cultivated in 1732, in the Eltham garden^h; but was probably known earlier, since Mr. Miller says] that it has long been an inhabitant in the English gardens.

It is called Cabbage-tree by the gardeners, from the resemblance which the stalks have to those of Cabbage. Others have named it Carnation-tree, from the shape of the leaves, and colour of the flowers.

There have been fossils dug up in some parts of England, which Dr. Woodward supposed to have impressions of this plant upon them.

[Clusius is the first who mentions this plant. A figure and description of it were sent him from London by Garret, who received it from the East-Indies. These are both imperfect: they are adopted however by John Bauhin; and his figure is better than Plukenet'sⁱ.

Linneus, in his former works, made it a separate genus, under the name of *Kleinia*, from *Jac. Theod. Klein*, who published a figure and description of this plant, under the name of *Tithymaloides*, in the year 1730.]

5. This rises with strong round stalks to the height of seven or eight feet; they are woody at bottom, but soft and succulent upwards, sending out many irregular branches. These, for more than half their length, have thick, taper, succulent leaves, a little compressed on two sides, ending in points, covered with a whitish meal; when broken, they emit a strong odour of turpentine, and are full of a viscid juice. At the extremities of the branches the flowers are produced in small umbels; they are white, and cut into five parts at top: the stigma is of a dark purple colour, and stands erect above the tube. The seeds do not ripen in England. In France, the leaves are sometimes pickled, with the white meal preserved on them.

It grows naturally at the Cape of Good Hope:

[and was cultivated in 1727, by Richard Bradley, Professor of Botany at Cambridge. It flowers from june to november^k. Mr. Miller says, that it was introduced from Holland about the year 1718^l.

6. The whole plant, in stature very much resembles the fifth sort; it is also covered with a glaucous meal; but the leaves have their upper surface concave, and are not compressed on the sides. The root is creeping, whence the trivial name. It is a native of the Cape of Good Hope^m: was cultivated by Mr. Miller in 1757; and flowers in juneⁿ.

7. This is an undershrub, a palm in height, variously branched and filiform. Leaves quite entire, by no means fleshy. Peduncles terminating, solitary, one-flowered, erect, the length of the stem. Calyx quite simple, five-leaved: leaflets ovate, obtuse, erect, the sides concealed and membranous. Floscules many, purple. Down with hispid hairs. It has altogether the flower of the *Perophyllum* (n. 13.), but the herb is different^o. Native of Brasil^p.

8. A very smooth shrub, resembling the Laurustine (*Viburnum Tinus*). Leaves opposite, on short petioles, the nerves running out beyond the base, green beneath, shining above, the consistence of evergreens. Panicle terminal, like a thyrse, conic. Calyx four-flowered; leaflets equal, oblong, obtuse, two and two opposite. Border of the corolla larger than the tube, four-toothed. Pistils very long. Found in Mexico, by Mutis^q.

9. Leaves opposite, on long petioles, broad-ovate, acuminate, serrate, hispid-scabrous, three-nerved and veiny. Petioles tomentose. Panicles terminal, clothed with floral leaves. Calyxes very smooth (the diagnosis says—*pubescent*), naked: leaflets equal, opposite, lanceolate, smooth, erect. Border of the corolla four-parted. Styles scarcely longer than the stamens. Down of the seeds entirely simple, longer than the calyx. It varies with entire and serrate leaves. Observed in South America, by Mutis^r.

These two species agree so exactly in the flower; and are so remarkable in the fourfold division of the calyx, and the number of the floscules, that they might very well make a separate genus, if I were not averse from multiplying genera^s.

10. Stems round, hoary with a soft nap, straight. Leaves opposite, spreading, ovate at the base and gradually drawn to a point, very tomentose beneath, but the upper surface quite smooth, veined, the consistence of a bay leaf. Petioles roundish, tomentose. Panicles small, heaped. Calyx calyced with larger scales, few-flowered. The herb has the appearance of an *Asclepias*.

Found in South America, by Mutis^t.

11. Stem angular, tomentose, hoary. Leaves higher than the stem, on long petioles, not much emarginated at the petiole, nerved and veined, the upper surface very smooth and green, beneath white with nap. Immediately below the leaf, are very small leaflets consisting of three pairs, opposite, petioled, ovate, quite entire, growing gradually less toward the leaf itself. Panicles terminal. Pedicels bracted. Flowers yellow. Found in watery places of the island of Teneriffe, by Francis Masson; who sent another plant, found on the mountainous parts of the island, which he looked upon as a different species: but it differs from this, only in having the stem very smooth; and the leaves cordate-oblong, a little toothed and not angular^u.

12. Found at the Cape of Good Hope by Thunberg^v.

13. Stem from eight inches to a foot in height, round, slender. Leaves few, like those of *Atriplex* or sea Purslane, on petioles half an inch in length. The top of the stem divides into peduncles, subdivided into pedicels, bearing small flowers resembling those of *Erigeron*^w.

It is an annual plant, and a native of America.

^k Hort. kew.

^l Dict. edit. 7.

^m Linn. mant.

ⁿ Hort. kew.

^o Linn. mant.

^p Arduini.

^q Linn. suppl.

^r Ibid.

^s Ibid.

^t Ibid.

^u Ibid.

^v Ibid.

^w Morison.

^c Dill. elth. 63.

^d Hort. kew.

^e Hort. elth. 64.

^f Linn. mant.

^g Gartner.

^h Hort. kew.

ⁱ Dill. elth.

Introduced here in 1780, by Benjamin Bewicke, Esq. and flowering from June to October².

This species, and *C. ruderalis* differ from the genus in their habit, and in having a subturbinate calyx; but there are not other generic marks separating them from *Cacalia*⁴.

14. Root annual. Stems almost simple, smoothish herbaceous, round, upright, reclining, near two feet high, branching a little towards the top. Lower leaves oblong, deeply lyrate, smooth, with the divisions rather acute; the upper cordate-lanceolate, stem-clasping, a little toothletted at the base, with a few hairs especially on the rib. Flowers few, the size of common Groundsel, in a terminating panicle, cylindric, with the proper peduncles bristle-shaped. Calyx entirely simple. Florets purple, minute⁵.

This species shows, that a calyced calyx is not a character common to the whole genus. The pistil also is somewhat longer than the stamens. It is much used both in the medicine and œconomy of the Indians⁶: being esteemed detergent, and the young leaves being eaten raw in salads⁴.

It is a native of the East Indies, Ceylon, Amboina China, Cochinchina. &c.] Mr. Miller says that he has also received the seeds from the Spanish West Indies. It flowers in July, and the seeds ripen in September. [Mr. Miller cultivated it in 1768⁷.

15. Stature of *Verbena alata*. Stem erect, lofty. Leaves broad-lanceolate, scarcely petioled, thickish, ferrate-toothed. Peduncles terminating, branched, long, naked, with one or two very small leaflets. Native of the East-Indies⁸.

16. This is a perennial plant very much resembling *Senecio jacobinica*. The bractes are bristle-shaped⁹. Native of the South of France. Cultivated in 1772, by Mr. James Gordon, sen. It flowers from August to October¹⁰.

17. Root perennial. Stem covered with a glaucous meal. Leaves hastate-deltoid. Flowers composed of about five white florets; without the bristle-shaped bractes, especially at the subdivisions. Anthers black. Peduncles hoary, tomentose¹¹. Calyx cylindrical, many-leaved, with a single or imperfectly double row of leaflets, calyced, with acuminate scales. Receptacle flattish, naked, with pentagon areas inclosing a depressed little nipple. Seeds almost cylindrical, streaked, pale bay-coloured; crowned with a soft, white, capillary down, very minutely toothletted, a little longer than the seed¹².

Observed in Siberia, first by Gmelin, and afterwards by Pallas, who introduced it here in 1780¹³.]

18. This has a perennial creeping root, sending out many stalks. Leaves long, smooth, veined, of a pale green on their under side, but a deep shining green above, placed alternately. The stalks rise to the height of seven or eight feet, are streaked, quite simple, and terminated by corymbs of white flowers. [The peduncles even above the ramifications, have bristle-shaped bractes scattered over them, which are smooth, not hoary. It smells very sweet when dry¹⁴.]

Native of Virginia and Canada; flowering in August, and ripening its seeds in October. The roots which have been cast out of the Chelsea garden, have been carried by the tide to a great distance, have lodged on the banks of the river, and fastened themselves to the ground, where they have increased so much, that in a few years this plant may appear to be a native of this country. [Mr. Miller cultivated it in 1752¹⁵.]

19. Root perennial, composed of many fleshy spreading tubers, sending out several strong stalks in the spring, four or five feet high. Leaves sea-green on their under side, but darker above, placed alternately the length of the stalks, which are terminated by umbels of herbaceous-coloured flowers.

[It is of the same size and stature with the foregoing sort. The lower leaves are cordate; the up-

per broader than long, and smooth. It differs from the *suaveolens* not only in the form and glaucous hue of the leaves; but also in having flowers five times smaller, with only five florets in each; whereas the foregoing sorts have more¹⁶.

Native of Virginia and Canada. Flowers here in August. Cultivated in 1739, by Mr. Miller¹⁷.

20. Root perennial. Stem a foot and half high and more, leafy and branching at intervals. Leaves on very long petioles; the lowest either very long heart-shaped, or broader approaching to kidney-shaped, with the intervals of the toothings semi-lunar: some are wholly smooth; some have the nerves only hairy; others are wholly tomentose, and thicker. The stem branches at top, and on subdivisions bears a broad and dense corymb. Calyx of about five scales, conglutinated so as to appear one-leaved. Floscules (three to five) quadrifid, purple. Seeds quadrangular, long, grooved¹⁸.

Haller, besides the two principal varieties, the smooth and tomentose, mentions that it is found with white florets; and with leaves deeply cut.

Mr. Miller makes two species of this: the first, or rough sort he calls *alpina*; the second, or smooth sort, *glabra*.] The first, he says, has leaves shaped like those of Ground-Ivy, but of a thicker texture, of a shining green on their upper side, but white on their under; among these arises the flower-stalk, which is round, branching towards the top, and grows a foot and half high; under each division of the stalk is placed a single leaf, of the same shape with those below, but much smaller, the branches are terminated by a corymb of flowers, having about three purplish florets. The second has the appearance of the other, but the leaves are almost heart-shaped, pointed, sharply ferrate, and on both sides very green; the stalks rise higher; the stem-leaves have much longer foot-stalks; and the flowers are of a deeper purple colour.

[Mons. Villars has three species, besides varieties. First, *Cacalia glabra*, with smooth kidney-shaped, ferrate leaves, the upper ones linear, the flowers in corymbs, with coloured calyxes, and about six florets in each. He thinks it is sufficiently distinct from the others, in having a lower stem about a foot in height; the leaves thicker, a little fleshy, smooth and more regularly toothed, cut off at the base by a transverse section, instead of being bent back towards the origin of the petiole; and three to six coloured leaflets to the calyx, shorter by half than the florets. The leaves are sometimes a little villose, but their figure is always the same, the number of florets does not vary, nor the form of their growth in a corymb.

Secondly, *Cacalia tomentosa*, with kidney-shaped leaves very white on both sides, the flowers in corymbs, with hirsute calyxes, and about twenty florets in each. This has the habit of the foregoing; but differs in having a thick down covering all its parts and rendering them tomentose or cottony; the upper leaves are lanceolate; and the calyxes contain from fifteen to twenty florets; the leaflets of the calyx terminate in a blackish point, like those of common Groundsel (*Senecio vulgaris*). The third has this character, but not the first. The seeds are glossy, streaked, crowned with a sessile egret, which has the hairs feathered or a little toothed.

Thirdly, *Cacalia hirsuta*, with hastate doubly-ferrate hirsute kidney-shaped leaves, those on the stem embracing with a dilated stipule, flowers in racemes, with from three to six florets in each. The stems are three feet high, often branched; the leaves very large, villose, often a foot wide, and their lateral segments approach to the petiole, they are revolute before they are entirely developed; in the raceme each peduncle has a linear bracte at its base, and the calyxes have an involucre of three linear open leaves¹⁹. This is described at length by Gouan²⁰, who supposes it to be quite distinct from the *alpina* of Linneus.

² Hort. kew. ¹⁶ Swartz. ¹⁷ Linn. mant. ¹⁸ Murray.

³ Loureiro. ¹⁹ Hort. kew. ²⁰ Linn. spec.

⁴ Linn. spec. & syst. ²¹ Hort. kew. ²² Linn. syst. & spec.

⁵ Gærtner. ²³ Hort. kew. ²⁴ Linn. spec. ²⁵ Hort. kew.

⁶ Linn. spec. ⁷ Hort. kew. ⁸ Haller. ⁹ Dauph. 3. 170—173.

¹⁰ Illustr. p. 65.

Allioni considers them all as one species; *smooth* in subalpine moistish situations, among bushes, *hirsute* or very hairy in colder loftier rocky alpine situations, *tomentose* or cottony among stones in open situations, on the higher alps. He adds, that he has observed the tomentose variety to become hirsute, when cultivated in a garden^c.

Scopoli follows Adanson^u, in making this plant a *Tussilago*. The genera are nearly allied; but Linneus insists, that on inspection he finds this to agree in the characters of the genus with the foregoing species; and that hence the *Cacalias* ought to be united with the *Kleinias*^x.

Native of Switzerland, M. Jura, Dauphiné, Piedmont, Austria, Carniola. It was cultivated in 1739, by Mr. Miller^v.

21. This resembles the *alpina* very much, but differs in having the calyxes tubercled, and the leaves tomentose beneath. It was observed by Masson in the island of Teneriffe, on precipices near the coast^z.

22. This is a singular plant, and very distinct from the others in having two leaves at the base of the petioles, resembling stipules; they are sessile, oblong, slightly toothletted, and tomentose beneath^a. It seems to be the third sort of Villars, described above under n. 20. the *C. Alliarie* of Gouan, and the *Petasites*, n. 141. of Haller.

Native of Austria, &c.

23. Stem upright, streaked, even. Leaves somewhat crowded, toothed, even, about four inches long. Panicles terminating, subfastigate; pedicels scaly; calyxes five-leaved, five-flowered, acute. Native of the Cape of Good Hope^b.

24, 25. These were both found at the Cape, by Thunberg^c.

26. This is an elegant plant, smooth and glaucous, of an unpleasant balsamic flavour. Stems many, fleshy, round, upright but weak, marked with scars from the fallen leaves, and painted with lines of a deeper green; they are three feet high or more, and branching. Peduncles elongated, branching, round; the branches irregularly subcymose; the last peduncles scaly. Flowers fetid, nodding a little: calyx very smooth; leaflets from eleven to thirteen, sharp; without any incumbent scales at the base. Florets twenty-five, a little longer than the calyx, white, with the border acute, and spreading much. Anther dark purple. Stigma bifid, yellow. Seeds linear, villose, crowned with a white, sessile egret. The leaves are scattered and petioled, generally pinnate, the pinnules oblong, tooth-gashed or entire, the end-one largest^d. According to L'Heritier, they are pinnatifid, or hastate, but more frequently ternate-pinnatifid; the segments lanceolate, spreading very much, the two lowest distinct; the sinuses rounded. There is a sharp, short linear bracte at the base of each pedicel, and some others at the base of the calyx, which is composed of about ten leaflets.

Found at the Cape of Good Hope, by Masson, and introduced in 1775. It flowers in november^e.]

27. This grows naturally at St. Helena, from whence I received the plants: the roots spread and increase under the surface, the leaves arise immediately from the root, have very short foot-stalks; they are cut into five or six long acute segments almost to the midrib, the segments are also acutely cut on their sides in two or three places: the under side of the leaves are glaucous, their upper side of a dark green. The flower-stalk arises between the leaves immediately from the roots; this is naked, about eight inches high, terminated by six or eight yellow compound flowers standing on long foot-stalks, almost in an umbel; the flowers are succeeded by oblong seeds, which rarely ripen in England.

[28. Native of the Cape of Good Hope. Cultivated in 1757, by Mr. Miller. It flowers in june^f.

29. This also is a native of the Cape, where it was found by Masson. It was introduced in 1774; and flowers in april^g.

Mons. L'Heritier has given this name to the *Eupatorium scandens* of Linneus, which he has removed to this genus^h.

30. This is an annual plant, upright, not more than three feet high, very smooth, panicled. Leaves very various in size, mostly alternate, either entire or unequally repand or gashed, acute, petioled. Peduncles one-flowered, terminating, solitary, upright. Flowers void of scent, with a green calyx, and a corolla green and yellow mixed. Native of St. Domingo and Martinicoⁱ.

31. Stems perennial, nine feet high, procumbent, round, equal, smooth, succulent, branched. Leaves bright green, smooth, alternate, petioled. Calyx cylindric, even, calyced. Corollules gold-coloured, few, long, with the segments of the border erect. There is a variety, with the stems and under surface of the leaves purple. Native of China and Cochinchina: where it is used as a pot-herb.

32. Root a roundish, knotted, perennial bulb. Root-leaves oblong, toothletted, somewhat fleshy, petioled, few. Stem a foot and half high, upright, round. Flowers gold-coloured on a terminating peduncle several together. Calyx cylindric; calycle five-leaved, the leaflets filiform, loose. Tube of the corollules longer than the calyx, inflated, reflex, with a short, converging border. Stigmas two, long, erect. Native of China and Cochinchina.

It is emollient, refrigerant and resolvent; used chiefly externally in resolving tumours, and in the Erysipelas, as a cataplasm; the juice of the leaves in inflammations of the eyes; as a gargarism in inflammations of the fauces.

33. Stem two feet high, upright, thick. Leaves pinnate-gashed, the segments smooth, and not fleshy. Flowers yellow, in a terminating panicle, few together. Calyx oblong, round, calyced.

This is different from *C. pinnatifida* Lin. mant. which is our *bipinnata*, n. 23.

Native of China near Canton, among rice.^k]

PROPAGATION AND CULTURE.

All the sorts which are natives of the Cape of Good Hope may be propagated by cuttings during the summer months: these should be cut from the plants and laid to dry a fortnight, that the wound may be healed over before they are planted. Most people plunge the pots, in which these are planted, into a moderate hot-bed, to forward their putting out roots; but if they are planted in june or july, they will root as well in the open air. I have frequently had the branches broken off by accident, and fallen on the ground, which have put out roots without any care. These branches may be kept six months out of the ground, and will take root if planted. They should have a light sandy earth, and in winter be placed in an airy glass-case, where they may enjoy the sun and air in mild weather, but must be protected from frost. During the winter season, the plants must have but little water; and in summer, when they are placed in the open air, it should not be given them too often, nor in great quantity, but they must be treated like the *Ficoides*, and other succulent plants from the same country.

1, 2. The first and second sorts require a sandy, poor soil, and to be kept very dry both summer and winter: hard rains often cause them to rot; but they require the open air in summer.

4. The fourth must have a dry warm glass-case in winter, and very little water. In summer it must be placed in the open air in a warm sheltered situation. With this management the plants will flower annually, and grow to the height of eight or ten feet.

14. The fourteenth sort is propagated by seeds, which if sown in the autumn, soon after they are

^c Fl. pedem. 1. p. 178.

^u Familles des plantes, p. 122.

^x Linn. spec.

^v Hort. kew.

^z Linn. suppl.

^a Ibid.

^b Ibid.

^c Ibid.

^d Jacquin.

^e Hort. kew.

^f Ibid.

^g Hort. kew.

^h Stirp. nov. p. 176.

ⁱ Jacquin.

^k Lourciero.

ripe, into a pot, and plunged in the tan-bed in a stove, will more certainly succeed than those sown in the spring: but where there is not such a convenience, the seeds should be sown on a hot-bed in the spring, and when the plants are fit to remove, they should be planted on another hot-bed to bring them forward, shading them till they have taken new root, after which air should be daily admitted to them in proportion to the warmth of the season. When the plants have acquired strength, they should be planted in pots, and either plunged into a moderate hot-bed under a deep frame, or placed in a glass-case, where they will flower and perfect their seeds.

18, 19. These multiply greatly by their spreading roots, and also by the seeds, which are wafted to a great distance by the wind. The roots should be transplanted in autumn; and they require a moist soil, with an open situation.

20. Is propagated by parting the roots, for it seldom produces good seeds in England. The best time to do this is in autumn. It requires a loamy soil, and a shady situation.

28. Increases fast by its roots, which may be parted either the beginning of September, or the end of March, and should be planted in pots filled with light earth, and plunged into the tan-bed in the stove, where it should be constantly kept, being too tender to thrive elsewhere in this climate.

CACALIA. See *Eupatorium* and *Tussilago*:

[CACALIANthemum: See *Cacalia*:

CACAO. See *Theobroma*.

— AFFINIS. See *Randia*.

CACARA. See *Dolichos*.]

CACHRYS. (Καχρυς; *hordeum tostum*, roasted or parched barley: The seed resembles a grain of barley. *Tournef.*)
Lin. gen. n. 342. *Reich.* 372. *Schreb.* 474.
Gartn. t. 140. *Juss.* 223: *Tournef.* 172. *Raii meth.* 48.

Class. 5. 2. Pentandria Digynia.

Nat. order of *Umbellatæ*, or *Umbelliferae*.

GENERIC CHARACTER:

CAL. Umbel universal manifold: partial similar.

Involucre universal many-leaved, linear-lanceolate: partial similar.

Perianth proper scarcely observable.

COR. universal uniform: *fiducles* all uniform.

Proper of five, lanceolate, almost upright, equal, flattish petals.

STAM. Filaments five, simple; the length of the corolla. Anthers simple.

PIST. Germ turbinate, inferior. Styles two, simple, the length of the corolla. Stigmas headed.

PER. Fruit subovate, angular, obtuse, very large, suberos-cortical, splitting in two.

SEEDS two, very large, very convex on one side, flat on the other; fungous, with solitary ovate-oblong nucleuses.

ESSENTIAL CHARACTER.

Fruit subovate, angular, suberos-cortical.

SPECIES.

1. *Cachrys Libanotis*. Smooth-seeded *Cachrys*.

Lin. spec. 355. *Reich.* 681. *hort. cliff.* 94. 1.

Mor. hist. 3. 267. f. 9. t. 1. f. 6. umb. t. 3. f. 3.

Mill. diet. n. 3.

Libanotis ferulae fol., sem. anguloso. *Baub. pin.* 158.

Baub. hist. 3. 40. *Raii hist.* 424. n. 2. *Ger.* 858.

f. 3. *emac.* 1010. f. 4. *Park.* 882. f. 1.

α. *C. femine fungoso laevi, foliis ferulaceis.* *Tourn. inst.* 325.

C. trifida. *Mill. diet.* n. 1.

Leaves superdecompound, leaflets spreading acuminate, seeds ovate furrowed, unarmed.

2. *Cachrys ficula*. Hairy-seeded *Cachrys*.

Lin. spec. 355. *Reich.* 1. 681. *Mor. hist.* f. 3.

and umb. t. 3. f. 2. *Linn. hort. cliff.* 1. β, γ.

Hippomarathrum creticum. *Baub. pin.* 147. *prodr.* 76.

H. ficulum. *Bocc. sic.* 36. t. 18. *Raii hist.* 424. n. 3.

α. *C. linearis.* *Mill. diet.* n. 4.

Leaves superdecompound with filiform leaflets, seeds roundish-ovate grooved, wrinkled.

[3. *Cachrys tenuifolia*. Fine-leaved *Cachrys*.

Gouan. illustr. 12.

Leaves superdecompound smooth with very numerous filiform leaflets; seeds oval.

4. *Cachrys odontalgica*.

Lin. syst. 280. *suppl.* 181. *Gartn. fruct.* 2. 274.

Pallas. it. 3. 720. 1. G. f. 1, 2, 3.

Leaves superdecompound rough with hairs, the end-leaflets digitate-multifid bluntish, seeds obovate truncate even.

5. *Cachrys panacifolia*.

Vabl. symb. 1. 25.

C. hungarica. *Mill. diet.* n. 5. *Linn. hort. cliff.* 94.

n. 2? — *panacis folio.* *Tournef. inst.* 325. *Bocc.*

sic. 1. t. 1. (*Panax*).

Leaves pinnate and ternate with oblong crenate leaflets, seeds hirsute.]

DESCRIPTIONS, &c.

1. The first sort has a thick fleshy root like Fennel, which runs deep into the ground, sending out several narrow pinnate leaves, ending in many points; between these arises a smooth jointed stalk about three feet high, which is terminated by large umbels of yellow flowers.

[α. There is no material difference in Miller's descriptions of his first and third species.

Native of Sicily. Cultivated by Gerard, in 1597^a.

2. Upper leaves opposite: The terminating universal umbel sessile, with the universal and partial involucre branching. The other umbels peduncled, with both involucres simple. Seeds very thick, grooved, hispid^b.

Native of Spain and Sicily:

Mr. Miller makes two species of this.] He describes them as having very thick sweet-smelling roots, which strike deep into the ground, sending out several very narrow pinnate leaves, like those of Hog-Fennel, but shorter. The stalks are smooth and jointed like those of Fennel; terminated by large umbels of yellow flowers, like those of Dill. The stalk of the *ficula* rises four or five feet high; and of his *linearis* five or six feet.

[3. The *Cachrys Libanotis* of Gouan seems to be a different species from that of Linneus. It is thus described in the illustrations of that author.

Root perennial, brachiate, fleshy, gratefully aromatic, with branches an inch thick, a cubit in length, covered with a smooth bark. Stem branched from the bottom, spherical-panicled, greenish, shining, and very slightly streaked. Leaves ferulaceous, triangular, the pinnae, pinnules, and leaflets opposite; the latter filiform, equal, scarcely three lines in length. Petioles at each insertion thicker, slightly streaked. Sheaths nerved, streaked. Upper leaves only four-fold pinnate. Branches at the top of the stalk often three or four in a sort of whorl. Umbels almost a span in diameter, consisting of from sixteen to twenty rays, which are nearly equal, and two inches in length. Universal involucre variable; in the principal umbels it consists of equal capillary-multifid leaflets, as in *Daucus*, *Ammi*, &c.; whereas those which terminate the subdivisions of the branches are either naked, or have a very small undivided involucre like the involucels. From the centre of the receptacle sometimes but seldom issues a single peduncle, fleshy at the top and flat. All the umbellules are small, and consist of from fourteen to sixteen unequal rays, a third or half an inch in length. All the involucels consist of filiform unequal simple leaflets. Flowers yellow.

Native of the country about Montpellier; flowering in May.

4. Root-leaves ternate; the extreme leaflets very elegantly incurved upwards. Stem single, streaked, from nine to twenty-one inches in height, panicled at top with umbelled branches disposed in a sort of thyrses. There are stipuliform leaves at the origin of the lower branches, and on the middle of the umbelliferous ones. The involucres consist of a few

^a Hort. kew.

^b Linn. spec.

narrow deciduous leaves. Rays of the umbel from four to six. Umbellules more copious and crowded, with ten or more flowers, of a deep yellow, appearing the beginning of may. Fruit very large^c, ovate-cylindric, white, smooth: seeds ovate-oblong, plano-convex. The position of the cotyledons very unusual; they being collateral, almost as in *Menispermum*, except that they are both in one cell of the albumen^d.

The root is very long, and being of a very sharp aromatic flavour, it is used in the tooth-ach. Found abundantly between the Volga and Jaick^e.

5. Stem three feet high, streaked, hoary, round, full. Root-leaves pinnate, in fives; stem-leaves ternate: leaflets sessile, the three outmost almost confluent, villose on the veins, rugged, paler underneath, the lateral ones oblique at the base on one side, the end one larger than the others. Petioles streaked, as is also the midrib. Umbels concave, thirteen-rayed. Involucres seven or eight-leaved; leaflets linear-subulate, reflex, villose, many times shorter than the rays. Involucels more copious in leaflets, in other respects like the involucres. Petals minute, white. Seeds oblong, hirsute, hoary, a little suberos. Styles reflex, permanent, shorter than the seeds.

Native of New Castille and Barbary^f.]

PROPAGATION AND CULTURE.

These plants are all propagated by seeds, which should be sown soon after they are ripe; for if they are kept out of the ground till the following spring, they often miscarry, and when they succeed, they never come up until the spring after; so that by sowing them in autumn, a whole year is saved, and the seeds seldom miscarry. These seeds should be sown on a shady border, where the plants are to remain; for the plants having long tap roots, will not bear transplanting so well as many other kinds. The distance three feet apart; so that if each kind is sown in a drill, when the plants are come up, they may be thinned, leaving two of the most promising plants of each kind to remain. These plants will begin to appear early in april, when they must be carefully cleared from weeds; and in dry weather, if they are gently watered while young, it will greatly promote their growth; after which time they will require no farther care but to keep them clean from weeds, and every spring to dig the ground carefully between them, so as not to injure the roots.

These plants decay to the ground every autumn, and come up again in the spring: they commonly flower in the beginning of june, and their seeds are ripe in september. Their roots sometimes run down three or four feet deep in the earth provided the soil be light, and are often as large as Parsneps. They will continue many years, and if the soil be moist and rich, they will annually produce good seeds; but when they grow on a dry soil, the flowers commonly fall away without seeds.

CACHRYS. See *Lasertium*.

CACTUS. (*Κάκτος*, the name of a prickly plant in *Theophrastus*, *Pliny*, &c. *Athenæus* says it is the same plant which the Romans call *Carduus*, the Greeks *Κινάρια*; the *Artichoke*.)

Lin. gen. 613. *Reich.* 668. *Schreb.* 838. *Gærtn.* t. 138. *Juss.* 311. *Melocactus*. *Tournef.* 425. *Cereus*. *Juss. atl. gall.* 1716. *Mill. dict.* *Opuntia*. *Tournef.* 123. *Mill. dict.* *Tuna*. *Dill. elth.* 295—299. *Pereskia*. *Plum.* t. 26. *Mill. dict.* *Rhipsalis*. *Gærtn.* t. 28.

Class. 12. 1. Icosandria Monogynia.

Nat. order of *Succulentæ*. *Cacti* *Juss.*

GENERIC CHARACTER.

CAL. Perianth one-leaved, imbricate, hollow-tubular, with scaly leaflets scattered over it, superior, deciduous.

COR. Petals numerous, rather obtuse, broad: the outer ones shorter; the inner larger, converging.

STAM. Filaments numerous, subulate, inserted into the calyx. Anthers oblong, erect.

^c Pallas.

^d Gærtner.

^e Pallas.

^f Vahl.

PIST. Germ inferior. Style the length of the stamens, cylindric. Stigma headed, multifid.

PER. Berry rather oblong, one-celled, umbilicate, roughened as the calyx is.

SEEDS numerous, roundish, small, nestling.

OBS. *Cereus* J. is a long, straight, angular plant.

Melocactus T. roundish, angular.

Opuntia T. branching, dichotomous.

Pereskia P. arboreous, leafy; with a leafy fruit.

The *Melocacti* are monocotyledonous, the *Opuntia* dicotyledonous, and yet they are of the same natural genus.

ESSENTIAL CHARACTER.

Cal. one-leaved, superior, imbricate. Cor. manifold.

Berry one-celled, many-seeded.

SPECIES.

* *Echinomelocacti*, of a roundish form.

1. *Cactus mammillaris*. Smaller Melon-Thistle.

Lin. spec. 666. *Reich.* 2. 465. *hort. cliff.* 181. 1. *upf.* 119. 1.

Echinomelocactus. *Herm. par.* t. 136.—lanuginosus tuberculis spinosis undique obsitus, fructu e lateribus sparsim egredientē. *Raii hist.* 1917. *dendr.* 25. 4. 5.

Ficoides f. *Melocactus* mamm. glabra, &c. *Pluk. alm.* 148. t. 29. f. 1.

F. f. *Ficus americana* sphaerica tuberculata lactescens, fl. albo. *Comm. hort.* 1. 105. t. 55. *Bradl. succ.* 3. 11. t. 29. *Raii dend.* 24. n. 1.

α. Simple, with red spines.

C. mamillaris. *Mill. dict.*

β. Manifold, with white spines.

C. proliferus. *Mill. dict.* n. 6. Childing Melon-Thistle.

Roundish, covered with ovate bearded tubercles.

2. *Cactus Melocactus*. Great Melon-Thistle, or Turk's-cap.

Lin. spec. 666. *syft.* 459. *Reich.* 2. 465. *hort. cliff.* 181. 2. *upf.* 119. 2. *Mill. dict.* n. 1. *Swartz obs.* 198.

C. humilis subr. fulcatus & coronatus, spinis confertis. *Brown. jam.* 238. 10.

Melocactus indiae occidentalis. *Bauh. pin.* 384.

Echino-Melocactus. *Clus. exot.* t. 92. *Bradl. succ.* 4. 9. t. 32. *Sloan. jam.* 2. 159.

Melocarduus echinatus. *Ger.* 1013. *emac.* 1177. *Raii hist.* 1467.—americanus. *Park.* 1627.

α. *C. Melocactus*. *Mill. dict.* n. 1. Common Melon-Thistle.

β. *C. albispinus*. *Mill. dict.* n. 4. edit. 7.

Fourteen-angled, with long recurved white spines.

γ. *C. recurvus*. *Mill. dict.* n. 3. *Lin. mant.* 243. *C. nobilis*. *Reich.* 2. 466.

Fifteen-angled, with broad recurved spines set very close.

δ. *C. intortus*. *Mill. dict.* n. 2.

Melocactus purpureis striis in spiram intortis. *Plum. cat.*

Fifteen-angled, angles spirally twisted, spines erect.

Roundish, fourteen (or fifteen) angled.

** *Cereuses*, erect, supporting themselves.

3. *Cactus Pitajaya*.

Lin. syst. 459. *Reich.* 2. 466. *Jacqu. amer.* 151. edit. 2. 75. *Park.* 1628.

Cereus triangularis. *Mill. dict.* n. 9.

Erect, triangular.

4. *Cactus heptagonus*. Seven-angled upright Torch-Thistle.

Lin. spec. 666. *Reich.* 2. 466. *hort. cliff.* 181. 3.

Cereus heptagonus. *Mill. dict.* n. 6? See n. 8.

Erect oblong seven-angled.

5. *Cactus tetragonus*. Four-angled upright Torch-Thistle.

Lin. spec. 667. *Reich.* 2. 466. *hort. cliff.* 181. 4. *upf.* 119. 3.

Cereus tetragonus. *Mill. dict.* n. 2.

Cer. erect. minor, fructu spinoso costarum numero varians. *Herm. par.* 117. *Boerb.* n. 9. *Raii dendr.* 23. n. 7.

Erect, quadrangular, long; angles compressed.

6. *Cactus*

6. *Cactus hexagonus*. Six-angled upright Torch-Thistle.
Lin. spec. 667. *Reich.* 2. 466. *hort. cliff.* 181. 5.
ups. 119. 4.
Cereus hexagonus. *Mill. dict.* n. 1.
Cer. erectus, &c. *Herm. par.* 116. *Raii dendr.* 23.
n. 6. *Bradl. succ.* 1. t. 1. *Boerb. lugdb.* 1. 292.
n. 1, 2.
Melocactus monoclonos, fl. albo, fructu atropurpureo. *Plum. spec.* 19. ic. 191?
Erect six-angled long; angles distant.
- [7. *Cactus pentagonus*. Five-angled upright Torch-Thistle.
Lin. spec. 667. *Reich.* 2. 467. *hort. cliff.* 182. 9.
Erect, long, jointed; with about five angles.]
8. *Cactus repandus*. Slender upright Torch-Thistle.
Lin. spec. 667. *Reich.* 2. 467. *hort. cliff.* 182. 8.
Brown. jam. 238. 9.
Cereus gracilis. *Mill. dict.* n. 8? an pot. heptagonus, n. 6.
Cer. altiss. grac., fructu extus luteo, intus niveo, &c. *Sloan. jam.* 2. 158. *Raii dendr.* 22. *Trew. ebret.* t. 14.
Erect, long, eight-angled; angles compressed waved, spines longer than the wool.
9. *Cactus lanuginosus*. Woolly upright Torch-Thistle.
Lin. spec. 667. *Reich.* 2. 467. *hort. cliff.* 182. 7.
Cereus repandus. *Mill. dict.* n. 5.
Cer. curassavicus erectus maximus, fructu rubro non spinoso, lanugine flavescente. *Herm. par.* 115.
Boerb. n. 5, 6. *Raii dendr.* 23. n. 5.
Erect, long, with about nine angles; angles obsolete; spines shorter than the wool.
10. *Cactus peruvianus*. Peruvian upright Torch-Thistle.
Lin. spec. 667. *synt.* 459. *Reich.* 2. 467. *hort. cliff.* 181. 6. *ups.* 120. 5. *Brown. jam.* 238. 8.
Swartz obs. 199.
Cereus lanuginosus. *Mill. dict.* n. 3.
Cer. erectus, fr. rubro non spinoso. *Herm. par.* 114.
Boerb. n. 4. *Raii dendr.* 22. n. 4.
Cer. peruv. spinosus, fr. rub. nucis magnitudine. *Baub. pin.* 458. *Raii bist.* 872. 1467. *Ger.* 1015.
emac. 1179. f. 3. *Park.* 1628.
Euphorbii arbor cerei effigie. *Lob. ic.* 2. 25.
Cer. crassissimus, fr. intus & extus rubro. *Sloan. jam.* 2. 157. *Raii dendr.* 21. (cliff.)
Erect, long, with about ten bluntish angles.
11. *Cactus Royeni*. Royen's upright, or nine-angled Torch-Thistle.
Lin. spec. 668. *synt.* 459. *Roy. lugdb.* 279.
Cereus Royeni. *Mill. dict.* n. 7.
Cer. erect. grac. spinosissimus: sp. flavis, polygonus, lanugine alba pallefcente. *Boerb. lugdb.* 1. 293.
n. 7, 8.
Cer. erectus, fr. rubro non spinoso, lanuginosus. *Herm. par.* 115? see n. 9.
Erect, jointed, nine-angled: joints subovate, spines equal in length to the wool.
 *** *Cereuses creeping, with roots from the sides.*
12. *Cactus grandiflorus*. Great-flowering creeping *Cereus*.
Lin. spec. 668. *Reich.* 2. 468. *hort. cliff.* 182. 10.
ups. 121. 11.
Cereus grandiflorus. *Mill. dict.* n. 11.
Cer. scandens minor polygonus articulatus. *Herm. par.* 120. *Mill. fig.* t. 90. *Boerb. n.* 11.
Cer. gracilis sc. ramosus plerumque sexangularis, fl. ingenti atque fragranti, &c. *Trew. ebret.* t. 31, 32.
Eph. nat. cur. 1752. ix. t. 11, 12, 13. *Volk. besp.* 1. t. 234.
Creeping, with about five angles.
13. *Cactus flagelliformis*. Pink-flowering creeping *Cereus*.
Lin. spec. 668. *Reich.* 2. 468. *hort. ups.* 121. 12.
Curt. mag. t. 17. *Amer. Nurimb. t.* 154. *Brown. jam.* 238. 7. *Swartz obs.* 200.
Cereus flagelliformis. *Mill. dict.* n. 12.
Cer. minimus scandens polygonus spinosissimus, fl. purpureo. *Ebret. sel.* 2. f. 2. *Trew. ebret.* t. 30.
Ficoides amer. f. Cereus min. serpens amer. *Pluk. alm.* 148. t. 158. f. 6. *Sloan. jam.* 2. 158. *Raii dendr.* 22. n. 2.
Creeping, ten-angled.

- [14. *Cactus parasiticus*. Parasitical creeping *Cereus*.
Lin. spec. 668. *Reich.* 2. 469.
15. *Cactus pendulus*. Slender *Cereus*.
Swartz prodr. 77. *Brown. jam.* 238. 11. *Ait. hort. kew.* 2. 153.
Cassya baccifera. *Mill. illustr.*
Rhipsalis Cassutha. *Gertn. fruct.* 1. 137. t. 28.
Viscum. *Sloan. jam.* 2. 93. 7. but not the figure.
Pendulous, branches in whorls round smooth without prickles.]
16. *Cactus triangularis*. Triangular *Cereus*, or Strawberry Pear.
Lin. spec. 669. *synt.* 460. *Reich.* 2. 469. *hort. cliff.* 182. 11. *ups.* 121. 13. *Brown. jam.* 238. 6.
Jacqu. amer. 152. edit. 2. 75. *Ait. belv.* 5. 268. t. 2.
Cereus compressus. *Mill. dict.* n. 10.
Cer. amer. triang. radicosus. *Bradl. succ.* 1. 4. t. 3.
Eph. nat. cur. vol. 9. app. 199. t. 10. f. 14. & vol. 10. app. 349. t. 3.
Melocactus amer. repens trigonus, fl. albo, fructu violaceo. *Plum. ic.* 199, 200?
β. C. triangularis foliosus. *Jacqu. amer.* 152. t. 181. f. 65.
Creeping triangular.
 **** *Opuntias, compressed with proliferous joints.*
- [17. *Cactus moniliformis*. Necklace Indian Fig.
Lin. spec. 669. *Reich.* 2. 469.
Melocactus ex plurimis globulis Opuntiae modo nascentibus, spinosissimis. *Plum. spec.* 19. ic. 198.
Tournef. inst. 653.
Proliferous-jointed; joints globular thorny glomerate.]
18. *Cactus Opuntia*. Common Indian Fig, or prickly Pear.
Lin. spec. 669. *Reich.* 2. 470. *hort. cliff.* 183. 15.
ups. 120. 6. *Brown. jam.* 237. n. 2. *Allion. pedem.* n. 1932. *Plenck, ic.* t. 373.
Opuntia vulgaris. *Mill. dict.* n. 1. fig. t. 191. *Hall. belv.* n. 1099. *Baub. bist.* 1. 154. fig.
Ficus indica, fol. spinoso, fr. majore. *Baub. pin.* 458.
Proliferous-jointed loose; joints ovate, spines setaceous.
19. *Cactus Ficus indica*. Oblong Indian Fig.
Lin. spec. 669. *Reich.* 2. 470. *hort. cliff.* 183. 13.
ups. 120. 7. *Lour. cochinch.* 306.
Opuntia Ficus indica. *Mill. dict.* n. 2.
O. fol. oblongo media. *Tourn. inst.* 239.
Ficus indica. *Matth. p.* 234. f. 3. *Ger.* 1329.
emac. 1512. — major. *Park. theat.* 1497. *Raii bist.* 1464.
Proliferous-jointed, joints ovate-oblong, spines setaceous.
20. *Cactus Tuna*. Great Indian Fig, or upright prickly Pear.
Lin. spec. 669. *Reich.* 2. 470. *hort. cliff.* 183. 14.
ups. 120. 8. *Brown. jam.* 237. 3.
Tuna major, spinis validis flavicantibus, fl. gilvo. *Dill. elth.* 396. t. 295. f. 380.
Opuntia Tuna. *Mill. dict.* n. 3.
O. major, validiss. spinis munita. *Tourn. inst.* 239.
O. major, fol. oblongo-rotundo, sp. longis & validiss. fl. luteo. *Sloan. jam.* 2. 149. t. 224. f. 1. (fruit). *Raii dendr.* 19.
β. O. elatior. *Mill. dict.* n. 4. Spines very long, black.
Tuna elatior, sp. validis nigricantibus. *Dill. elth.* t. 294. f. 379.
γ. O. maxima. *Mill. dict.* n. 5. Joints very thick, long and broad; spines unequal.
O. max., fol. spinoso latiss. & longissim. *Tourn. inst.* 240. *Raii dendr.* 19. n. 2.
Proliferous-jointed; joints ovate-oblong; spines subulate.
21. *Cactus cochenillifer*. Cochineal Indian Fig.
Lin. spec. 670. *Reich.* 2. 471. *hort. ups.* 121. 10.
Brown. jam. 237. n. 4.
Tuna mitior, fl. sanguineo, cochenillifera. *Dill. elth.* 399. t. 297. f. 383.
Opuntia cochenillifera. *Mill. dict.* n. 6.
O. max. fol. oblongo-rotundo majore, spinulis molibus obsito, fl. striis rubris variegato. *Sloan. jam.* 2. 152. t. 8. f. 1, 2. *Raii dendr.* 19.
Ficus indica major laevis f. non spinosa vermiculos proferens.

- proferens. *Pluk. alm.* 146. t. 281. f. 2. *Raii hist.* 1465.
Proliferous-jointed; joints ovate-oblong, almost unarmed.
22. *Cactus curassavicus.* *Curassoa* or *leaf Indian Fig*, or *Pinpillow*.
Lin. spec. 670. *Reich.* 2. 471. *hort. cliff.* 182. 12. *upf.* 120. 9.
Opuntia curassavica. *Mill. dict. n.* 7.
O. minima americana spinosissima. *Bradl. succ.* 1. 5. t. 4.
Ficus indica, f. *O. curass. minima.* *Comm. hort.* 1. 107. t. 56.
F. ind. f. *O. minor caulescens—ramis cineritiis, spinosissima.* *Pluk. alm.* 147. t. 281. f. 3.
Proliferous-jointed; joints cylindric-ventricose compressed.
23. *Cactus Phyllanthus.* *Spleenwort-leaved Indian Fig*.
Lin. spec. 670. *Reich.* 2. 471. *hort. cliff.* 182. 16. *upf.* 120.
Opuntia Phyllanthus. *Mill. dict. n.* 9.
Cereus scolopendri fol. brachiato. *Dill. elth.* 73. t. 64. f. 74.
Phyllanthus amer., sinuosis fol. longis, &c. *Pluk. alm.* 295. t. 247. f. 5.
Fic. f. O. non spinosa, scolopendriae fol. sinuato. *Raii dendr.* 21. n. 7.
Proliferous, ensiform-compressed, serrate-repand.
- [24. *Cactus alatus.*
Swartz prodr. 77. *Brown. jam.* 237. 5.
Opuntia non spinosa. *Sloan. jam.* 2. 159. 17.
Proliferous, ensiform compressed crenate.]
25. *Cactus spinosissimus.* *Cluster-spined Indian Fig*.
Mart. hort. cantabr. 88. *Ait. hort. kew.* 2. 155.
Opuntia spinosissima. *Mill. dict. Houst. M. S. S.*
Stem upright compressed, branches opposite bifarious compressed, spines bristle-shaped.
26. *Cactus Pereskia.* *Barbadoes Gooseberry*.
Lin. spec. 671. *Reich.* 2. 472. *hort. upf.* 122. 14.
Brown. jam. 237. 1.
Pereskia. *Linn. hort. cliff.* 183. — *aculeata.* *Mill. dict.*
P. acul., fl. albo, fructu flavescente. *Plum. gen.* 35. *Dill. elth.* 305. t. 227. f. 294.
Malus amer. spinosa, portulacæ fol. fructu folioso, fem. reniformi splendenti. *Comm. hort.* 1. 135. t. 70.
Portulaca amer. latifolia, ad fol. ortum lanugine obducta, longioribus aculeis horrida. *Pluk. alm.* 304. t. 215. f. 6.
Grossulariæ fructu majore arbor spinosa, fructu folioso e viridi-albicante. *Sloan. jam.* 2. 86. *Raii dendr.* 27.
Stem arboreous round, prickles double recurved, leaves lanceolate-ovate.
- [27. *Cactus portulacifolius.* *Purslain-leaved Indian Fig*.
Lin. spec. 671. *Reich.* 2. 472.
Opuntia arbor spinosissima, fol. portulacæ cordatis. *Plum. spec.* 6. ic. 190. t. 197. f. 1.
Stem round arboreous thorny; leaves wedge-form retuse.

DESCRIPTIONS, &c.

This genus consists of succulent plants, permanent in duration, singular and various in structure; generally without leaves, and having the stem or branches jointed; for the most part armed with spines in bundles, with which, in many species, bristles are intermixed. These bundles of spines are placed on the top of the tubercles in the *Smaller Melon-Thistle* (n. 1.), which is tubercled all over, and produces its flowers between the tubercles. In the *Great Melon-Thistle* (n. 2.) the spines are ranged in a single row on the ridge of the ribs. These are of an ovate or globular form. The *Torch-Thistles* (n. 3—11.) on the contrary are slender, rise up high, are jointed and branched; many of them are almost cylindrical, with from five to ten shallow ribs, some however are square or three-cornered. The structure of the *Creeping Cereuses* (n. 12, 13, &c.) is the same with these, except that the stems are weak and cannot support themselves; they therefore seek sup-

port from trees, and throw out roots from the stem, like Ivy. In the *Indian-Figs* (n. 17. &c.) the branches are jointed, and flatted like the sole of a shoe; the bundles of spines or bristles are scattered over the surface, and the flowers are produced from the edge of the extreme branches. In the *Phyllanthus* (n. 23.) the branches are thinner, and may fairly be denominated leaves, they are indented along the edge, and the flowers come out singly from the indentures. This seldom has any spines. *Pereskia* has a round stalk with leafy branches; the leaves alternate, flat, and thick; the prickles are large and stiff, and come out in bundles on the stalk and branches, chiefly at the axils; the flowers are produced several together from the axils also. In this and the *Indian-Figs* the flowers are pitcher-shaped; in the other species they are subcylindrical and longer; in *Phyllanthus* very long. The fruit, in some of the sorts is small, like Currants; but in most, it is larger, and shaped like a Fig, whence their name of *Indian-Fig*^a.

This genus, scattered by the old writers and Mr. Miller, under the names of *Cactus*, *Cereus*, *Opuntia*, and *Pereskia*, is here collected, after the example of Linneus.

These singular plants are all natives of the continent of South America and the West-Indian islands.]

I. *Melon-Thistles* or *Turk's-caps*.

1. This differs from the second in being smaller, and in being covered with tubercles, between which the flowers and fruit come out, round the middle of the plant. The flowers appear in July and August. The fruit is of a fine scarlet colour, and continuing fresh upon the plants through the winter, they are very beautiful at that season.

[Linneus observes^b, that it is fortified all over with bearded *papillæ* like the *Mesembryanthemum*; that it is milky like the *Euphorbia*; and that it has the fructification of *Cactus*.

Ray mentions, that it was cultivated at Fulham, in the garden of Bishop Compton, "the ever to be celebrated patron of Botany and polite arts." It was also in the royal garden at Hampton Court, in 1690^c.]

β. The Childing variety, is but little larger than the other, growing nearly in the same form; but this produces a great number of young plants from the sides, by which it is increased. It produces tufts of a soft white down upon the tubercles or knobs, and also between them, so that the whole plant appears as if it were covered with fine cotton. The flowers are larger, but have not been succeeded by fruit in England; instead of it young plants have been thrust out the following season from the same places where the flowers had appeared.

2. The Great Melon-Thistle appears like a large fleshy green Melon, with deep ribs, set all over with strong, sharp thorns. When it is cut through the middle, the inside is found to be a soft, green, fleshy substance very full of moisture. The flowers and fruit are produced in circles round the upper part of the cap.

Some of these which have been brought to England, have been more than a yard in circumference, and two feet and a half high including the cap. But in the West Indies there are plants near twice as large.

[Linneus observes that this plant resembles a hedge-hog in its form and spines; and on the top has a discoid, convex, villose body, from which the flowers proceed^d.]

β, δ. Mr. Miller received the varieties with white spines and with spiral ribs from Antigua; and never perceived the least disposition in them to produce fruit, or even caps.

γ. Was brought into England by Dr. William Houstoun, who procured the plants from Mexico. This has two orders of thorns, in one of which

^a Jussieu gen.^b Hort. cliff.^c Hort. kew.^d Hort. cliff.

they are straight, and set on at the joints in clusters, spreading out from the centre each way like a star; and in the middle of each cluster is produced one broad flat thorn near two inches in length, which stands erect, is recurved at the point, and of a brownish red colour. These thorns are by the inhabitants of Mexico, set in gold or silver, for tooth-picks.

[In Linneus's *mantissa*, it is said to be roundish, with fourteen angles; there are many dots on the back of the angles, fascicled with acrose spines; the spine in the middle of each fascicle is large and recurved.]

Mr. Miller having made four species of this Great Melon-Thistle, thinks that if the islands in the West Indies were examined, many more sorts would be found.

These strange plants commonly grow upon the steep sides of rocks in the hottest parts of America, where they seem to be thrust out of the apertures, having little or no earth to support them; their roots shooting down into the fissures of the rock to a considerable depth, so that it is troublesome to get the plants up. As they delight in such rocky places, they seldom live long when transplanted into a better soil.

In times of great drought the cattle repair to the barren rocks where these plants grow, rip them up with their horns, tear off the outside skin, and greedily devour all the fleshy moist part.

The fruit is frequently eaten by the inhabitants of the West Indies. It is about three quarters of an inch in length, of a taper form, drawing to a point at the bottom, but blunt at the top: the taste is an agreeable acid.

[Gerarde complains, that the Great Melon-Thistle would not grow with him, by reason of the coldness of the climate. Ray had the plants in pots, six years old. Fairchild of Hoxton raised many young plants from the seed. Bradley cultivated it in 1727. He in his Philosophical account of the works of Nature, published in 1721: and Miller, in the Florist's Dictionary 1724, mention, that one was then to be seen in the stove at Hampton Court. It is frequently brought from the West Indies, but seldom continues long in our climate.]

II. Torch-Thistles or Torch-wood.

3. This has the habit of the sixteenth, but is upright, and eight or ten feet high: when it grows higher it wants support, but does not put out any roots from the stem. The flower is whitish, very handsome, but has hardly any smell; it is half a foot in diameter, and blows in the night. The fruit is of the form and size of a hen's egg, of a shining scarlet colour on the outside; the pulp is white, fleshy, sweet, eatable, full of small black shining seeds.

Native of Carthage, and the isle of Mango*.

4. &c. The angular upright Cactuses, are commonly called Torch-Thistles, and in the West Indies Torch-wood, because when they grow old they will burn, and the Indians use them as flambeaux. Many of them are figured by Plumier, but are by no means perfectly known; they remain therefore to be well described by travellers.] They differ in the size of their stems, the number of the angles, and the length of the spines; [but they have not all flowered in England. Mr. Miller received several of the species from the British islands in the West Indies so early as 1728.]

4. Linneus says, that his plant of *Cactus heptagonus* was exactly ovate, with seven angles deeply cut, and that it continued the same for many years, though it grew well: others say, that they have seen it a foot and half and two feet high^f.

The *Cereus heptagonus* of Miller does not seem to be the same with the *Cactus heptagonus* of Linneus. It rather agrees with his *repandus*.

This has not flowered in England.]

5. The angles of this are compressed, and far asunder. It is very subject to put out many shoots from the sides, which stops its upright growth, so that the plants rarely rise more than four or five feet high.

[It was cultivated by Mr. Miller in 1731, and flowers in July^g.]

6. The angles of the hexangular Torch-Thistle are armed with sharp spines, coming out in clusters at certain distances, and spreading from a centre every way: the outer substance of the plant is soft, herbaceous, and full of juice, but in the middle there is a strong fibrous circle running the whole length, which secures the stems from being broken by winds. They will rise to the height of thirty or forty feet, if their tops are not injured; and they have room to grow; but whenever the stems are cut, or injured, they put out shoots from the angles, immediately under the wounded part, and frequently one or two lower down: these, if they are not cut off, form distinct stems, and grow upright; but they are seldom so large as the principal stem, especially if more than one be left on a plant. The flowers come out from the angles on the side of the stem; they have a thick, fleshy, scaly, round, channelled, hairy peduncle, supporting a swelling germ, upon the top of which sits the scaly, prickly calyx, closely surrounding the corolla, till a little time before it expands. The flower is then as large as that of a Hollyhock: the inner petals are white, and crenated at their extremity. The calyx is green with some purple stripes. It is not succeeded by fruit in this country, nor do the plants often produce flowers; but when they do there are generally several. The usual time of flowering is in July.

This has been the common sort in the English stoves. It grows naturally in Surinam, whence it was brought to Holland, where it produced flowers in the year 1681; and from the Dutch gardens, most parts of Europe have been supplied with this plant.

[In 1690, it was introduced here by Mr. Benthick. Mr. Bradley says, "this beautiful plant was first raised in England by Mr. Adam Holt, at the Bishop of London's (Compton) palace at Fulham; and that it flowered at Sir Richard Child's at Wanstead."

7. Stem jointed; the internodes a foot long. Knots of spines come out along the edge without any visible nap among them. Sometimes, but rarely, the stem has six angles: it never puts out any roots, and though slender and weak, grows upright^h. It was introduced about 1769ⁱ.

8. Miller puts Sloane's synonym, which Linneus attributes to this species, to his *gracilis* n. 8. which he describes as] having the smallest stem of any of the upright sorts; generally nine obtuse angles armed with short spines, placed at farther distances than those of the other sorts, and the channels between the angles, not near so deep. The flowers are produced from the angles, in the same manner as the sixth; but they are smaller, and the calyx is of a light green, without any mixture of colour. The fruit is about the size and shape of a Bergamot Pear, having many soft spines on the skin; the outside is a pale yellow, the inside very white, full of pulp, having a great number of small black seeds lodged in it. This sort frequently flowers in July, and in warm seasons will perfect its fruit, which has very little flavour in this country. [It is however frequently served up at table in the West India islands.]

Miller characterizes his *heptagonus* in the same manner as Linneus does this species; namely, as having eight angles, and spines longer than the wool. He adds Boerhaave's synonym of *Cereus erect*, very thick and extremely angular, with many very long white spines, and yellow wool.

[Linneus doubts whether this may not be a variety of the next species^k.

* Jacquin.

^f Hort. cliff.

^g Hort. kew.

^h Linn. hort. cliff.

ⁱ Hort. kew.

^k Hort. cliff.

9. This is very spiny. The spines, especially the younger ones, have a brownish wool about them. The fruit is of the size and form of a hen's egg, red on the outside and without spines¹.

Native of America. It was introduced in 1690, by Mr. Bentick^m.

10. The stem is a fathom or more in height, almost simple, two or three inches in diameter, blunt at the end, having ten deep angles, set with thorns, crowded eight or ten together, about an inch in length, spreading, the inner ones shorter, tomentose at the base. The angles at the top have the spines concealed among the wool, and they come out gradually as the stem grows up. The wool is white and brown. Flowers sessile, in the very angles of the extremities, scattered; ovate at the base, two inches long, elongated, red. Berry unarmed, blood red within, eatableⁿ. Native of Peru and Jamaica, in dry open situations on the coast. Introduced by Mr. Miller in 1728^o.]

Miller distinguishes his *peruvianus* by its having very strong spreading spines. He gives Herman's synonym of *Cereus upright very large, with a red thorny fruit*. To his *lanuginosus* he gives the same synonym from Herman, that Linneus does to his *peruvianus*, namely of a red fruit without thorns.

11. Introduced in 1728, by Mr. Miller^p.

III. Creeping Cereuses.

These are remarkable for the beauty and sweetness of their flowers.]

12. The great night-flowering Creeping Cereus when arrived to a sufficient strength, will produce many exceeding large, beautiful, sweet-scented flowers, like most of this kind, of very short duration, scarcely continuing six hours full blown: nor do the flowers ever open again when once closed. They begin to open between seven and eight of the clock in the evening, are fully blown by eleven, and by three or four in the morning they fade, and hang down quite decayed; but during their short continuance, there is scarcely any flower of greater beauty, or that makes a more magnificent appearance; for the calyx of the flower, when open, is near a foot diameter; the inside of which, being of a splendid yellow colour, appears like the rays of a bright star, the outside is of a dark brown; the petals being of a pure white add to the lustre; the vast number of recurved stamens surrounding the style in the centre of the flower make a fine appearance: add to all this the fine scent of the flower, which perfumes the air to a considerable distance; there is scarce any plant which deserves a place in the hot-house so much as this, especially as it may be trained against the wall, where it will not take up any room. The usual season of its flowering is in July, and when the plants are large many flowers will open the same night, and there will be a succession of them for several nights together. Sometimes six, eight, or ten flowers open at the same time on one plant, making a most magnificent appearance by candle-light; but none of them are succeeded here by any appearance of fruit.

[Native of Jamaica and Vera Cruz. Introduced before 1700, in the royal garden at Hampton-court^q.]

13. The Pink-flowered Creeping Cereus produces a greater number of flowers than the foregoing sort: they come out in May, and sometimes earlier, when the season is warm: the petals are of a fine pink colour both within and without, they are not so numerous, and the tube of the flower is longer than that of the other. These flowers keep open three or four days, provided the weather, or the place where the plants stand be not too warm; and during their continuance they make a fine appearance. This sort has very slender trailing branches, which require a support; they are not jointed, nor do they extend so far as those of the other sort, so that they may be

easily trained to a little trellis of sticks, and the plant may be conveyed into the house, whilst in flower, to adorn any of the rooms. The flowers are so beautiful, and are produced in such great plenty, that this may be placed in the first class of exotic plants. It has produced fruit in the stove at Chelsea, but the fruit did not ripen.

This sort grows naturally in Peru, whence it was sent to the royal garden at Paris; and in the year 1734, Mr. Miller had some cuttings of it from Bernard de Jussieu, which succeeded in the Chelsea garden.

[14. This is probably the root of some species of Epidendrum.

15. Stem roundish, green, woody, striated, as big as a goose's quill; divided into several slender, round, striated branches, and they into twigs, at distances of one, two, and three inches; at which divisions are set little twigs, an inch and half long in whorls^r. It grows chiefly on the largest trees in Jamaica, hanging commonly to the length of three or four feet^s.

Introduced in 1758, by Mr. Miller. It flowers in September^t.

Gærtner describes the fruit as an inferior berry, crowned with the rudiment of the flower, spherical, snow white, pellucid, one-celled: pulp watery. Seeds eight or twelve, conglomerate in the centre of the fruit, small oblong, somewhat angular or wedge-form compressed and thicker on the outside, very slenderly dotted in streaks, ferruginous. He keeps it distinct from this genus, because the embryo of *Cactus* is slightly spiral, and the albumen of the seed farinaceous; whereas there is no albumen in this, and the embryo fills the whole cavity of the seed.

16. This climbs up trees to a considerable height, supporting itself by throwing out roots; it also covers shady rocks. The fruit is the best flavoured of any of the sorts, being slightly acid with a mixture of sweetness, pleasant and cooling. It has no leaves, but is somewhat irregular with scars. It is a native of the West India islands. In Martinico, where the inhabitants esteem the fruit, it is called *Poirier de Chardon* or Thistle Pear^u.]

It first flowered here in the royal garden at Hampton-court, and at the Marquis of Rockingham's at Wentworth-castle, in Yorkshire.

[17. The fruit is much larger, of a shining scarlet colour, and clothed with leaves which are almost entire: the pulp is white, sweetish, eatable, but having very little flavour: the seeds are black and glossy. It is a native of the island of St. Eustatia^v.

IV. Indian Figs or Prickly Pears. In French *Raquette*.

17. This is a sessile plant, consisting of globular joints growing out of each other, armed with very long, sharp, subulate spines, commonly solitary but sometimes coming out two together. The flowers are produced from the upper joint, they are sessile, the tube is long and scaly, the petals spreading and sinuous, the style very long and prominent, and the stigma very broad and many-parted. It is a very singular plant, and the least known of any in this genus^w. Native of South America.]

18. The joints or branches of the Common Opuntia or Indian Fig are ovate, compressed, and have very small leaves coming out in knots on their surface, as also on their upper edges, which fall off in a short time; and at the same knots there are three or four short bristly spines, which do not appear unless they are closely viewed; but on being handled they enter the skin, are troublesome, and very difficult to get out again. The branches spread near the ground, and frequently trail upon it, putting out new roots, and thus extending to a considerable distance, but never rising in height; they are fleshy and herbaceous whilst young, but as they

¹ Herman.

^m Hort. kew.
^p Ibid.

ⁿ Swartz.
^q Ibid.

^o Hort. kew.

^r Sloane.

^s Browne.
^t Ibid.

^u Hort. kew.
^v Plurmer.

^w Jacquin.

grow old become drier, of a tough contexture, and have woody fibres. The flowers come out on the upper edges of the branches generally, though sometimes they are produced on their sides. The skin or cover of the fruit is set with small spines in clusters, and the inside is fleshy of a purple or red colour. It flowers here in July and August, but unless the season is very warm, the fruit will not ripen in England.

This sort is now found growing wild on the sides of the roads about Naples and in other parts of Italy, in Sicily, Spain, [Portugal, the Valais, the South of France, Minorca, &c.]: but it is probable that it was brought originally from America, of which all the other sorts are natives.

[Gerard says, that this plant was brought from Virginia into Italy, Spain, England, &c. and that he could never make it bear fruit here, though he bestowed great pains and cost in keeping it from the injury of our old climate. He adds, that it grows in Barbary, and that his servant William Marshall found it abundantly in the island of Zante.]

Mr. Miller received some branches of it from Mr. Peter Collinson, who assured him they were sent from Newfoundland, where the plants grow naturally, and which is much farther to the north than it was before known to grow. How it endures the cold of that country is inconceivable, for though it will live abroad in England, in a warm situation and dry soil, yet in severe winters it is generally destroyed, if not protected from frost.

[That of which Mr. Miller has given a plate in his figures of plants, came from Nova Scotia, where it is said to be common. He observes, that it is a much larger plant than the common sort, and armed with stronger prickles; that the fruit also is much larger, and of a deeper purple colour; the joints rounder and more compressed; besides that it is hardier, and grows more upright.]

19. The oblong-branched Indian Fig, has the branches growing more upright than those of the foregoing, and they are armed with long bristly spines, coming out in clusters on both the compressed sides, and spreading open like the rays of a star. The flowers come out from the upper edges of the leaves, like the former; but they are larger, and of a brighter yellow colour. The fruit is also larger, and of a deeper purple colour; the outer skin is also armed with longer spines. This is the most common sort in Jamaica, and upon the fruit of this the wild sort of Cochineal insect feeds, which is called Silvester. Some of the plants were sent with the live insects upon them from Jamaica, by Dr. Houstoun, who was writing a history of them. These insects kept alive upon the plants here three or four months. If the fruit be eaten, it will dye the urine of a bloody colour.

[This seems to be a native not only of South America, but also of the East Indies, Cochinchina and Japan, and Madeira; or perhaps rather has been transplanted thither.]

20. This has stronger branches than the foregoing sort, and they are armed with larger thorns, which are awl-shaped, whitish, and in clusters. The flowers are large, of a bright yellow colour; and the fruit is shaped like that of the foregoing.

β. This grows taller, the branches are larger, thicker, and of a deeper green, and are armed with strong black spines, coming out in clusters which are far asunder. The flowers are smaller, and of a purplish colour, as are also the stamens; the fruit is of the same form with that of the common sort, and does not ripen here.

γ. Is the largest of all the sorts yet known. The joints are more than a foot long, and eight inches broad; they are very thick, of a deep green colour, and armed with a few short spines; the older branches of this often become almost taper, and are very strong. It has not flowered, though many of the plants were more than ten feet high.

[This sort makes very strong fences; the prickles are so sharp, that cattle are afraid of coming near

them; and it spreads very much both by the joints and the seed. When the island of St. Christopher was to be divided between the English and the French, three rows of the *Tuna* were planted by common consent between the boundaries².

Dr. Smith, in his very ingenious paper upon the irritability of vegetables³, informs us, that the long and slender stamens of the flower are very irritable; and that if a quill or feather be drawn through them, in the space of two or three seconds they begin to lie down gently on one side, and in a short time become recumbent at the bottom of the flower.

It is a native of South America and Jamaica; and was cultivated in 1732, at Eltham, by James Sherard, M.D.⁴

21. This, which is supposed to be the sort upon which the Cochineal insect feeds, has oblong, smooth, upright branches, rising to the height of eight or ten feet, having scarcely any spines on them, and the few which there are so soft as not to be troublesome when handled. The flowers are small, and of a purple colour; they do not spread open, appear late in autumn with us, and the fruit drops off in winter without coming to perfection.

[The Cochineal insect feeds on many succulent plants, but most commonly on the Cactus genus. For this reason the Indians propagate large quantities of the most harmless species to breed the insects upon⁵.

Dampier's account is as follows:

The plant on which the Cochineal insect feeds is like the Prickly Pear, about five feet high, and as prickly; only the leaves are not quite so big, but the fruit is bigger. On the top of the fruit there grows a red flower: this when the fruit is ripe, falls down on the top of it, and covers it so that no rain or dew can wet the inside. A day or two after, the flower being scorched up by the heat of the sun, the fruit opens wide, and the inside appears full of small red insects. The Indians, when they perceive the fruit open, spread a large linen cloth, and then with sticks shake the plant, to disturb the insects, so that they take wing to be gone, but keep hovering over the plant, till by the heat they fall down dead on the cloth, where the Indians let them remain two or three days till they are dry. The Cochineal plants are called by the Spaniards *Toona*. They are planted in the country about Guatemala, Cheape, and Guaxaca, in the kingdom of Mexico.

The difference, in point of goodness, observable in the Cochineal, is entirely owing to the plant it feeds upon. The Prickly Pear (*C. Tuna*) so abundant in Jamaica, is covered with the insects, but not having their proper food, they are in general diminutive, and have very little red tincture in their bodies.

These plants bear a succulent fruit at their extremities, filled with a delicate red coloured juice. This is the natural food of the insect. The exuviae and animal salts of the insect are, from the minuteness of its parts, inseparable from the essential principles of the dye, and must diminish the brilliancy of the colour: and this has put some persons upon inspissating the juice of the fruit itself.

The ripe fruit is said to check fluxes by its mild restraining; it is also a powerful diuretic, and sometimes imparts a tinge to the urine⁶.

This also was cultivated at Eltham in 1732⁷.

22. The least Indian Fig has thicker more swelling joints than the other sorts, closely armed with slender white spines. The branches spread out on every side, and where they have no support fall to the ground, very often separating at the joints, and as they lie upon the ground putting out roots, and forming new plants. This sort very rarely produces flowers in England. In the West Indies it is called Pinpillow, from the appearance which the branches have to a pincushion stuck full of pins.

² Sloane.

³ Philos. trans. vol. 78. part 1. p. 161.

⁴ Hort. kew.

⁵ Browne.

⁶ Long.

⁷ Hort. kew.

It is said to grow naturally at Curaffao. [Mr. Ben-
tuck introduced it here in 1690^f. It flowered at
Badminton, in the garden of that incomparable pa-
tronefs of natural learning, the late Dutcheſs of
Beaufort, as Bradley expreſſes it.]

23. Spleenwort-leaved Indian Fig has very thin
branches, which are indented regularly on their
edges, like Spleenwort; they are of a light green,
ſhaped like a broad-ſword, and without ſpines.
The flowers come out from the ſide, and at the end
of the branches, and are of a pale yellow colour.
The fruit rarely ripens in England.

It grows naturally in the Braſils, [Surinam, &c.
and was cultivated by Mr. Miller in 1731^g.

24. Stem round, aſh-coloured, flexile, whence
iſſue ſeveral leaves, which at firſt are very hairy, and
afterwards grow to a foot in length, and an inch
broad in the middle, decreaſing to both extremes;
they are of a pale green colour, and have round in-
dentures on their edges; out of theſe proceed the
flowers. The fruit is ſmall and compreſſed^h. Na-
tive of Jamaica.]

25. The branches of this ſort have the joints
much longer, narrower and more compreſſed than
in any of the others. The ſpines are very long,
ſlender, and of a yellowiſh brown colour, coming
out in cluſters all over the ſurface of the branches,
croſſing each other, ſo as to render the plant dan-
gerous to handle; for upon being touched, the
ſpines quit the branches, adhere to the hand, and
penetrate the ſkin, ſo as to be very troubleſome.

[Its growth is more upright and lofty than the
other Opuntias; the trunk below the branches is ſo
absolutely covered with ſpines as to be inviſible, and
to ſeem nothing but a congeries of theſe. Hence
the gardeners have, whimſically enough, named this
plant Robinson Cruſoe's coat. The branches are
remarkable neat and flattened, ſeldom ſubdividing
much, but protending horizontally in a double row
and in the ſame plane. The ſpines are very long
and ſlender, in parcels, and have a woolly tuft at
their baſe, which is moſt evident in the more ten-
der joints. Upon the whole this ſpecies is very dif-
ferent from the reſt, and has more of an air of neat-
neſs and elegance than any of theſe ſtrange plants,
notwithſtanding its roughneſs.]

It was ſent to Mr. Miller from Jamaica by Dr.
Houſtoun (before 1733). He found it there in
great plenty, but could never obſerve either flower
or fruit upon any of the plants; nor have they pro-
duced either in England.

26. This has many ſlender branches, which trail
on whatever plants grow near them. Theſe branches,
as alſo the ſtem of the plant, are beſet with long
whitiſh ſpines, which are produced in tufts. The
leaves are roundiſh, very thick and ſucculent; and
the fruit is about the ſize of a walnut, having tufts
of ſmall leaves on it, and within a whitiſh mucila-
ginous pulp.

It grows in ſome parts of the Spaniſh Weſt Indies,
whence it was brought to the Engliſh ſettlements in
America, where it is called Barbadoes Goofeberry.
The Dutch have named it Blad Apple.

[Plumier made it a new genus under the name of
Pereſkia, from Nic. Fabr. Peireſk, Senator of Aix,
who collected a conſiderable library and herbarium,
but publiſhed nothing.

It was cultivated in 1696, in the royal garden at
Hampton-courtⁱ.

27. Stem leafleſs, but armed with bundles of
briſtle-ſhaped ſpines. Leaves on the branches wedge-
ſhaped, emarginate, thick, ſucculent, alternate, with
ſubſolitary, ſubulate ſpines between them. Flowers
at the ends of the twigs, ſolitary, ſometimes but
ſeldom two together; petals roſaceous, flat, cordate.
Fruit roundiſh, ſomewhat angular, having no tufts
of leaves on it, by which it is diſtinguiſhed from
the foregoing, which it otherwiſe much reſem-
bles^k.]

^f Hort. kew.

^g Ibid.

^h Sloane.

ⁱ Hort. kew.

^k Plumier.

PROPAGATION AND CULTURE.

I. *Melon Thistles.*

1. The firſt ſort produces quantities of fruit an-
nually; and as the ſeeds grow very readily, it is
now very common in thoſe gardens where there are
ſtoves to keep them; for if the fruit is permitted to
drop upon the earth of the pots, and that is not
diſturbed, there will plenty of plants come up with-
out any farther trouble; and theſe ſeedling plants
may be taken up as ſoon as they are of a proper ſize
to remove, and planted ſix or ſeven of them into a
ſmall halfpenny pot, where they may ſtand one year;
by which time they will be large enough to be each
planted into a ſeparate pot, and afterward they will
make great progreſs, eſpecially if they are plunged
into a hot-bed of tanners bark in ſummer; for al-
though this ſort is much more hardy than the large
kind, and may be preſerved in a moderate ſtove, yet
the plants will not make near the progreſs as thoſe
which are kept in a greater degree of heat. This
ſort will continue many years with proper care, and
the plants will grow to be a foot high or more; but
when they are ſo tall, the lower part of them is not
ſo ſightly, their green being decayed, and the ſpines
changed to a dark dirty colour, they appear as if
dead, ſo that the upper part of theſe old plants only
ſeem to have life; whereas the plants of the mid-
dling ſize appear healthy from top to bottom.

In the ſpring, when the fruit ſhrivels and becomes
dry, the ſeeds will be ripe, and may then be rubbed
out, and ſown upon the ſurface of the earth in ſmall
pots, which ſhould be plunged into a hot-bed of tan-
ners bark to bring up the plants.

In the childing variety the young offsets may be
taken off, and after laying them to dry for two or
three days, may be planted, and will ſucceed very
well.

2. The great ſort may be propagated by ſeeds,
but as the plants which are raiſed from ſeeds in
England, will be ſome years in arriving to any con-
ſiderable ſize, it will be much the beſt way to pro-
cure ſome plants from the Weſt Indies; and if the
plants arrive here in any of the ſummer months, ſo
as that there may be time for them to get new root
before the cold comes on in autumn, the plants will
more certainly ſucceed. When the plants come over,
it will be proper to take them out of the earth as
ſoon as poſſible, and lay them in the ſtove upon the
ſhelves, to dry for a fortnight or three weeks; and
when they are planted, they ſhould be plunged into
a good warm bed of tanners bark, to promote their
making new roots. In this bed they may remain
till the beginning of october, when they muſt be re-
moved into the ſtove, and treated in the manner
before directed.

It has been occaſionally brought to England in
great plenty; but the greateſt part of the plants
has been often deſtroyed by giving them too much
water ſo as to rot them. Whoever propoſes to bring
them from abroad, ſhould be very careful to take up
their roots as entire as poſſible, and to plant them
in tubs filled with ſtones and rubbiſh, mixing very
little earth. There ſhould be ſeveral pretty large
holes bored through the bottom of the tubs, to let
the moiſture paſs off; and if the plants be ſet in the
tubs a month before they are put on board the ſhip,
they will in that time have made new roots. This
will be the moſt ſecure method to have them ſuc-
ceed; but, during their continuance in the country,
they ſhould have no water given them; and after
they are on board the ſhip, they muſt not have any
moiſture whatever: it will be a good method to
cover the plants with tarpaulins, to keep off the
ſpray of the ſea in bad weather; and to expoſe them
at all times to the open air when the ſea is calm.
By obſerving theſe directions, the plants may be
brought to England in good health, during the ſum-
mer ſeaſon.

The plants require a very good ſtove to preſerve
them through the winter in England, nor ſhould
they be expoſed to the open air in ſummer; for
although

although they may continue fair to outward appearance, when they have been some time exposed abroad, yet they will imbibe moisture, which will cause them to rot soon after they are removed into the stove. And this is frequently the case of those plants which are brought from abroad, which have a fair healthy appearance many times at their first arrival, but soon after decay, and this will happen very suddenly. Scarce any appearance of disorder will be seen, till the whole plant is killed; which, in a few hours time, has often been the fate of those plants, when they have been placed in the stove.

If these plants are plunged into a hot-bed of tanners bark in summer, it will greatly forward them in their growth; but when this is practised, there should be scarce any water given to the plants, for the moisture which they will imbibe from the fermentation of the tan, will be sufficient for them, and more would cause them to rot. The best method to preserve the large kind is, in winter, to place the pots, either upon the tops of the flues, or, at least, very near them, that they may have the warmest place of the stove; and during that season, never to give them any water; but when the season comes for leaving out the fire in the stove, to remove them into a bed of tanners bark, which will soon set them in a growing state, and recover their verdure. The soil in which these should be planted, must be of a sandy nature, and if mixed with some dry lime rubbish, it will be still better. In the bottom of the pots should be placed some stones, in order to drain off any moisture which may be in the earth; for as these plants naturally grow upon the hot dry burning rocks which have no earth, and, were it not for these plants, would be absolutely barren, we must imitate their natural soil as near as possible, making some allowance for the difference of climates.

II. *Cereus*, or *Torch Thistle*.

These plants are all propagated by cuttings, so that if you intend to increase the number of them, you must cut off the stems of the upright sorts at what length you please; these should be laid in a dry place to heal the part cut, at least a fortnight or three weeks before they are planted; but if they lie a month it is much the better, and they will be in less danger of rotting, especially those sorts which are the most succulent.

These cuttings should be planted in pots filled with the mixture of earth before directed, laying some stones in the bottom of the pots to drain off the moisture; then place the pots into a gentle hot-bed of tanners bark, to facilitate their rooting, giving them once a week a gentle watering.

The best season for this work is in June, or the beginning of July, that they may have time to root before winter; towards the middle of August you must begin to give them air by degrees, to harden them against winter, but they should not be wholly exposed to the open air or sun; at the end of September they must be removed into the stove, or green-house, where they are to abide the winter, during which season you must be very careful not to let them have much water; and always observe to place the young plants, for the first winter, in a little warmer situation than the older plants, as being somewhat tenderer.

These plants should always have a dry situation in winter, for as they imbibe the greatest part of their nourishment from the circumambient air, so if this be too replete with moist particles, it will occasion their rotting; therefore they should not be exposed abroad, not even in the midst of summer, unless they are under shelter; for great rains, which often happen at that season, are very injurious to them; the upright sorts should be therefore placed so as to enjoy a free air in the summer, but at the same time, screened from rains and great dews; it will therefore be much the better method to set them in an open glass stove, where the windows may be set open in good weather, and shut in cold or wet. The

creeping sorts must not be exposed too much to the open air, even in the hottest season, especially if you design to have them flower, and in winter they should be kept very warm, and have no water given them.

When you have once cut off the tops of any of these plants, in order to increase them, the lower parts will put forth fresh roots from their angles, which, when grown to be eight or nine inches long, may also be taken off to make fresh plants; and, by this means, the old plants will continually afford a supply, so that you never need cut off above one plant of a sort, which you should preserve for a breeder.

These plants being succulent, they will bear to be a long time out of the ground; therefore whoever has a mind to get any of them from the West Indies, need give no other instructions to their friends, but to cut them off, and let them lie two or three days to dry; then put them up in a box with dry hay, or straw, to keep them from wounding each other with their spines, and if they are two or three months on their passage, they will keep very well, provided no wet get to them.

The third sort may be placed against the walls of the stove, into which it will insinuate its roots, and extend itself to a great length; and by fastening it to the wall in a few places, it may be led to the ceiling of the house.

The sixth sort, not being so tender as the other upright *Cereuses*, may be preserved in a warm greenhouse, without any artificial heat; but the plants should not have any water given them in winter in this situation; for unless they are placed in a stove, where the moisture is soon evaporated, the wet will occasion them to rot.

The great-flowering *Creeping Cereus* is tender, and requires a warm stove to protect it, where it may be trained against the wall or upon sticks.

The small sort, with pink-coloured flowers, is not so tender, and may be preserved in a good greenhouse, or placed under a hot-bed frame in winter: in summer it should be exposed to the open air, to prevent the shoots from drawing weak, and to occasion a number of flowers to be produced: during this time it should have little water, and if the season should prove wet, the plants should be screened from it, that they may not run the hazard of rotting during the winter.

All these plants growing in dry rocky places, where their roots are confined, must not be planted in large pots, or in a rich soil. The best compost for them is one-third light earth from a common, one-third sea sand, and one-third sifted lime rubbish: if these be well mixed together, and often turned over before the plants are put into it, they will thrive the better.

III. *Opuntias* or *Indian Figs*.

All these sorts (except the eighteenth) are too tender to thrive in the open air in England; nor can many of them be preserved through the winter here, unless they have artificial heat; for when they are placed in a green-house, they turn to a pale yellow colour, their branches shrink, and frequently rot on the first approach of warm weather in the spring.

These plants may be all propagated by cutting off their branches at the joints, during any of the summer months; these should be laid in a warm dry place for a fortnight, that the wounded part may be healed over, otherwise they will rot with the moisture which they imbibe at that part, as is the case with most other succulent plants. The soil in which these plants must be planted, should be composed after the following manner, *viz.* one-third of light fresh earth from a pasture, a third part sea sand, and the other part should be one-half rotten tan, and the other half lime rubbish; these should be well mixed, and laid in a heap three or four months before it is used, observing to turn it over at least once a month, that the several parts may be well united;

then you should pass it through a rough screen, in order to separate the largest stones and clods, but by no means sift it too fine, which is a very common fault; then you should reserve some of the smaller stones and rubbish to lay at the bottom of the pots, in order to keep an open passage for the moisture to drain off; which is what must be observed for all succulent plants, for if the moisture be detained in the pots, it will rot their roots and destroy the plants.

When you plant any of the branches of these plants (except the eighteenth sort) you should plunge the pots into a moderate hot-bed, which will greatly facilitate their taking root; you should also refresh them now and then with a little water, but be very careful not to let them have too much, or be too often watered, especially before they are rooted. When the plants begin to shoot, you must give them a large share of air, by raising the glasses, otherwise their shoots will draw up so weak, as not to be able to support themselves; and after they have taken strong root, you should inure them to the air by degrees, and then remove them into the stove where they should remain, placing them near the glasses, which should always be opened in warm weather; so that they may have the advantage of a free air, and yet be protected from wet and cold.

During the summer season these plants will require to be often refreshed with water, but it must not be given to them in large quantities lest it rot them, and in winter this should be proportioned to the warmth of the stove; for if the air be kept very warm they will require to be often refreshed, otherwise their branches will shrink; but if the house be kept in a moderate degree of warmth, they should have but little, for moisture at that season will rot them very soon. The heat in which these plants thrive best, is the temperate point, as marked on botanical thermometers, for if they are kept too warm in winter, it causes their shoots to be very tender, weak, and unsightly. Those sorts which are inclinable to grow upright, should have their branches supported with stakes, otherwise their weight is so great, that it will break them down.

These plants are by most people exposed to the open air in the summer season, but they thrive much better if they are continued in the stoves, provided the glasses be kept open, so that they may have free air; for when they are set abroad, the great rains which generally fall in summer, together with the unsettled temperature of the air in our climate, greatly diminish their beauty, by retarding their growth; and sometimes in wet summers they are so replete with moisture, as to rot in the succeeding winter; nor will those plants which are set abroad (I mean the tender sorts) produce their flowers and fruit in such plenty, as those which are constantly preserved in the house.

26. The *Pereskia*, or Barbados Gooseberry, may also be propagated by cuttings, planted during any of the summer months, in pots filled with fresh light earth, and plunged into a moderate hot-bed of tan-bark, observing to shade them from the sun in the heat of the day, and to refresh them every third or fourth day with water. In about two months the cuttings will have made good roots, when they should be carefully taken out of the pots, and each planted into a separate pot filled with fresh earth, and then plunged into the hot-bed again, where they may remain during the summer season; but at Michaelmas, when the nights begin to be cold, they should be removed into the stove, and plunged into the bark-bed. During the winter season the plants must be kept warm, and watered twice a week; but in cold weather it should not be given in large quantities. In summer they must have a great share of air, and must be more plentifully watered, but they should remain constantly in the stove; for though they will bear the open air in summer in a warm situation, yet they will make no progress if they are placed abroad; nor do they thrive so well in the dry stove, as when they are plunged in the tan; so

that the best way is to set them next a trellis, at the back of the tan-bed, to which their branches may be fastened, to prevent their trailing on other plants.

[CADELI. See *Achyranthes*.

CADELIUM. See *Phaseolus*.

CADEL-AUANACU. See *Croton*.

CADIA. (From the Arabic *Kadi*.)

Forsk. Egypt. arab. 90. *Picciu.* 9. *Hort. kew.* 3. 492.

Class. 10. 1. Decandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth one-leafed, five-cornered, five-cleft.

COR. Petals five, equal, obcordate.

STAM. Filaments ten, filiform, equal, the length of the petals or nearly so, protuberant at the base. Anthers oblong, rather sharp at the top, placed obliquely at the ends of the filaments.

PIST. Germ linear. Style bowed. Stigma acute.

PER. Legume linear, compressed, bent at the end, membranaceous, many-seeded.

SEEDS oblong, smooth.

ESSENTIAL CHARACTER.

Cal. five-cleft. Pet. five, equal, obcordate. Legume many-seeded.

SPECIES.

1. *Cadia purpurea*. Purple-flowered *Cadia*.

Ait. hort. kew. 3. 492. *Forsk. fl. Egypt.* 90.

Panciatia purpurea. *Picciuoli hort. panciat.* 9. with a coloured figure.

DESCRIPTION, &c.

This is a shrub rising to the height of near three feet. The branches and petioles are pubescent. The leaves are pinnate, coming out alternately and frequently in pairs; leaflets from fifteen to thirty pairs, linear, retuse, the nerve commonly ending in a little point. The corolla is rose-coloured, or rather the colour of a peach blossom. Legume somewhat less than a span in length, containing eight or ten seeds.

Forsk. observes, that the flowers hang down; that the corolla has sometimes six or seven petals, and that in such cases there are more stamens, frequently twelve or fourteen; and that there is no gland to the anthers.

It is a native of Arabia. James Bruce, Esq. left some of the seeds at Florence in 1773, and there it was raised and flowered in the neighbouring garden of Marchese Niccolo Panciatichi. The gardener named it *Panciatia* from Cardinal Bandino Panciatichi; probably not knowing that it had the name of *Cadia* before in Forsk. work. It was introduced here two years after by Mr. Bruce; but has not yet flowered in England.

CÆNOPTERIS. (From *καίνοτος*, new, and *ἄπτερος*, fern.)

Berg. in act. petrop. 1782. p. 248. *Smith, ic. ined.* 2. 50. *Lin. gen. Schreb. n.* 1634. *Darea. Juss.* 15.

Class. 24. 1. Cryptogamia Filices.

GENERIC CHARACTER.

Fructifications in submarginal lateral lines, covered with a membrane gaping on the outside.

SPECIES.

1. *Cænopteris rhizophylla*.

Smith ic. ined. 2. 50.

Fronde bipinnate rooting at the tip; pinnules obovate, somewhat sickle-shaped petioled; primordial leaves lobed.

DESCRIPTION, &c.

Stipe round, brown. Common peduncle or rachis round, brown, smooth; elongated at the tip, leafless, bulbiferous, rooting; partial peduncles green, flattened, sometimes winged; pinnules alternate, on short petioles, obovate, one-nerved; fructifying slightly sickle-shaped, often toothed at the tip, even; the upper ones usually confluent; all dusky green. Fructifications in short, solitary, lateral lines, beginning at the nerve towards the base of the pinnules, and covered with an entire, scariose, brown membrane, opening always on the outside, at length

* Picciuoli.

turned

turned back and permanent. When the capsules have emerged from the fructifying chink, numerous forked brown glossy threads stand out, which are the expanded rings of the capsules.

Native of the island of Dominica, where it was found by Thierry.

Asplenium cicutarium Swartz prodr. is of this genus^b. As is also *Trichomanes japonicum* Thunb. jap. 340.^c

CÆSALPINIA. (So named by Plumier, in honour of Andreas Cæsalpinus, chief physician to Pope Clement VIII.; the father of systematic arrangement in plants, in his now very scarce work, entitled, *De Plantis*, libri sedecim. Flor. 1583. qu. He died at Rome in 1602.)

Lin. gen. n. 516. Reich. 559. Schreb. 703.

Swartz obs. 165. Plum. gen. 28. t. 9. Juss.

349. Gært. t. 144. Poinciana edit. Lin.

Reich. Schreb. Tournef. 391. Mill. dict. &c.

Class. 10. 1. Decandria Monogynia.

Nat. order of Lomentaceæ. Leguminosæ Juss. &c.

GENERIC CHARACTER.

CAL. Perianth one-leafed, five-parted. Tube short. Segments oblong, deciduous, the lowest longer than the rest, slightly arched.

COR. Petals five, inserted into the throat of the calycine tube, unequal. Lamina roundish.

STAM. Filaments ten, inserted into the throat of the calyx, filiform, woolly at the base, declining. Anthers oblong, decumbent.

PIST. Germ superior, linear-oblong, compressed, attenuated at the base. Style filiform, the length of the stamens. Stigma blunt.

PER. Legume oblong, compressed, one-celled.

SEEDS few, subovate, compressed, flat.

OBS. Poinciana is so nearly allied to Cæsalpinia, that they may very reasonably be united under one genus. Swartz.

ESSENTIAL CHARACTER.

Cal. five-parted; the lowest segment longer and slightly arched. Stam. woolly at the base. Pet. five. Legume compressed.

SPECIES.

1. Cæsalpinia elata.

Swartz obs. 166.

Poinciana elata. Lin. spec. 544. Reich. 2. 258.

Forsk. ægypt. 86.

Unarmed; leaflets linear, blunt with a point; corymbs compound; calyxes coriaceous tomentose; petals fringed; stamens very long.

2. Cæsalpinia pulcherrima.

Swartz obs. 166.]

Poinciana pulcherrima. Lin. spec. 544. Reich. 2.

258. hort. cliff. 158. 2. upf. 101. fl. zeyl. n. 159.

Mill. dict. [Jacqu. amer. 122. pict. 62. t. 120.

Gært. fruct. 2. 322. Brown. jam. 225. Sloan.

jam. 2. 49. n. 24. (Sena). Burm. zeyl. 79. Breyn.

cent. 61. t. 22. Raii hist. 981. Merian sur. t. 45.

Rheed. mal. 6. t. 1. Rumph. amb. 4. t. 20. (Crista

pavonis).

Prickly; leaflets oblong-oval emarginate, they and the calyxes smooth; corymbs simple; petals fringed; stamens very long.

3. Cæsalpinia Sappan. Narrow-leaved prickly Brasiletto.

Lin. spec. 545. Reich. 2. 259. fl. zeyl. n. 158.

Gært. fruct. 2. 301. Lour. cochinch. 262.

Ligno brasiliano simile. Bauh. pin. 393. Raii hist. 1737.

Lignum Sappan. Rumph. amb. 4. 56. t. 21.

Tsiapangam. Rheed. mal. 6. 3. t. 2.

Prickly; leaflets oblong-oval unequal-sided blunt, they and the calyxes smooth; stamens longer than the corolla; uppermost petal smaller.

4. Cæsalpinia pyramidata.]

Robinia pyramidata. Mill. dict. n. 7.

[Unarmed; leaflets oval quite entire equilateral, they and the calyxes smooth; petals with claws roundish flat equalling the stamens.]

5. Cæsalpinia Crista. Broad-leaved prickly Brasiletto.

Lin. spec. 544. Reich. 2. 260. Swartz obs. 167.

Plum. gen. 28. ic. t. 68. Catesb. car. 2. t. 51.

Prickly; leaflets oval, racemes simple, petals ovate shorter than the smooth calyx, stamens longer than the calyx.

6. Cæsalpinia brasiliensis. Smooth Brasiletto.

Lin. spec. 544. Reich. 2. 259. syst. ed. 12. 259. t.

mat. med. 205. 112. Swartz obs. 166. Brown.

jam. 227. t. Sloan. jam. 2. 184. Raii dendr.

132.

Unarmed, leaflets ovate-oblong, midrib pubescent, calyxes tomentose, stamens shorter than the corolla.

[7. Cæsalpinia bijuga. Broad-leaved prickly Brasiletto.

Swartz obs. 166.

C. vesicaria. Lin. spec. 545. Reich. 2. 259. Gært.

fruct. 2. 302. Brown. jam. 227. 2.

Poinciana bijuga. Lin. spec. 544. Reich. 2. 258.

syst. ed. 14. 395. Jacqu. amer. 123. n. 2.

Senna spuria, &c. Sloan. jam. 2. 50. t. 181. f. 2, 3.

good. Raii dendr. 111.

Prickly; leaves doubly pinnate with two pairs of obcordate leaflets, they and the calyxes smooth; stamens equalling the corolla.

8. Cæsalpinia coriaria.

Poinciana coriaria. Jacqu. amer. 123. t. 175. f. 36.

Breyn. cent. 56. f. 5.

Unarmed; leaflets linear, racemes in form of spikes, calyxes smooth equalling the corolla, stamens longer than the corolla, legumes curved inwards.

DESCRIPTIONS, &c.

1. This is a tree with bipinnate leaves of seven pairs; the leaflets fifteen pairs, quite entire, minute. Flowers large, yellow. Filaments very dark purple, villose at the base^d. Native of India. Introduced in 1788, by Sir Joseph Banks, Bart.^e

2. The Barbadoes Flower-fence rises with a straight stalk ten or twelve feet high; it is covered with a smooth gray bark, and is sometimes as thick as the small of a man's leg; it divides into several spreading branches at the top, armed at each joint with two short strong crooked spines. Leaves doubly pinnate; leaflets from four to eight pairs, most in the middle, decreasing in number both at top and bottom, three quarters of an inch long, almost half an inch broad at the end, lessening gradually to the base, light green, when bruised emitting a strong odour like Savin. The branches are terminated by loose spikes of flowers, which are sometimes formed into a kind of pyramid, and at others they are disposed more in form of an umbel. The peduncle of each flower is near three inches long. The petals are roundish at the top, but are contracted to narrow tails or claws at their base; they spread open and are beautifully variegated with a deep red or orange colour, yellow, and some spots of green; they have a very agreeable odour. The style and stamens are above three inches long. The legume is about the same length, broad and flat, divided into three or four or more cells by transverse partitions, in each of which is one flattish irregular seed. [Linneus observes, that the common petiole of the leaf has one gland at the base, and another at the upper pair; and that the partial petiole has two dagger points above the base.]

This beautiful plant is a native of both Indies. It is planted in hedges to divide the lands in Barbadoes, whence it has the name of Flower-fence; it is also called Spanish Carnations in some of our islands in the West Indies. [Sir Hans Sloane calls it also Wild Sena, and Dr. Patrick Brown Barbadoes Pride: the French name it Poinciade or Fleurs de Paradis.]

Ligon says, the seeds were first carried to Barbadoes from the Cape de Verd islands. It is certain however, says Mr. Miller, that Dr. Houstoun found it at Jamaica, in woods at a great distance from any settlements: he also found it at La Vera Cruz and Campeachy. [Jacquin informs us that it is common in the Caribbee islands. Browne is of opinion

^b Smith.

^c Trans. Linn. 2. 341.

^d Linn. and Fork.

^e Hort. kew.

that it is not indigenous in Jamaica, but was carried there from some of the other colonies.]

There are varieties in the colour of the corolla, some having been found with a red, and others with a yellow flower, in the Spanish West Indies, by Dr. Houstoun.

[All parts of the plant are thought to be very powerful emmenagogues, and are frequently used for that purpose among the negroes^f. It was cultivated in 1691, in the botanic garden at Chelsea^g.

3. This grows to a tall tree of a middling size, with many short recurved scattered prickles on it, and with long ascending boughs. Leaves alternate, unequally bipinnate, consisting of twelve pairs of small emarginate sessile leaflets, obliquely truncate at the base. Flowers yellow, sweet-scented, in loose terminating racemes. The lower division of the calyx keeled, longer and narrower than the others. Petals spreading, concave, roundish, with claws; the lowest radiate with red lines. Legume somewhat woody, ovate-rhomboidal, beaked, brown, smooth. Seeds three or four, large, turbinate or ovate-oblong, horny, smooth, testaceous^h.

The heart of the wood is red, heavy and very hard; it dyes a beautiful red, but is said not to stand. Its medical qualities are supposed to be the same with those of the foregoing species. Being very durable in sea water, it is excellent for trenails in ship-building.

Native of the East Indies, where it is also much cultivated; and of the mountains of Cochinchina, whence it is exported abundantly by the Chineseⁱ. Introduced in 1773, by Sir Joseph Banks, Bart.^k.]

4. This rises with a strong woody stem near thirty feet high, sending out many spreading branches, which are covered with a light gray bark spotted with white. Leaves bipinnate, with sessile leaflets, of a lucid green on their upper surface, but a pale green on their under. The flowers are produced in long loose upright pyramidal bunches towards the ends of the branches, those on the lower part of the bunch having long peduncles, which diminish gradually to the top. The flowers are of a scarlet colour, and make a fine appearance.

It was discovered by Plumier in some of the French settlements in the West Indies; and was afterwards found by Dr. Houstoun at Campeachy.

5. This sends out many weak irregular branches, armed with short strong upright thorns. The leaves branch out in the same manner as in the following species, but the leaflets are oval and entire. The flowers are produced in long spikes, as in that, but they are variegated with red, and have only five stamens. [In Plumier's figure indeed there are only five or six stamens represented; but in Catesby's the flowers have ten. The branches are slender and full of small prickles. The leaflets are very broad at the end and emarginate. The flowers are white. The pods inclose several small round seeds.

The value of this wood has occasioned a scarcity of it on the Bahama islands, the largest trees being cut down: the biggest of those remaining do not exceed two or three inches in thickness, and eight or nine feet in height. Great quantities of the wood are sent yearly from the West Indies to England for dying^l.]

6. This has very slender branches, which are armed with recurved thorns. The leaves branch out into many divisions: the leaflets are oval, indented at top and opposite. Peduncles from the side of the branches, terminated by a loose pyramidal spike of white flowers. [Though Miller has separated these two species, yet he seems to have confounded them in the descriptions. No author has described the latter.]

This is the tree which affords the Brasiletto wood, much used in dyeing. [It is an excellent timber wood, but seldom exceeds eight or ten inches in diameter. It is elastic, tough and durable, and bears

a fine polish; it is of a beautiful orange colour, full of resin, and yields a fine full tincture by infusion; but it is seldom cut for the dyer's use in Jamaica^m. Sloane on the contrary asserts, that it is cut there and sent into England for dyer's use in great plenty every year. It was cultivated by Mr. Miller, in 1739ⁿ.

7. Height fifteen feet. Trunk somewhat crooked, the thickness of a man's thigh, covered with a whitish gray bark almost smooth. Branches crooked, prickly. Leaves at unequal distances; the midrib four or five inches long, dividing into as many pairs of petioles, on each of which are two pairs of smooth, shining leaflets, half an inch in diameter. Flowers in several spikes three inches long, at the tops of the branches. Corolla deep yellow^o. Legume corky, stuffed, ovate-oblong, with an obsolete tumid groove near the periphery parallel to both futures, thence declining towards the margin and compressed into an edge, but turgid in the middle, flattish, somewhat torose, two-celled, valveless. Seeds irregularly round, lenticular, thick, of a dusky rust colour^p.

Browne assigns only eight or ten feet for the height, whilst Jacquin gives it twenty-five. The former adds, that the wood is of a brown colour; the foliage of a dark gloomy green; the flowers of a fine yellow, the lower segment of the calyx not fringed, nor any of the petals variegated. According to the latter, the bark is blackish; the prickles subulate, stout, acuminate, axillary, solitary, half an inch in length, but often wanting; the leaflets emarginate, frequently difform; the flowers without scent.

All parts of this tree, if bruised, have a very strong balsamic smell^q.

Native of Jamaica, Curacao, &c. Introduced in 1770^r.

8. This is an elegant tree with a fine branching head, fifteen feet in height, totally void of thorns or prickles. The bark is very dark-coloured and spotted. Leaves doubly pinnate, and numerous at the extremities of the twigs; common pinna an inch and half, partial an inch in length, six pairs with an odd one; leaflets about twelve pairs without an odd one, oblong blunt smooth quite entire. The common peduncles form a close spike, and come out at the ends of the twigs; the partial ones are very short, one-flowered, and numerous. The flowers are small, yellowish, and have but little smell. The Spaniards and natives use the ripe pods for tanning leather, and call them *Libidibi*.

Native of Curacao and Carthagera, in the salt marshes^s.]

PROPAGATION AND CULTURE.

These plants are propagated by seeds, which should be sown in small pots filled with light rich earth early in the spring, and plunged into a hot-bed of tanners bark, observing to shade them from the sun, and to water the earth as often as it appears dry: if the nights should prove cold, the glasses must be covered with mats, to keep the bed in a moderate warmth. In about six weeks the plants will begin to appear, when they must be carefully cleared from weeds, and frequently refreshed with water: in warm weather the glasses should be raised in the middle of the day to admit fresh air, which will greatly strengthen the plants; otherwise they are apt to draw up weak. When the plants are about three inches high, they should be carefully taken out of the pots, and each transplanted into a separate small pot filled with fresh light earth, and plunged into the hot-bed again, observing to water them and screen them from the heat of the sun until they have taken new root; after which time, the glasses should be raised every day in proportion to the warmth of the weather. In this hot-bed the plants may remain till autumn, when they should be removed into the stove, and plunged into the bark-bed, where they may have room to grow. Here they should remain; and being placed among other

^f Browne. ^g Hort. kew. ^h Linn. Loureiro, Gærtner.
ⁱ Loureiro. ^k Hort. kew. ^l Catesby.

^m Browne. ⁿ Hort. kew. ^o Sloane. ^p Gærtner.
^q Sloane. ^r Hort. kew. ^s Jacquin.

tender exotics of the same climate, will afford an agreeable variety.

2. With respect to the Flower-fence, if care be taken to water and shift the plants as often as it is necessary, they will grow three feet high the first season. When they are grown large, there must be great care taken when they are shifted into larger pots, not to suffer the ball of earth to fall from their roots; for when this happens, the plants seldom survive it. They are very impatient of moisture in winter, and if damp seizes their top, it very often kills them, or at least occasions the loss of their heads. With proper management they will grow much taller here than they usually do in Barbadoes, but their stems will not be larger than a man's finger, which is occasioned by their being drawn up by the glasses of the stove. The beautiful flowers of this shrub appear in december here; but in the West Indies it flowers twice a year.

[CÆSALPINIA. See *Guilandina Bonduc*.

CÆSALPINOIDES. See *Gleditschia*.

CAJAN. See *Cytisus*.

CAJATUS. See *Æschynomene*.

CAIDBEIA. See *Forskoblea*.

CAINITO. See *Chrysophyllum*.

CAKILE. See *Bunias*.

CALABA. See *Calophyllum*.

CALABASH. See *Cucurbita*.

CALABASH-TREE. See *Crescentia*.

CALABURA. See *Muntingia*.

CALADIUM. See *Arum*.

CALAF. See *Salix*.

CALAMAGROSTIS. See *Arundo*.

CALAMARIA. See *Isoetes*.

CALAMINT and CALAMINTHA. See *Cunila*, *Melissa*, *Mentha*, *Glechoma*.]

[CALAMUS. (Κάλαμος, παρὰ τὸ καλῶς ἀμαρτῆσαι; or from ἥρ, light; or from ἡρπ, excidere; or from Calamus, the son of Mæander, changed into a reed.)

Lin. gen. 436. Reich. 470. Schreb. 589. Juss. 37. Gærtn. t. 139.

Class. 6. 1. Hexandria Monogynia.

Nat. order of *Tripetaloidæ*. *Palmæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* six-leaved, permanent: the three outer leaflets shorter, broader; the three inner longer, narrower, acuminate.

COR. none, unless you call the calyx so.

STAM. *Filaments* six, capillary, longer than the calyx. *Anthers* round.

PIST. *Germ* roundish, superior. *Style* trifid, columnar, spiral, filiform. *Stigmas* simple.

PER. membranous, globular, covered with scales imbricated backwards and obtuse: it is one-celled, at first pulpy, but afterwards juiceless.

SEED one, globular, fleshy.

ESSENTIAL CHARACTER.

Cal. six-leaved. Cor. none. Berry dried, one-seeded, imbricate backwards.

SPECIES.

1. *Calamus Rotang*. *Rattan*.

Lin. spec. 463. Syst. 340. Reich. 2. 93. fl. zeyl. 468. Burm. zeyl. 36. Plenck, ic. t. 276.

Arundo Rotang. Pif. mant. 188. fig. Pluk. alm. 53. t. 106. f. 1, 2. Raii hist. 1316. n. 4.

Tsjeru-Tsjurel. Rheed. mal. 12. 121. t. 64, 65.

α. *Palmijuncus Calapparius*. Rumph. amb. 5. 97. t. 51.

C. petræus. Lour. cochinch. 209. 1.

β. P. niger. Rumph. 101. t. 52.

γ. P. albus. Rumph. 102. t. 53.

C. rudentum. Lour. cochinch. 209. 2.

δ. P. verus. Rumph. 105. t. 54. & t. 55. f. 1.

C. verus. Lour. cochinch. 210. 4.

ε. P. viminalis. Rumph. 108. t. 55. f. 2.

ζ. P. equestris. Rumph. 110. t. 56. & t. 57. f. 1.

C. dioicus. Lour. cochinch. 211. 6.

η. P. Zalacca. Rumph. 113. t. 57. f. 2. Gærtn. fruct. 2. 267.

θ. P. Draco. Rumph. 114. t. 58. f. 1.

DESCRIPTION, &c.

All the sorts or varieties of *Calamus Rotang* or *Rattan* have a stem which is perennial, quite simple or unbranched, long, round, unarmed or without prickles, solid, jointed, procumbent when unsupported, scandent when near trees, but without any tendrils. Fronds large, alternate, reclining, with spiny sheaths covering the joints: the stipules are also spiny. Leaves alternate, sub lanceolate, quite entire, scarcely a foot long, often three-nerved, with a few, long, hardish hairs. Flowers commonly hermaphrodite, almost terminating: on one spadix or more, branched large, differently shaped in the several species or varieties: with spathes either common or partial; sometimes, but seldom, these are wanting. The pericarp a Berry, which is dry, roundish, small, superior, imbricate backwards with several roundish, regular, close, coriaceous scales. It always contains one seed only^a. According to others, it has sometimes, though seldom, two or three seeds. Gærtner assigns three seeds to the *Zalacca*. Some assert that all the flowers are hermaphrodite, which is not probable.

The *Rattan* seems to form the connecting link between the palms and the gramineous plants, having the flower of the former, but the habit of the latter. The palm called *Raphia* has the embryo placed in the same manner, namely in a lateral cavity of the horny albumen; in the fruit and spadix it agrees nearly with this in form, only they are much larger: the flowers are but little different, only they are monoecous, as the flowers of the *Rattan* probably are. In another palm called *Bache*, Aublet describes the fruit to be tessellated and scaly: as Rumphius does that of the *Sagu* palm. They both therefore seem to be allied to the *Calamus*^b.

Loureiro has discriminated six species of *Calamus*, which he thus characterizes and describes.

1. *Calamus petræus*. *Stone Rattan*.

With a very thick grooved stem, short joints, and long straight spines.

The stem of this is a hundred feet long, as thick as the human arm; the internodes (vulgarly called the joints) are only about a foot in length, cylindrical, grooved, spotted, unequal; the fronds armed closely with spines; the spadix terminating and very long; the berry subovate and acuminate. It is used for large spears and halberts.

2. *Calamus rudentum*. *Cable Rattan*.

With a very long equal stem, and inverted spines.

Stem five hundred feet long and more, an inch thick, very tough, pale ash-coloured, not glossy; internodes a foot and half long, round, almost equal; fronds shorter; spines bent back; spadixes nearly terminating, loose, wide; flowers regular; berry small. The use of it is for cables of ships, and for ropes to draw great weights and to tame and fasten wild elephants.

3. *Calamus scipionum*. *Walking-cane Rattan*.

With very long, subulate, glossy internodes.

Stem thick, of a middling length, very glossy, reddish often spotted with black; internodes three feet long, unequal; fronds spiny, shorter; spadix thick, branched; branches short, with few flowers. This grows abundantly on both sides of the Straits of Malacca, whence it is exported into China and Europe. Piso has figured it in p. 188. of his *Mantissa*.

4. *Calamus verus*. *Genuine Rattan*.

Fronds very long, with long crowded spines; spathe short; corolla three-petalled.

Stem a hundred feet long, yellowish brown, equal, very flexible, the thickness of a finger; internodes long, round, almost equal; fronds very long, with straight spines, and ovate-lanceolate, three-nerved, alternate leaflets; spadix racemed; spathe oblong, prickly; calyx three-parted; petals white, sharp, spreading, longer than the calyx; berry rather large, brown.

^a Loureiro.

^b Jussieu gen.

Of the stem cut into thongs the largest cables are made in India; besides all sorts of ropes for fastening the planks of the country vessels and the boarding of houses, in which no nails are used; and also for tying a variety of utensils both domestic and rural.

5. *Calamus amarus*. *Bitter Rattan*.

Spines crowded, short; leaflets linear; spadixes remote; spathe partial.

Stem sixty feet long, the thickness of a finger, hardish, even, pale-coloured; with long, nearly equal, round internodes; fronds long; spadixes almost terminating, in spikes, many. This has a six-parted calyx, and no corolla. It is used for the same purposes as the former; but is harder and more durable.

6. *Calamus dioicus*. *Dioecous Rattan*.

With a very slender stem, shorter fronds and spines, and a dioecous flower.

Stem the thickness of a goose-quill, twenty feet long, very regular and flexile, pale and glossy; internodes a foot long; male and female flowers on separate plants; calyx three-toothed very small; corolla three-petalled, petals ovate-lanceolate, streaked, white. *Palmijuncus equestris* and *viminalis* of Rumphius agree in some measure, but not entirely with this; which is used for weaving and fastening smaller and nicer utensils.

All these are specifically different, for they grow wild in places very remote from each other, where they regularly preserve their peculiar habit and differences. Many others grow in Cochin China, the straits of Malacca, and other places, which on a more accurate examination may be found to be different both from these and each other. They were named *Palmijunci* by Rumphius, from their similitude to the Palms in the fructification, and their flexibility, like the *Junci* or Rushes^c.

Gärtner describes the *Zalacca* as having all the flowers hermaphrodite; no common spathe, but wandering partial spathes; a branched spadix; and the pericarp a largish turbinate berry, irregularly angular from the pressure of the neighbouring berries, of a bay-rufescent colour; rind thin, papery, covered with cartilaginous scales, the uppermost upright and linear, but all the rest pressed close, imbricate downwards, subcordate, with a raised line along the middle, and a little reflex at the tip, so that the berry is rough to the touch; the inside is pulpy, but the pulp gradually dries up. Seeds three, fixed without any receptacle to the bottom of the berry; two of them are commonly abortive; they are almost globular, convex on one side and angular on the other, with a small, umbilical, fungous, thick, subcordate lobe appended to them below; they have three coverings, the outer pulpy but drying up, the middle crustaceous, very thin, putting forth a subulate, horny process within the vertical canal of the albumen, the inner membranaceous, yellow-rufescent, closely adhering; albumen coriaceous-cartilaginous, perforated at top with a funnel-shaped canal from the vertex to the middle, and having an oblong conical cavity below for the reception of the embryo, which is one-lobed, subulate, milky, and placed at the base of the seed^d.

The Rattan grows abundantly in the East Indies, by the sides of rivers. Its extreme toughness and pliability render it of considerable use to the inhabitants, for withs and almost all the purposes to which we apply ropes, than which it is said to be more durable in salt water: they also wattle their houses with it, and make baskets and all kinds of wicker work. It is imported into Europe, where it is used for a variety of small uses; such as the bottoms of chairs, riding and walking canes, women's hoop-petticoats, &c. &c.

The *Zalacca* or *Salxck* is cultivated for the fruit, which is about the size of a walnut, and covered

with scales, like those of a lizard; below the scales, are two or three yellow kernels, in flavour somewhat resembling a strawberry.

The last variety is supposed to yield the Dragon's-blood.

CALAMUS AROMATICUS. See *Acorus*.

CALAMUS ODORATUS. See *Andropogon*.

CALAPPA. See *Cocos*.

CALATHIAN VIOLET. See *Gentiana Pneumonanthe*.

[CALCEOLARIA. (From *Calceolus*, a little slipper.)

Lin. gen. Reich. 32. Schreb. 39. Juss. 120.

Gärtn. t. 62. Feuill. peruv. 3. p. 13.

Class. 2. 1. Diandria Monogynia.

Nat. order of *Corydalis*. *Scrophularia* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, four-parted, spreading, equal: divisions ovate: permanent.

COR. monopetalous, bilabiate: lower lip resupine; upper very small, contracted-globular, bifid anteriorly—lower very large, slipper-form, inflated, gaping anteriorly.

STAM. Filaments two, very short, within the upper lip. Anthers incumbent, club-form, with the handle prominent through the chink.

PIST. Germ roundish. Style very short. Stigma bluntish.

PER. Capsule subconic, acuminate, two-furrowed, two-celled, two-valved.

SEEDS numerous, ovate.

ESSENTIAL CHARACTER.

Cor. ringent, inflated. Caps. two-celled, two-valved.

Cal. four-parted, equal.

SPECIES.

1. *Calceolaria pinnata*. *Pinnated Slipperwort*.

Lin. syst. 65. Reich. 49. mant. 171. Ait. stockh.

1770. 286. t. 8. Feuill. peruv. 3. 12. t. 7.

Curt. mag. t. 41. Gärtn. fruct. 1. 296.

Leaves pinnate.

2. *Calceolaria integrifolia*. *Whole-leaved Slipperwort*.

Lin. syst. ed. 13. p. 61. Reich. 49. Feuill. peruv. 13.

t. 7. Smith, ic. 1. p. 3.

Leaves lanceolate wrinkled ferrate, flowers panicle terminated.

3. *Calceolaria perfoliata*. *Perfoliate Slipperwort*.

Lin. syst. 65. suppl. 86. Mutis. amer. 1. t. 3.

Smith, ic. ined. t. 4.

Leaves perfoliate, sagittate, villose on both sides.

4. *Calceolaria nana*. *Dwarf Slipperwort*.

Smith, ic. ined. t. 1.

C. uniflora. Lamarck. encycl.

Scapes one-flowered, leaves ovate quite entire.

5. *Calceolaria plantaginea*. *Plantain-leaved Slipperwort*.

Smith, ic. ined. t. 2.

C. biflora. Lamarck. encycl.

Scapes few-flowered, leaves rhomboid ferrate.

6. *Calceolaria ovata*.

Smith, ic. ined. t. 3.

C. dichotoma. Lamarck. encycl.

Stem branching, leaves ovate crenate.

7. *Calceolaria Fothergillii*. *Spatula-leaved Slipperwort*.

Ait. hort. kew. 1. 30. t. 1.

Leaves spatulate quite entire, peduncles scape-form one-flowered.

DESCRIPTIONS, &c.

1. *Root* annual. *Stem* erect, two feet high, round, brachiate, brittle, with a very thick down, and from sixteen to twenty joints. *Base* of the stem muricated with rooting tubercles. *Branches* axillary, opposite, brachiate like the stem, and shorter than it. *Leaves* opposite, without stipules, brittle, soft, spreading, longer than the internodes; the upper surface pubescent with a setaceous, pellucid, dewy down, the lower naked with subviscid atoms: leaflets seven to eleven, subalternate or opposite, serrate, pinnatifid, (the upper ones bipinnate) bluntish, sessile, separated by a broader purple sinus. *Petioles* round, flat at top; at the base uniting on both sides, and more pubescent. *Flowers* from each top and stalk double; the proper peduncles filiform. *Corollas* yellow: upper lip subglobular, inflated, emarginate

^c Fl. cochinch. p. 209—211.

^d De fruct. & semin. vol. 2. p. 267.

ginate in front with a cleft for the prominent anthers; lower also subglobular, the edge contracted in front, wholly inflexed, subemarginate at top^a. Capsule thin, from a swelling base, diminishing to a pyramidal top, deeply two-furrowed, two-celled, two valved, the valves when ripe bifid at the top: partition contrary to the valves. Receptacle fungous, transversely oblong, with the extremities bent down, fastened on both sides to the partition by its proper peduncle, but loose in other parts. Seeds very small, almost cylindric, marked with from five to seven crenulate streaks^b.

Native of Peru, in moist places. Introduced in 1773, by Sir Joseph Banks, Bart. It flowers from July to October^c.

2. This is not *C. integrifolia* of the Supplement; but rests entirely on the authority of Feuillée, by whom it was observed in Chili^d.

3. This is a very singular plant and very handsome, the whole of it is villose except the corolla. Stem round, from a foot to two feet in height, leafy, terminated by a many-flowered leafy corymb. Leaves connate-perfoliate, with netted veins, very thickly woolly beneath, very broad at the base, contracted towards the middle, then widening into a very large deltoid lobe, irregularly toothletted, a little revolute. Flowers in bundles at the tops of the branches. Bracts very like the leaves, but ovate, sessile, and not perfoliate. Peduncles filiform, simple or branched. Segments of the calyx almost equal, sharp. Corolla yellow, large. Anthers two-lobed, large, the lobes bent down. Germ subconical: style filiform: stigma acute. Found in New Granada, by Mutis^e.

4. Stem none. Leaves radical, many, bluntish, almost without veins, viewed with a glass slightly pubescent, on short petioles. Scapes several, two inches high, upright, round, rugged-papillose. Flowers large, specious, yellow spotted with red. Calyx pubescent, with equal divisions bent in at the edge. Corolla upper lip very short, vaulted; lower elongated pendulous swelling, edge membranous folded back angular. It resembles *C. Fothergillii*; but differs in having the leaves ovate, nerveless and almost naked, not spatulate many-nerved and villose at the tip as that is.

Straits of Magellan; found there by Commerfon.

5. Root perennial fibrous. Stem none. Leaves many nervous smooth, the edges hairy, the hairs jointed like those of *Conserva*; petioles dilated with membranes. Scapes a few elongated erect, two-flowered, more pubescent towards the top. Calyx pubescent viscid. Corolla yellow.—Found by Commerfon in the Straits of Magellan.

6. Root annual fibrous. Stem erect round hairy. Leaves opposite on short petioles, with white pelucid hairs and underneath paler. Peduncles axillary twin filiform pubescent one-flowered. Corolla like that of the first species, small and yellow: divisions of the calyx thinner rhomboid veined hairy. Capsule bluntish two-valved, opening at the top with bifid valves. Found in Peru by Dombey. It flowered in the royal garden at Paris in 1781. It may perhaps be the same with the *integrifolia* of the Supplement: but the *integrifolia*. Syst. edit. 13. is certainly a different plant from both^f.

7. Stem scarcely an inch high, subdivided near the root. Leaves opposite, petioled, obtuse, hairy above, scarcely an inch long. Peduncles terminating, solitary or in pairs, round, twice as long as the leaves. Segments of the calyx acute, bent in at the end, hairy on the outside, three lines in length. Upper lip of the corolla roundish-kidney-form, erect, vaulted, yellow, a little shorter than the calyx; lower lip descending, four times as long as the upper, dilated in front, inflated, underneath pale yellow, above at the sides red, in front yellow with red spots, near the palate yellow: aperture large, open, four-cornered-ovate. Filaments inserted into the

sides of the corolla at the base of the aperture, subulate. Anthers roundish, large. Style thick, the length of the stamens. Stigma thickened, flat.—Biennial. Flowering from May to August. Native of Falkland islands. Introduced in 1777, by John Fothergill, M.D.^g

PROPAGATION AND CULTURE.

The first, which is the only species, except the last, yet cultivated among us, may easily be raised from seed, sown on a gentle hot-bed in the spring. The seedlings, when of a proper size, are to be transplanted into the borders of the flower-garden, where they will flower, ripen and scatter their seeds; but being a small delicate plant, the beauties of which require a close inspection, it appears to most advantage in a tan-stove, where, as it will grow from cuttings, it may be had in flower all the year through, by planting them in succession^h.]

CALCEOLARIA. See *Viola*.

CALCEOLUS. See *Aconitum*, *Cypripedium*, and *Kämpferia*.

CALCITRAPA. See *Centaurea*, and *Valeriana*.

CALCITRAPOIDES. See *Centaurea*.

CALĒA.

Lin. gen. n. 941. Reich. 1021. Schreb. 1277.

Gertn. t. 174. Juss. 185.

Class. 19. 1. Syngenesia Polygamia Æqualis.

Nat. order of *Compositæ Oppositifoliæ Corymbifera* Juss.

GENERIC CHARACTER.

CAL. Common imbricate: scales oblong, loofish.

COR. Compound uniform. Corollules hermaphrodite, very many, equal. Proper funnel-form, with a five-cleft border.

STAM. Filaments five, capillary, very short. Anther cylindric, tubular.

PIST. Germ oblongish. Style filiform, the length of the corollule. Stigmas two, recurved, acute.

PER. none. Calyx unchanged.

SEEDS solitary, oblong. Down hairy, the length of the calyx.

REC. chaffy: chaffs a little longer than the calyx, eminent between the floscules.

ESSENTIAL CHARACTER.

Cal. imbricate. Down hairy or none. Receptacle chaffy.

SPECIES.

[1. *Calea jamaicensis*.

Lin. spec. 1179. Reich. 3. 728. amæn. 5. 404.

Swartz obs. 302.

Santolina subhirsuta, &c. Brown. jam. 315. 3.

Conyza fruticosa, &c. Sloan. jam. 1. 257. t. 151. f. 3.

Flowers subtern peduncled, leaves ovate-oblong, subserrate petioled.]

2. *Calea oppositifolia*.

Lin. spec. 1179. Reich. 3. 728. amæn. 5. 404.

Swartz obs. 302.

Santolina Houst. M. S. S. Brown. jam. 315. 4.

Acmella jam. hyssopifolia. Petiv. Sloan. jam. 1. 256.

Corymbs beaped, peduncles very long, leaves lanceolate, stem herbaceous.

3. *Calea Amellus*.

Lin. spec. 1179. Reich. 3. 728. amæn. 5. 404.

Amellus ramosus, &c. Brown. jam. 317.

Santolina scandens amer. lauri foliis, floribus racemosis. Houst. M. S. S.

Flowers subpanicled, calyxes short, seeds naked, leaves ovate-lanceolate petioled.

4. *Calea lobata*.

Swartz prodr. 113. Hort. kew. 3. 164. Gertn. fruct. 2. 408.

Conyza lobata. Lin. spec. 1207. Reich. 3. 773.

hort. cliff. 405. Mill. dict. n. 4. Plum. spec. 9.

ic. 96. Sloan. jam. 1. 260. t. 152. f. 4. (Virga aurea).

Santolina. Brown. jam. 315. 2.

Corymbs beaped; leaves alternate, the upper ones ovate-lanceolate, the lower ones tooth-hastate sinuate-serrate.

^a Linn. mant.

^b Gertn.

^c Hort. kew.

^d Smith, ic.

^e Ibid.

^f Ibid.

^g Hort. kew.

^h Curtis.

- [5. *Calea scoparia*.
Lin. syst. 740. *Reich.* 3. 729. *Swartz obs.* 302.
Sergilus scoparius. *Gærtn. fruct.* 2. 409. *t.* 174.
Chrysocoma scoparia. *Lin. amæn.* 5. 404. *Brown.*
jam. 316. *t.* 34. *f.* 4.
Stem suffruticose, branches almost opposite angular.
6. *Calea leptophylla*.
Forst. fl. austral. n. 287.
Flowers terminating in threes and fives beaped, leaves oblong imbricate quite entire sessile, stem shrubby.
7. *Calea pinifolia*.
Forst. fl. austral. n. 288.
Peduncles terminating beaped, leaves linear acerose, stem shrubby.

DESCRIPTIONS, &c.

1. Height six or seven feet and more^a. Stems shrubby, narrow, round, obscurely tomentose. Leaves hairy, rugged, three-nerved. Flowers terminating, frequently three together; the pedicels of the same length with the flowers. Calyx coloured. It is of the stature of *Chrysocoma*, but has coloured chaffs the length of the calyx^b. The pappus or down is rugged and as long as the flower^c. Native of Jamaica, chiefly in the woods and inland parts of the island^d.

2. Stem herbaceous, two feet high, branched, upright, round, pubescent. Branches opposite, long, spreading, stiff, hoary with down. Leaves subsessile, opposite, slightly toothed; the upper ones entire, sharp, nerved, pubescent, soft. Petioles broadish, very short, or none. The stem at top is, as it were, trichotomous, with three long, terminating peduncles, at the end of which are three subsessile, conical, white flowers. The corollules are very small. Seeds oblong compressed, with three or four very minute awns. Chaffs lanceolate, the inner ones longer than the outer. Native of Jamaica, in the hedges on the mountains^e. Cultivated by Mr. Miller, in 1768.]

3. This has woody branches, which spread over the neighbouring plants, and rise eight or ten feet high. [Browne says, that it rises generally to the height of two or three feet only; and, according to Linneus, it has the stature of *Eupatorium*.] The leaves are thick and opposite. There are many side branches on which are smaller leaves, opposite like the others, and terminated by panicles of yellow flowers. [Calyx only half the length of the corolla, and somewhat imbricate. Chaffs the length of the flower. Seeds four-cornered, without down^f. Native of Jamaica. Cultivated by Mr. Miller, in 1768.]

4. This plant generally rises to the height of four or five feet, according to Browne. Sir Hans Sloane says, that it has a very strong, striated, green stalk, an inch thick, as high, or higher than a man; having along the stalk several leaves, larger than those on its branches, which are four inches long, and one inch broad in the middle where broadest, rough, sinuated about the edges, and of a dark green colour. Towards the top of the stalk are many branches and twigs, every one of which sustains many naked yellow flowers. Native of Jamaica.

From the shape of the leaves Browne calls it *Halbert-weed*. He affirms, that it is an excellent bitter, and much used in America; where a spirituous infusion of the tops is generally kept in most plantations, and is often administered as an active warm stomachic.

Introduced before 1733, by William Houstoun, M. D.

5. This is a shrub or small tree. Stem the height of a man or more, branched towards the top, even, streaked, wrinkled, with an ash-coloured bark. Twigs abundant, four-sided, subdivided, stiff, almost naked, streaked, smooth, silvery ash-coloured. Leaves sessile, minute, alternate, oblong, smooth. The branches are sometimes terminating and leafless. Flowers solitary, leafless, sessile, small, white:

scales of the calyx very many, minute, whitish. Corollules twenty to thirty. Stamens above the corolla. Style undivided: stigma blunt. Receptacle naked. The outer stamens seem to be barren^g.

It is a native of Jamaica; and there found only in the coldest parts of the mountains. It resembles our European Broom, and is thence called *Mountain Broom Tree*. It is the only tree of the same appearance in that country^h.

Gærtner, who has made a distinct genus for this plant, observes, that it differs from *Calea* both in receptacle and down; from *Chrysocoma* in the latter only; and consequently that it is allied more nearly to this than to the former. He adds, that the leaves seem sometimes to be opposite; but that they are very minute and remote.

6, 7. These are natives of New Zealand.

The five first species being all natives of Jamaica, the trivial name of the first must needs be a bad one.

Gærtner remarks, that the first and fourth species only correspond with the Linnean generic character of *Calea*, and therefore the other species ought to be removed to other genera, unless we prefer the leaves and external appearance of plants to marks taken from the fructificationⁱ.]

PROPAGATION AND CULTURE.

These plants may be propagated by seeds, sown upon a hot-bed the beginning of April. When they come up, they should be tenderly treated whilst young; admitting however fresh air to them daily in proportion to the warmth of the season; giving them water frequently, but sparingly. When they have strength enough to be removed, they must be each transplanted into a separate small pot, filled with light sandy earth, and plunged into a hot-bed; observing to shade them until they have taken new root; giving them air, and watering them frequently but gently, as before. When the plants are grown strong, they must be removed into larger pots, and placed in the stove or glass-case, giving them plenty of fresh air in warm weather. With which management, they will sometimes ripen their seeds in favourable seasons.

CALENDULA. (*Dimin. from Caltha, whence Calthula, Caldula, Caledula, and Calendula. See Caltha.*)

Lin. gen. n. 990. *Reich.* 1073. *Schreb.* 1339.

Raii meth. 36. *Gærtn.* t. 168. *Juss.* 183.

Caltha. Tournef. 284. *Vaill. æt. gall.* 1720. 27.

Dimorphotheca. ejusd. f. 22, 21. *Cardispermum. Trant. æt. gall.* 1724. f. 2.

Eng. Marigold. Fr. Souci.

Class. 19. 4. *Syngenesia Polygamia Necessaria.*

Nat. order of Compositæ Discoideæ. Corymbiferae Juss.

GENERIC CHARACTER.

CAL. Common simple, many-leaved, almost upright; segments linear-lanceolate, (fourteen to twenty) nearly equal.

COR. Compound radiate: corollules hermaphrodite, very many, in the disk. Females the number of rays in the calyx, very long, in the ray.

Proper. of the hermaphrodite tubular, semiquinquefid, the length of the calyx—of the female, ligulate, very long, three-toothed, villose at the base, nerveless.

STAM. (Hermaphrodite.) Filaments five, capillary, very short. Anther cylindric, tubular, the length of the corollule.

PIST. Hermaphrodite. Germ oblong: style filiform, scarcely the length of the stamens: stigma obtuse, bifid, straight.—Females. Germ oblong, three-cornered: style filiform, the length of the stamens: stigmas two, oblong, acuminate, reflex.

PER. none. Calyx converging, roundish, depressed.

SEEDS Hermaphrodite central of the disk none: of the circumference seldom solitary, membranous, obcordate, compressed.—Females solitary, larger, oblong, incurved, triangular, with membranous angles, marked on the outside longitudinally with the figure of a vegetable. Down none.

^a Browne.

^b Linn. amœn.

^c Linn. spec.

^d Browne.

^e Swartz.

^f Linn. amœn.

^g Swartz.

^h Browne.

ⁱ Vol. 2. p. 409.

Rec. naked, flat.

OBS. In the *Caltha* of Vaill. the seeds of the females are furnished with a membranous inflected wing on each side.

In the *Dimorphotheca* V. the seeds of the females have not these wings.

SPECIES.

1. *Calendula arvensis*. Field Marigold.
Lin. spec. 1303. *Reich.* 3. 923. *filec.* 777.
Pollich pal. n. 829. *Hall. belv. n.* 94. *Berg. phyt.* 2. 137. *Gärtn. fruct.* 2. 421. *Krock. files.* n. 1469. *Villars dauph.* 3. 197.
Caltha officinalis. *Scop. carn. n.* 1040.
C. arvensis. *Baub. pin.* 276. *Raii hist.* 338. *Ger.* 603. f. 10. *Mor. hist.* 3. f. 6. t. 4. f. 6. *Tabern.* 335.
C. minima. *Baub. hist.* 3. 103.
 Seeds boat-form muricated bent-in; the outmost erect, protended.
2. *Calendula sancta*. Palestine Marigold.
Lin. spec. 1304. *Reich.* 3. 924.
 Seeds pitcher-form obovate even, calyxes submuricated.
3. *Calendula officinalis*. Garden Marigold.
Lin. spec. 1304. *Reich.* 3. 924. *mat. med.* 193.
hort. cliff. 425. 1. *ups.* 274. 1. *Gärtn. fruct.* 2. 422.
Blackw. t. 106. *Mill. illustr. fig.* *Berg. phyt.* 2. 139. *Krock. files. n.* 1470.
C. fativa. *Raii hist.* 337. *Ger.* 599. f. 1-8. *emac.* 739. *Park. theat.* 1369. *par.* 296.
Caltha vulgaris. *Baub. pin.* 275. *Mor. f.* 1-5.
Baub. hist. 3. 101. f. 1, 2, & 102. f. 1.
β. C. polyanthos major. *Baub. pin.* 275.
γ. C. flor. reflexis. *Baub. pin.* 276.
δ. C. prolifera, majoribus floribus. *Baub. pin.* 276.
 Seeds all boat-form muricated bent in.
4. *Calendula pluvialis*. Small Cape Marigold.
Lin. spec. 1304. *Reich.* 3. 924. *hort. cliff.* 425. 2. *ups.* 274. 2. *Mill. fig. t.* 75. f. 1. *Gärtn. fruct.* 2. 422.
C. scabra. *Berg. cap.* 310.
C. humilis africana, fl. intus albo, foris violaceo simplici. *Herm. lugdb.* 104. t. 105. *Breyn. ic.* 26. t. 14. f. 1.
Caltha afric. fl. intus albo, foris violaceo. *Tourn. inst.* 499.
C. afr. fl. intus albo extus ferrugineo. *Mor. hist.* 3. 14. f. 6. t. 3. f. 8.
 Leaves lanceolate sinuate-toothblotted, stem leafy, peduncles filiform.
5. *Calendula hybrida*. Hybridous or great Cape Marigold.
Lin. spec. 1304. *Reich.* 3. 925. *hort. ups.* 274. 3. *Mill. fig. t.* 75. f. 2. *Gärtn. fruct.* 2. 422.
Caltha africana, fl. intus albo, foris violaceo, sem. majore oblongo. *Breyn. ic.* 26. t. 14. f. 2.
Cardispermum afr. pubescens, fol. incis, parvo flore. *Aët. par.* 1724. 39. t. 2.
 Leaves lanceolate toothed, stem leafy, peduncles thickened at top.
6. *Calendula nudicaulis*. Naked-stalked Cape Marigold.
Lin. spec. 1305. *syft.* 791. *Reich.* 3. 925. *mant.* 479. *Berg. cap.* 312. *Herm. afr.* 5.
Bellis afr. florum pediculis pene aphyllis, fol. incis. *Comm. hort.* 2. 66. t. 33.
Caltha afr., fl. intus albo extus leviter violaceo, sem. plano cordato. *Boerb. lugdb.* 1. 113.
 Leaves lanceolate sinuate-toothed, stem almost naked.
7. *Calendula graminifolia*. Grass-leaved Marigold.
Lin. spec. 1305. *Reich.* 3. 925. *Berg. cap.* 311. *Herm. afr.* 5. *Mill. fig. t.* 76. f. 1. *Pluk. mant.* 35. t. 376. f. 7. & 383. f. 4.
Caltha afr., fol. croci angustis, florum petalis externe purpurascens interne albis. *Boerb. lugdb.* 1. 113.
Dimorphotheca statice fol. *Aët. par.* 1720. p. 280.
Bellis afr., fl. pediculis foliosis, fol. angustis & integris. *Comm. hort.* 2. 67. t. 34.
 Leaves linear almost entire; stems almost naked one-flowered: seeds obcordate-orbicular even.
8. *Calendula fruticosa*. Shrubby Marigold.
Lin. spec. 1305. *Reich.* 3. 926. *amæn.* 6. *afr. n.* 83. *Berg. cap.* 314. *Mill. fig. t.* 283.

Leaves obovate a little toothed, stem shrubby decumbent.

9. *Calendula tomentosa*. Tomentose Marigold.
Lin. syft. 791. *suppl.* 384.
 Leaves obovate entire tomentose, scape naked, one-flowered.
10. *Calendula pumila*. Pigmy Marigold.
Forst. florul. austr. n. 305.
 Seeds oblong incurvated; leaves orbiculate, crenate-ferrated; serratures mucronated, scape naked, one-flowered.
11. *Calendula stellata*. Starry Marigold.
Cavanilles ic. hisp. n. 5. t. 5.
 Five outer seeds boat-shaped smooth, five alternate horned patulous muricate, the rest screw-shaped.
12. *Calendula Tragus*. Bending-stalked Marigold.
Ait. hort. kew. 3. 271.
 Caulescent; leaves alternate linear almost quite entire somewhat hairy; seeds suborbiculate.
13. *Calendula rigida*. Rough-leaved Marigold.
Ait. hort. kew. 3. 271.
 Leaves elliptic toothed roughish; wings of the seeds semi-orbicular.
14. *Calendula oppositifolia*. Glauous Marigold.
Ait. hort. kew. 3. 272.
 Leaves opposite linear quite entire somewhat fleshy smooth.

DESCRIPTION, &c.

The flowers are commonly solitary and terminating. Many of the species are herbaceous and natives of the Cape of Good Hope. The seventh, eighth, twelfth, thirteenth, and fourteenth sorts are shrubby. The first and third grow wild in the southern countries of Europe; the second is from Palestine; the tenth from New Zealand.]

1. Root annual. Stalk slender, branching, spreading near the ground. Leaves narrow, spear-shaped, hairy, half surrounding the stalk at their base. Flowers produced at the extremity of the branches upon long naked peduncles; they are very small, and of a pale yellow colour; the florets of the ray are very narrow, as are also the leaves of the calyx. [Seeds of different shapes: those of the disk semi-circularly curved inwards, by no means boat-shaped or margined, but inclined to cylindric, on the belly part compressed into an edge, but on the back convex and muricated with little short innocuous prickles: those of the ray are longer, upright, crooked, attenuated upwards and lengthened out into a beak which is bilamellate and two-lobed at the end, with little prickles on the outside, but smooth within, and near the base augmented with a lamellated process^a.

Haller is of opinion that this is not specifically distinct from the Garden Marigold; and Ray says, that it differs in little else besides the smallness of the parts.

Native of Sweden, Germany, Switzerland, France, Carniola, Italy, and Spain. It flowers most part of the summer, and was cultivated in 1683, by Mr. James Sutherland^b.

2. This is very like the foregoing species, but the calyx is muricated on the outside. The seeds are more ventricose, not at all muricated; without the aculeated seeds in the ray. The whole plant is naked without any shagginess. The leaves are rugged at the edge^c. Mr. Miller adds, that they are much larger than those of the former sort, but yet not so large as those of the Garden Marigold; and that the flowers are of a middle size between the two others, and of a very pale yellow colour. He says, that he gathered it in the garden at Leyden, [and therefore he probably cultivated it soon after the year 1727, when he was in Holland.

3. This differs from the Field Marigold not only in the seeds, but in having a loftier stem, more divaricated, pubescent and pale green, as are also the leaves; these are longer less sinuated, the lower and middle leaves ovate and blunt, the upper ones lanceolate^d.

^a Gartner.^b Hort. kew.^c Linn. spec.^d Krock.

Native of France, in the vineyards, of Italy in the corn fields, of Silesia in orchards, gardens and fields; flowering most part of the summer. Parkinson informs us that he received the seed of the single Marigold from Spain, where it grows wild, "by Guillaume Boel, in his time a very curious, and cunning searcher of simples." It was however cultivated by Gerarde in 1597¹, and probably much earlier.

The golden splendour of the flowers, says John Bauhin, the *flaventia lumina Calthæ*, as Columella expresses it, ennobled this plant, before it was known to be of any use. It has however been cultivated time out of mind in kitchen gardens for the flowers, which were dried in order to be boiled in broth: from a fancy that they are comforters of the heart and spirits. Linneus accordingly says, that they may be used in a double dose as a succedaneum to Saffron; but modern practice has little confidence in these supposed cordials.

The common or officinal Marigold is a plant which is now much out of use in the Materia Medica, and has perhaps been commended beyond its merit as an aperient and detergent in visceral obstructions, jaundice, and menstrual suppressions. It has also been considered as useful in the scrophula of children, eaten in the manner of a salad. There is a certain acrimony in the plant; insomuch that it has even been commended as an extirpator of warts. Formerly the flowers were much esteemed as preservatives against pestilential disorders, either chewed, or infused in vinegar; or the juice itself drank to the quantity of some ounces. In the plague itself it has been highly commended by some writers; and is esteemed a powerful sudorific. The leaves are supposed to be more efficacious than the flowers. It has been asserted, that a Marigold flower strongly rubbed on the affected part, is an admirable remedy for the pain and swelling caused by the sting of a wasp or bee.

According to the observation of Linneus, the flowers are open from nine in the morning to three in the afternoon. This regular expansion and closing of the flowers attracted early notice, and hence this plant acquired the name of *Solsequia* and *Solis sponsa*. There is an allusion to this property in the poems ascribed to Rowley:

"The Mary-budde that shootethe (shutteth) with the lighte."

But more fully thus by Shakspeare—

"The Marigold, that goes to bed wi' th' sun
And with him rises weeping,"

This plant is called in German, *gewöhnliche Ringelblume*, *Goldblume*, *Dotterblume*, *Gilkenbuterblume*, *gemeine Sonnenwende*, *Haussonnenwirbel*, *Weckbrofelchen*, *Todtenblume*. In Dutch *Tamme Goudbloem*. In Swedish, *Ringblomma*. In Danish, *almindelige Koebloem*, *Solsikke*, *Soelsik*. In English, *common or garden Marigold* or *Mary-gold*, by old authors *Golds* or *Ruddes*. *Golds* or *Gouldes* is a name among the country people not only for this, but for *Chrysanthemum segetum*, any sort of Hawkweed, and in short for most yellow flowers of the syngenesia class. The fondness of the English people for tacking Christian names to animals and plants is well known: the Virgin Mary in particular has sanctified many of the latter. In French, *Souci du jardin*. In Italian, *Calendula ortense*, *fiorrancio*, *fiore d'ogni mese*. This latter name gives countenance to the derivation of *Calendula* from the *Calends*. In Spanish and Portuguese, *Calendula ortense*; in the latter also *Mara-wilba bastarda*. In Russian, *Nogotki*.]

Of the garden Marigold there are the following varieties: 1. The Single. 2. The common double-flowering. 3. The largest very double-flowering. 4. The double lemon-coloured. 5. The greater and smaller childing Marigold, [called by Gerarde fruitful or much-bearing Marigold, and by the vulgar

sort of women, as he says, Jack-an-apes on horseback. There are other trifling varieties scarcely worthy of observation.]

4. Root annual. Lower leaves deeply indented on their edges, fleshy and of a pale green colour. Stems declining, from six to eight inches long, leafy to within two inches of the top. Stem leaves much narrower and more indented than those at the root. Upper part of the stem very slender, upon which stands one flower, shaped like those of the common Marigold, having a purple bottom, with the ray of a violet colour on the outside, and of a pure white within: it opens when the sun shines, but shuts up in the evening, and remains so in cloudy weather. When the flower decays, it hangs down during the growth of the seeds; but when they are full ripe, the peduncle is raised again, so that the heads of the seeds stand upright. [The seeds of the disk are rounded cordate, flattened, surrounded with a swelling rim, and of a whitish straw-colour. The seeds of the ray are oblong, inversely pyramidal three or four-cornered, with the sides and angles tubercled and muricate².]

It is a native of the Cape of Good Hope, flowers from June to August; and was cultivated by Mr. Miller in 1726.

Calendula scabra of Bergius is supposed to be the same with this: he however affirms that it is different both from the *pluvialis* and *hybrida* of Linneus; for the leaves in them are rather blunt, narrowing towards the base, not linear and narrowing to the point, as in this; nor are the calyxes so evidently ciliate.]

5. Root annual. Leaves much longer than in the foregoing, and broader at the end; those near the root are regularly indented, but the stem-leaves have only a few shallow indentures. The stalks are much longer and thicker than those of the ensuing sort; and at the top, just below the flower, swell larger than at the bottom. The flowers are smaller than in the fourth, but of the same colour. [The seeds of the disk are very like those of the *pluvialis*, but a little larger, elliptic-cordate, not swelling at the rim. The seeds of the ray are inversely pyramidal, three-sided, the sides a little convex and smooth, but the angles compressed and serrate-toothed³.]

The seeds of this sort were brought from the Cape to Holland about sixty years ago (1711), and thence all the curious gardens in Europe have been furnished with them⁴. Cultivated by Mr. Miller in 1756¹; probably much sooner.]

6. This is also an annual plant, and has much the appearance of the fourth, but the leaves are more deeply indented on their edges. The stalks grow about the same length as that; the flower is a little smaller, and the rays on the outside are of a fainter purple colour. The seeds of this are flat and heart-shaped, whereas those of the fourth are long and narrow.

[The stem is extremely simple, erect, leafy at bottom. The leaves are spatulate, rugged, entire except that they are now and then angulated with a tooth. Seeds orbiculate⁵.]

Native of the Cape; flowers from June to August; cultivated by Mr. Miller in 1731².]

7. This is a perennial plant, which divides near the root into several tufted heads, closely covered with long grassy leaves coming out on every side without order; some of these have one or two indentures on their edges, but the most part are entire. From between the leaves arise naked peduncles about nine inches long, sustaining one flower at the top, which is about the size of the common Marigold, having a purple bottom; the rays are also purple without, but of a pure white within. These expand when the sun shines, but always close in the evening, and in cloudy weather. The general season of their beauty is in April and May, when they have the greatest number of flowers upon them; but

¹ Parad. p. 293.

² Hort. kew.

³ Gæstner.

⁴ Hort. kew.

⁵ Gærtner.

⁶ Mill. fig.

¹ Hort. kew.

² Linn. mant.

³ Hort. kew.

there is commonly a succession of flowers late in the autumn, though not in so great plenty. The seeds are heart-shaped like those of the foregoing.

[They were brought from the Cape to Holland in 1698. Though it has been long in the English gardens, yet it is not so commonly seen there as it deserves, there being few plants which continue so long in flower as this.]

8. This has a slender, shrubby stalk, rising to the height of seven or eight feet, but requiring support; it sends out a great number of weak branches from the bottom to the top, hanging downwards: the leaves are on short foot-stalks; most of them are slightly indented towards the top, but some are entire; they are of a shining green colour on their upper surface, but paler underneath: the flowers come out at the ends of the branches on short naked peduncles, and are in size and colour like those of the fifth sort: they are sometimes succeeded by flat heart-shaped seeds.

It was introduced into the Dutch gardens from the Cape of Good Hope; and was sent to Mr. Miller by Dr. Adrian van Royen about the year 1759. It flowers during the summer months.

[9. Found at the Cape by Thunberg.]

10. Native of New Zealand.

11. Root annual. Stem herbaceous, streaked, much branched, rugged as is the whole plant, three feet high. Leaves sessile, ovate-oblong, tooth-sinuate, subciliate, thick, bright green. Flowers terminating, solitary, on elongated peduncles. Common calyx deeply multifid, the segments ovate-lanceolate, permanent, nearly equal. Flowers yellow; as many florets in the ray as there are segments in the calyx, that is about sixteen. Germ, in the ray, boat-shaped, rugged. Florets in the disk few, barren: stigma globular, with two very short diverging cusps. Fruit, when ripe, of a rusty red colour, consisting of one seed covered with an aril, of three different shapes. Seeds oblong, ash-coloured.

Cultivated by Cavanilles in the garden of the Duke del Infantado near Madrid before 1791, and raised from seeds sent by Lemonier. It flowers and perfects seeds there from June to August.

12, 13, 14. These are natives of the Cape of Good Hope; and were introduced by Mr. Francis Masson, in 1774.

Mr. Miller has two other sorts: *Calendula decumbens*, n. 9. which is *Melampodium americanum*; and *Calendula americana*, n. 10. which is also probably a *Melampodium*.]

PROPAGATION AND CULTURE.

1. If the seeds of the Field Marigold are permitted to scatter, there will be a fresh supply of young plants; so that from May, when the flowers first appear, till the frost puts a stop to them, there will be a succession of plants in flower.

2. The seeds of single Garden Marigolds will come up of themselves if they are permitted to scatter.

3. The varieties are supposed to have been originally obtained from the seeds of the single sort, but most of these differences continue, if the seeds are properly saved; but the two childing Marigolds, and the largest double, are subject to degenerate, where care is not taken in saving their seeds. The best way to preserve the varieties, is to pull up all those plants, whose flowers are less double, as soon as they appear, and to save the seeds from the largest and most double flowers; the childing sort should be sown by itself in a separate part of the garden, and the seeds saved from the large centre flowers only, not from the small ones which come from the calyx of the other, for the seeds of these are apt to change.

The seeds may be sown in March or April, where the plants are to remain, and will require no other culture but to keep them clean from weeds, and to thin the plants where they are too close, leaving them ten inches asunder, that their branches may have room to spread. These plants will begin to flower

in June; and continue in flower until the frost kills them. The seeds ripen in August and September, which, if permitted to scatter, will furnish a supply of young plants in the spring; but as these will be a mixture of bad and good, the best method is to save the best seeds, and sow each of the varieties distinct, which is the sure way to have them in perfection.

4, 5, 6. The seeds of these plants should be sown in the spring in the borders of the garden where the plants are designed to remain, for they do not bear transplanting well; therefore they may be treated in the same manner, and sown at the same time, with Candy Tuft, Venus Looking Glass, and other hardy annual plants putting four or five seeds in each patch; if they all grow, there should not be more than two plants left in each patch: after this, they require no farther care but to keep them clean from weeds. If the seeds of these plants are permitted to scatter, the plants will come up the following spring without care, and these will flower earlier than those which are sown in the spring.

7. This sort does not often produce good seeds in Europe, but it is easily propagated by slips taken off from the heads, in the same manner as is practised for Thrift. They may be planted any time in summer, in pots filled with light fresh earth, which may be plunged into a very moderate hot-bed, to forward their putting out roots; or otherwise the pots may be sunk in the ground up to their rims, and covered with a Melon-glass, which, in the middle of summer, will answer full as well, but in the spring or autumn, the former method is to be preferred: when these are planted, the glasses must be shaded in the heat of the day, and the slips must be frequently refreshed with water, but it must not be given them too liberally, for much wet will rot them: after they have got strong roots, they should be each planted into several small pots, filled with fresh light earth, and placed in a shady situation, till they have taken fresh root, when they may be placed in the open air, in a sheltered situation, where they may remain till autumn, and then should be placed in a dry, airy, glass-case, for the winter season, or under a common hot-bed frame; for these plants do not thrive in artificial heat, they only require protection from frost and wet, and should enjoy the air at all times when the weather is mild. I have sometimes had one or two heads of them ripen in a season, but this is very rare; and if the seeds are not sown in autumn, they seldom grow.

8. This is easily propagated by cuttings, which may be planted any time in summer in a shady border, or otherwise shaded with mats in the heat of the day: in five or six weeks, these will have taken root, when they should be carefully taken up, and each put into a separate pot, filled with light sandy earth, but not dunged, and placed in the shade till they have taken fresh root; then they may be placed with other hardy exotic plants in a sheltered situation, where they may remain till the frost begins, when they must be removed into the greenhouse, placing them near the windows that they may enjoy the free air, for this plant only requires protection from frost. The earth in which these are planted, should be light, but very poor, for in rich earth they grow too luxuriant, and seldom flower.

CALF'S-SNOUT. See *Antirrhinum*.

CALINEA. See *Dolichocarpus*.

CALLA. (*Κάλλαιον*, *palearia galli*, the wattles of a cock.)

Lin. gen. n. 1030. Reich. 1121. Schreb. 1388.

Gartn. t. 84. Juss. 24. Provençalia. Petit.

gen. 45. Anguina. Trev.

Class. 20. 8. Gynandria Polyandria.

Nat. order of *Piperitæ*. *Aroideæ* Juss.

GENERIC CHARACTER.

CAL. *Spathe* one-leaved, ovate-cordate, acuminate, coloured at top, very large, spreading, permanent. *Spadix* finger-shaped, quite simple, erect, covered with fructifications.

COR. none.

STAM.

STAM. Filaments some, intermixt with the germs, the length of the pistils, permanent, compressed, truncate. Anthers simple, truncate, sessile.

PIST. to each a roundish, obtuse Germ. Style simple, very short. Stigma acute.

PER. Berries as many as there are pistils, four-cornered-globular, pulpy, one-celled, (several-celled. G.)

SEEDS many (six to twelve)—(solitary. G.) oblong, cylindrical, obtuse at both ends.

OBS. Since in each berry there are several seeds, it follows that each pistil belongs to as many floscules, and are not parts of one and the same flower; since however a perianth and corolla are wanting to separate the stamens, it is difficult to assign the exact number of these to each floscule. If I were to conjecture from the analogy of the Palms, I should suppose that six stamens were the appropriate number in each floscule.

In *C. palustris* the Spadix is wholly covered with stamens and pistils mixt: but in *C. æthiopica* at the bottom only, the upper part being covered with stamens only.

ESSENTIAL CHARACTER.

Spathe flat. Spadix covered with floscules. Cal. and Pet. none. Berries many-seeded.

SPECIES.

1. *Calla æthiopica*. *Æthiopian Calla*.
Lin. spec. 1373. *Reich.* 4. 75. *hort. cliff.* 435.
Lederm. microsc. t. 18, 19. *Gärtn. fruct.* 2. 20.
Arum æthiop., fl. albo odorato. *Comm. hort.* 1. 95. t. 50.
A. amer., ari vulg. facie, fol. carnosiss. *Mich. flor.* 9. t. 2.
Leaves sagittate-cordate, spathe corded, spadix male at top.
2. *Calla palustris*. *Marsh Calla*.
Lin. spec. 1373. *Reich.* 4. 75. *hort. cliff.* 436.
Juec. n. 822. *lapp. n.* 320. *Gmel. sib.* 1. p. 1.
Pollich pal. n. 865. *Fl. dan.* t. 422. *Barr. ic.* 574.
Dracunculus palustris, f. rad. arundinacea. *Baub. pin.* 195.
D. aquatilis. *Dod. pempt.* 331. *Raii hist.* 1210.
Ger. 683. f. 3. *emac.* 832. f. 3. *Park.* 1244. f. 1.
Best. exst. vern. 2. 17.
Provenzalia palustris. *Petit. gen.* 45.
Leaves cordate, spathe flat, spadix hermaphrodite all over.
3. *Calla orientalis*. *Oriental Calla*.
Lin. spec. 1373. *Reich.* 4. 75. *Gron. orient.* n. 282.
Arum minus orientale, rotundioribus foliis. *Mor. hist.* 3. 544. *Raii suppl.* 580.
A. Carfaami. *Rauw. itin.* 115.
Leaves ovate.
- [4. *Calla occulta*.
Lour. cochinch. 532. *Rumph. amb.* l. 8. c. 8. t. III. f. 2?
Leaves cordate-ovate; spathe spiral; spadix male at top.]

DESCRIPTIONS, &c.

1. This plant has thick, fleshy, tuberous roots, which are covered with a thin brown skin, and strike down many strong fleshy fibres into the ground. The leaves arise in clusters, having foot-stalks more than a foot long, which are green and succulent. The leaves are eight or nine inches in length, and of a shining green, ending in a sharp point, which turns backward; between the leaves comes out the scape, which is thick, smooth, of the same colour as the leaves, rises above them, and is terminated by a single flower, shaped like those of the *Arum*; the hood or spathe is twisted at the bottom, but spreads open at the top, and is of a pure white colour. In the center of this is situated the spadix or club, which is of an herbaceous yellow colour, upon which the small herbaceous flowers are placed, so closely joined as that the stamens and pistils are very difficult to distinguish, without the assistance of glasses; it is only about half the length of the spathe.

When the flowers fade, some of those which are at the top, are succeeded by roundish fleshy berries, compressed on two sides, each containing two or three seeds.

This plant grows naturally at the Cape of Good Hope, but has been long an inhabitant in the English gardens.

[Commelin says, that the living plant was sent to him in 1687.—Mr. Miller cultivated it in 1731. It flowers from January to May^a.

2. Leaves erect, acuminate, streaked, bright or yellowish green, smooth, four or five inches long, and three or four broad, alternately embracing the stem, with thick smooth succulent petioles five or six inches long. Scape round, thick, succulent, smooth, bright green. Two ovate bluntish stipules at the base of the petioles. Spathe roundish-ovate, rolled up at the end into a bluntish spine, yellowish green below, white and smooth above. Spadix ovate, obtuse. Berries small, many, sessile on a conic bed, four or five-cornered or else round, wrinkled about the edge, first green then red, smooth, soft, flat at top, crowned with a short style. Seeds six to nine, sometimes only one to three, in a viscid mucilage; sometimes none^b.

The roots creep in the mud so as sometimes to cover whole marshes. They have a hot biting taste, and yet bread is sometimes made of them^c.

It flowers from June to August, and is a native of Lapland, Sweden, Denmark, Russia, Germany, and Holland. It was introduced in 1770, by Daniel Charles Solander, L. L. D.^d but had been probably cultivated by Mr. Miller before.]

3. This also has a thick tuberous root, from which spring up several ovate leaves, standing on pretty long foot-stalks: the scape rises between the leaves, about six or eight inches high, supporting one white flower at the top.

Native of the mountains near Aleppo.

[This plant rests on the authority of Rauwolf, and is omitted in all the editions of the *Systema Vegetabilium*.

4. Plant one foot high, perennial, with scarcely any stalk. Leaves many, smooth, diffused, with long channelled petioles, dilated at the base, embracing the inner ones. Spathe long, concealing the flowers even in their state of maturity. Spadix oblong, wholly covered with flowers, below mixed, but male only at top. Filaments short, scattered. Stigma concave, trifid, sessile. Berry three-lobed, three-celled, yellow, containing many seeds.

Native of CochinChina, in moist places^e.]

PROPAGATION AND CULTURE.

1. This propagates very fast by offsets, which should be taken off the latter end of August, at which time the old leaves decay; but this plant is never destitute of leaves, for before the old ones decay, there are young leaves produced, which advance in height all the winter; but at this season the roots are in their most inactive state. These roots have generally a great number of offsets about them, so that unless there is a want of them, the largest only should be chosen; which should be separated from all the smaller, and each planted in a separate pot, filled with kitchen-garden earth, and placed with other hardy exotic plants in the open air till autumn, when they must be removed into shelter for the winter season, during which time, they must not have too much wet, for that will rot the roots. This plant is so hardy as to live in the open air in mild winters, without any cover, if it be planted in a warm border, and have a dry soil: but with a little shelter in hard frost, it may be preserved in the full ground very well. It flowers in May, and the seeds ripen in August; but as the roots increase so plentifully, few persons care to sow the seeds, because the young plants will not flower in less than three years.

^a Hort. kew.

^b Pollich.

^c Linn. suec. and lapp.

^d Hort. kew.

^e Loureiro.

2. Is rarely admitted into gardens, and must be planted in an artificial bog, or at least in the mud of a pond, or in a pot or tub set in water.

3. The roots of this sort should be planted in pots filled with light earth, and in summer they may be placed with other exotic plants in the open air; but in winter they should be placed under a common hot-bed frame, to screen them from frost, to which if they are exposed the roots will be destroyed; there is little beauty in this plant, so it is only preserved in botanic gardens for variety.

[**CALLICARPA**. (*Καρπός* fructus, and *καλλός* pulchritudo: from the beauty of the fruit.)

Lin. gen. n. 135. Reich. 141. Schreb. 175.

Gærtn. t. 94. Juss. 107. Sphondylococcus,

Mitch. 20. Burchardia, Heisterl. Johnsonia,

Dale, Mill. dict.

Class. 4. 1. Tetrandria Monogynia.

Nat. order of *Dumosa*. *Vitices* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leafed, bell-form: mouth four-cleft, erect.

COR. monopetalous, tubular: border four-cleft, obtuse, spreading.

STAM. Filaments four, filiform, twice the length of the corolla. Anthers ovate, incumbent.

PIST. Germ roundish. Style filiform, thicker at top. Stigma thickish, obtuse.

PER. Berry globular, smooth.

SEEDS four, oblong, shaped like a meniscus, compressed, callous.

OBS. *C. americana* has a cylindric calyx, scarcely four-toothed.

ESSENTIAL CHARACTER.

Cal. four-cleft. *Cor.* four-cleft. *Berry* four-seeded.

SPECIES.

1. *Callicarpa americana*. *American Callicarpa*.

Lin. spec. 161. Reich. 313. mant. 2. 198. Gærtn. fruct. 2. 80. Lour. cochinch. 70.]

Johnsonia americana. Mill. dict.

Sphondylococcus. Mitch. eph. nat. cur. 8. 218.

Burchardia. Dubam. arb. 1. 111. t. 44. Pluk. alm. t. 136. f. 3. Catesb. car. 2. t. 47. Gron. virg. 138.

Leaves serrate, tomentose beneath.

[2. *Callicarpa tomentosa*.

Lin. syst. 153. Reich. 314. Gærtn. fruct. 2. 81.

Tomex tomentosa. Lin. spec. 172. fl. zeyl. 59. amæn. 1. 115. Burm. ind. 36.

Arbor malabarica Illa dicta. Burm. zeyl. 26.

Leaves quite entire woolly.

3. *Callicarpa japonica*.

Lin. syst. 153. Thunb. jap. 60.

Leaves serrate smooth.

4. *Callicarpa ferruginea*.

Swartz prodr. 31.

Leaves broad-lanceolate serrate somewhat rugged underneath, cymes terminating and axillary.

5. *Callicarpa reticulata*.

Swartz prodr. 31.

Leaves elliptic-lanceolate subserrate wrinkled, tomentose-boary underneath.

6. *Callicarpa umbellata*.

Lour. cochinch. 70.

Leaves turbinate-ovate smooth alternate, umbels sessile.

7. *Callicarpa triloba*.

Lour. cochinch. 70.

Stem scandent, leaves three-lobed, peduncles dichotomous.

DESCRIPTIONS, &c.

1. A shrub from three or four to six feet in height. Branches rather compressed. The nerves of the upper surface of the leaves, and the whole under surface tomentose. The flowers in axillary, dichotomous, tomentose panicles, scarce the length of the leaves; with minute, subulate bractes, opposite at each fork. Calyx cylindric, scarcely four-toothed, very smooth. Corolla funnel-form, deep purple. Germ superior. Style the stature of the filaments^a. Berry the size of a small pea, at first bright red, afterwards deep purple, one-celled. Seeds fixed to

^a Linn. mant,

the bottom of the berry, bony, elliptic, convex on one side, slightly concave on the other^b.

Native of North America: also of Cochinchina, which shows the impropriety of the trivial name.]

The seeds were sent to Mr. Miller by Mr. Catesby from Carolina, in 1724; many of the plants were then raised, flourished very well in the open air, and produced flowers; but in the severe frost of 1740, most of them were destroyed, as were also the young plants raised from Dr. Dale's seeds the year before, which were only sheltered under a frame; so that until he sent a fresh supply of seeds in 1744, there were scarce any plants in the English gardens: since that time seeds have been brought to England in plenty.

This plant having been sent over by Dr. Dale, with the generic characters, under the title of *Johnsonia*, in honour of the editor of Gerard's herbal, in the year 1739, before it was mentioned by Linnæus, Mr. Miller kept it under that name, in the last edition of his dictionary.

[2. A singular tree, and without its peer. A thick nap invests the branches, peduncles, petioles, like woollen cloth. Leaves ovate, the size of the hand, opposite, acuminate, coriaceous, wrinkled, naked, petioled. Peduncles axillary, solitary, dichotomous, the length of the petioles, divaricated. Corolla four-petalled. Filaments inserted into the receptacle^c. Berry the size of a pepper-corn, black, terminated by the stigma, which is pale-coloured, within the calyx, which is white with down, orbicular, scarcely toothed or very obscurely four-toothed, spreading very wide; the berry is one-celled, and contains four bony seeds, convex on one side, on the other concave with an obscurely elevated ridge^d.

The Indians chew the bark of this tree, when they have not the leaves of the *Betel*^e. Native of the East-Indies.

3. Stem shrubby, erect, smooth. Branches opposite, round, smooth, purple, divaricated. Leaves opposite, on short petioles, oblong, acuminate, entire at the base and point, green above, pale beneath, nerved, two inches long. Flowers above axillary, paniced, very small. Panicle trichotomous, supradecomposed, subfastigate. Bractes linear. Peduncles half an inch long, with very short pedicels. Perianth shorter than the corolla, which is four-parted and white. Filaments inserted into the germ, very short. Anthers oblong. Germ superior. Style subulate, shorter than the corolla. Stigma simple, acute. Native of Japan^f.

4, 5. Natives of Jamaica^g.

6. This is a middle-sized tree, with ascending branches. Leaves quite entire, reflex at the edge. Flowers herbaceous, small, in five-flowered umbels, almost at the ends of the branches: calyx bluntly four-cleft; corolla bell-shaped, with a short tube: stamens and stigma sessile. Berry fleshy, roundish, small, containing four seeds.

Native of Cochinchina, in woods.

7. This is a long branching shrub, climbing by bifid tendrils. Leaves cordate, serrate, smooth, on long petioles. Flowers axillary, pale. Berry roundish, four-seeded. Native both of China and Cochinchina^h.]

PROPAGATION AND CULTURE.

The first sort, which is the only one yet cultivated here, rises easily from seeds, on a moderate hot-bed. It is best to sow the seeds in pots, and to plunge them into a tan-bed of a moderate warmth; when the plants come up, and have obtained some strength, they should be gradually inured to the open air, into which they should be removed in June, and placed in a sheltered situation, where they may remain till autumn; during this time they must be kept clear from weeds, and gently refreshed with water in dry weather: but as these young plants are tender, they should be placed under a frame before the early frost comes on; for autumnal frosts will

^b Gærtner.

^c Linn. zeyl.

^d Gærtner.

^e Burman.

^f Thunberg.

^g Swartz.

^h Loureiro.

kill the tender part of their shoots, which often causes their stalks to decay most part of their length before the spring. During the winter season they should be screened from frost, but in mild weather they must enjoy the free air, otherwise their shoots will turn mouldy and decay. The following spring, just before the plants shoot, they should be carefully turned out of the pots, so as not to break their roots, and part of them may be planted in small pots filled with light earth, and the others in a nursery-bed in a warm situation, at about four or five inches asunder; those in the pots should be plunged into a moderate hot-bed, which will forward their taking root; but afterwards they must be hardened to bear the open air as before; these should be sheltered under a frame in winter for three or four years, till they have obtained strength; then they may be turned out of the pots, and planted in a warm situation, where they will live in the open air through common winters; but in severe frost they are in danger of being killed, if they are not sheltered; therefore the surface of the ground about their roots should be covered with old tan to keep out the frost, and their tops protected with straw, peas-haulm, or fern.

The plants in the beds should also be covered with mats or straw, in frosty weather, and after they have obtained strength, they may be transplanted into a warm situation, and treated every winter in the same manner as the others.

[CALLICORNIA. See *Leysera*.

CALLIGONUM. (From *καλλος* or *καλος*, and *γων*: fine joints.)

Lin. gen. n. 680. *Reich.* 735, and *p.* 570. *L'Herit. in transact. Linn.* 1. 179. *Juss.* 83. *Pallasia. Lin. gen. Schreb. n.* 834. *Juss.* 83. *Polygonoides. Tournef.* 478. *Pterococcus. Pallas, it. 2.* 738. *t. 5.* & 3. 536.

Class. 11. 4. Dodecandria Tetragynia.

Nat. order of Holoraceæ. - Polygonæ Juss.

GENERIC CHARACTER.

CAL. *Perianth* one-leaved, turbinate at the base, with a five-parted border: *parts* nearly equal, roundish, spreading, finally obscurely turned back, permanent, the two outer a little smaller than the rest.

COR. none, unless the calyx be taken for it.

STAM. *Filaments* about sixteen (ten to fifteen. *S.*), diverging, capillary, at bottom thickened a little and pubescent, surrounding the germ like a nectary with their slightly coalescent base, withering. *Anthers* roundish, two-celled, peltate.

PIST. *Germ* superior, ovate, four-sided, acuminate. *Styles* three, or more frequently four, filiform, spreading, subcoalescent at the base or ending in an acumen of the germ, scarcely shorter than the filaments. *Stigmas* capitate.

PER. none, except the crust or shell of the nut.

SEED. *Nut* with a juiceless inseparable crust or rind, oblong, four-sided, four-winged, one-celled, valveless: the wings either membranaceous longitudinally two-parted toothed curled; or bristly, the bristles branched rigid but soft. *Nucleus* or kernel of the same form.

ESSENTIAL CHARACTER.

Cal. five-parted. *Cor.* none. *Filaments* about sixteen, slightly united at the base. *Germ* superior, four-sided. *Nut* one-celled, with a crust that has several wings, or many bristles.

SPECIES.

1. *Calligonum Polygonoides*,

Lin. spec. 748. *L'Herit. in Linn. trans.* 1. 179. *Polygonoides orientale Ephedræ facie. Tourn. cor.* 47. *itin.* 2. 356.—3. 214. *fig.*

Fruit latticed, bristles branched rigid.

2. *Calligonum comosum*.

L'Herit. in Linn. transact. 1. 180. *Fruits* latticed, bristles branched soft.

3. *Calligonum Pallasia*.

L'Herit. in Linn. transact. 1. 180. *stirp. nov. tom. 2.* *Ait. hort. kew.* 2. 242.

Pallasia caspica. Linn. suppl. 252.

Calligonum polygonoides. Pallas it. 3. 536.

Pterococcus aphyllus. Pallas it. 2. 738. *t. 5.* S.

Fruits winged, wings membranaceous curled.

DESCRIPTIONS, &c.

1. This is a shrub three or four feet in height, very bushy and extending on every side: the trunk crooked, hard, brittle, the thickness of the human arm, covered with a russet-coloured bark, divided into crooked branches, which are subdivided into twigs, whence instead of leaves spring cylindric threads, half a line in thickness, and an inch or fifteen lines in length, composed of several jointed pieces, so like the leaves of *Ephedra*, that it is impossible to distinguish them without seeing the flowers: from the joints of these threads proceed others which are jointed also, and along these some flowers come forth three lines in diameter, they are in form of basins, cut into five parts to the middle, where they are pale green: the rest is white; from the bottom of the basin rises an angular pistil a line and half in length, surrounded with white filaments which have purple anthers: each flower is supported by a very slender and short peduncle. The fruit is about half an inch long, and four lines thick, of a conical figure, deeply channelled longitudinally; the channels are sometimes straight, sometimes spiral; the angles are terminated by wings cut into very fine fringes; the pulpy part is white and angular. The flowers have the odour of those of the Lime tree, are long in withering, and continue at the base of the fruit^a.

Tournefort has described and figured a single style, whereas there are three or four; he has also represented very few stamens, whereas there are about fifteen; the figure also represents both calyx and corolla, but there is only one. Linneus assigned two stigmas without any style to his *Calligonum*, and an indefinite number of stamens. Tournefort seems to have taken the young nascent twigs for leaves^b.

Found by Tournefort in Armenia, in the plains at the foot of Mount Ararat, in the year 1700.

2. This is perhaps no more than a variety of the foregoing. The plants are in every respect alike, but the fruit is with softer bristles; in the other they are very distinct and stiffer.

It was found in Egypt, by Lippi; and in Barbary, by Louiche Desfontaines^c.

3. This is a shrub three or four feet in height, with many alternate, round, reclining, flexuose, jointed, somewhat knotty, leafless branches: the shoots at each joint are numerous (six to ten), much crowded in bundles, rushy, some simple, others branched; few of these become branches, but most of them perish; they are subulate, jointed, bright green, or somewhat glaucous. At each joint of the shoots is a single leaf, which is sessile, cylindric, subulate, fleshy, like the shoots, half an inch in length; these are placed alternately. Stipule or sheath membranaceous, obscurely trifid, withering, surrounding the joint, as in the Knot-grass and other *Polygonums*. Flowers lateral or axillary, usually three together at each joint, peduncled, white with the disk of the calycine segments greenish, fragrant^d. Pallas adds, that these flowers are very abundant from the younger woody branches, especially about the warty tubercles at the joints, and from the herbaceous suckers which push up every spring; they come out in balls within the small membranous stipule. It flowers at the beginning of June, and the seeds are ripe in July. He found it in the sandy deserts of Siberia, between the Volga and the Jaick. Here it flowers in August, and was introduced in 1780, by Peter Simon Pallas, M. D.^e

This learned author, not attending either to the *Polygonoides* of Tournefort, or the *Calligonum* of Linneus, proposed this species as a new genus, under the name of *Pterococcus aphyllus*; to this mistake he afterwards added another, in asserting that his *Pterococcus* was the same plant with the *Polygo-*

^a Tournef. voy. de Levant.

^d Idem.

^b L'Heritier.

^c Hort. kew.

^e Idem.

noides of Tournefort. The younger Linneus named it *Pallasia caspica*, in honour of Dr. Pallas, who first discovered it.

The herb and flowers are so alike in the several species, that we are obliged to have recourse to the fruit for the specific distinctions.^f

Loureiro has given another species, under the name of *Calligonum asperum*, which he thus characterizes: leaves ovate, rough, racemes subdivided, fruit double. The stem is shrubby, scandent but without tendrils, unarmed, long, branched. Leaves quite entire, alternate. Flowers white, in terminating racemes: calyx five-leaved, herbaceous, except at the end, where it is red; leaflets roundish, concave, spreading: corolla commonly none, but sometimes there are four round, concave, spreading petals: stigma sessile, blunt, deeply two-parted: stamens numerous, on the receptacle. He calls the fruit a berry, which sometimes is single, sometimes double; is one-celled and contains many seeds^g. In the fruit therefore this plant differs widely from the *Calligonums*. Native of Cochinchina, in woods.]

[CALLISIA.

Loefling. *Lin. gen.* 63. Reich. 69. Schreb. 87.

Juss. 45. Hapalanthus. *Jacqu. amer.* 11.

(*Ἀπάλος ἄνθος*, tender flower.)

Class. 3. 1. Triandria Monogynia.

Nat. order of *Ensatæ*. *Junci* Juss.

GENERIC CHARACTER.

CAL. *Perianth* three-leaved: leaflets linear-lanceolate, keeled, erect, permanent.

COR. *Petals* three, lanceolate, acuminate, erect, spreading at the top, the length of the calyx.

STAM. *Filaments* three, capillary, longer than the corolla, dilated at the top into a roundish lamina. *Anthers* double, globular, fixed to the inside of the lamina.

PIST. *Germ* superior, oblong, compressed. *Style* capillary, the length of the stamens. *Stigmas* three, spreading, pencil-form.

PER. *Capsule* ovate, compressed, acute, two-celled, two-valved; the valves contrary.

SEEDS two, roundish.

OBS. *Allied to Commelina.*

ESSENTIAL CHARACTER.

Cal. three-leaved. Pet. three. Anth. double. Caps. two-celled.

SPECIES.

1. *Callisia repens*. *Creeping Callisia.*

Lin. spec. 62. *yst.* 94. Reich. 116. Loefl. *it.* 305.

Hapalanthus repens. *Jacqu. amer. t.* 11. edit. 2. 12.

t. 14.

DESCRIPTION, &c.

This plant is allied to *Commelina*, but it is destitute of nectaries^h.

Herbaceous, tender, creeping from the joints; rather erect at top, a little branching at the base, smooth. Leaves ovate, acuminate, subcordate at the base, quite entire, thickish, shining, fat, sheathing, the edge purple, alternate. Flowers small, tender, sessile, greenish, generally three together from each sheath of the lower leavesⁱ.

It is a native of the West Indies, in low moist shady places. Here it flowers in June and July; and was introduced in 1776, by John Fothergill, M. D.^k]

[CALLITRICHE. (*Καλλος* or *καλὸς* and *ἑρῖξ*; *Fine-hair*.)

Lin. gen. n. 13. Reich. 13. Schreb. 17. Gertn. t. 68. Juss. 19. *Stellaria*. *Dill. gen.* 6.

Class. 1. 2. Monandria Digynia.

23. 1. Polygamia Monoecia. *Huds.*

Nat. order of *Holoraceæ*. *Naiades* Juss.

GENERIC CHARACTER.

CAL. none.

COR. *Petals* two, incurved, acuminate, channelled, opposite. (oblong, concave, converging. *Huds.*)

STAM. *Filament* one, long, recurved. (straight. *Huds.*) *Anther* simple.

PIST. *Germ* roundish: (superior, compressed. *Huds.*) *Styles* two, capillary, recurved. (filiform, very long: *Huds.*) *Stigmas* acute.

PER. *Capsule* roundish, quadrangular, compressed, two-celled. (four-celled. *Ray*: obcordate, four-valved. *Huds.* none. *G.*)

SEEDS solitary, oblong. (four, naked. *G.*)

OBS. *C. verna* is *monocous*.

Flowers male, female, and hermaphrodite. *Huds.*

ESSENTIAL CHARACTER.

Cal. none. Pet. two. Caps. two-celled, four-seeded.

SPECIES.

1. *Callitriche verna*. *Vernal Starwort*, or *star-headed water Chickweed*.

Lin. spec. 6. Reich. 10. *suec. n.* 3. *Huds. angl.*

439. *With.* 4. *Relb. n.* 2. *Gertn. fruct.* 1. 330:

Thunb. jap. 16. *Pollich pal. n.* 2. *Neck.*

gallob. 3. *Gmel. sib.* 3. 13. *n.* 4. *Oed. dan.*

t. 129. *Krock. files. n.* 3. *Villars dauph.* 2. 2.

C. fontana. *Scop. carn. n.* 1201.

Stellaria. *Raii syn.* 289. *aquatica*. *Lob. ic.* 792. t.

Baub. pin. 141. *Dill. giff.* 58. t. 6. *Ger. emac.*

830. 3. *Park.* 1258. 10. *Petiv.* 6. 3. *Raii*

hist. 1323.—fol. imis linearibus, sup. subrotundis.

Hall. belv. n. 554.

Corispermum fol. oppositis. *Lin. lapp. & Gron. virg.* 3.

Upper leaves oval; *flowers* androgynous.

β. *Callitriche Plinii*. *Col. ecphr.* 1. 315. t. 316.

Stellaria fol. petiolatis subrotundis. *Hall. belv. n.* 553.

S. minor & repens. *Raii syn.* 289. *Dill. giff.* 126.

Lenticula palustris bifolia, fructu tetragono. *Bauh. pin.* 262.

All the leaves oval; *flowers* androgynous.

2. *Callitriche autumnalis*. *Autumnal Starwort*:

Lin. spec. 6. *yst.* 53. Reich. 10. *suec.* 4. *Huds.*

angl. 440. γ. *With.* 5. *Relb. n.* 3. *Pollich*

pal. n. 3. *Neck. gallob.* 3. *Gmel. sib.* 3. 13.

n. 5. t. 1. f. 2. (bad). *Krock. files. n.* 4. *Villars*

dauph. 2. 2.

C. stagnalis. *Scop. carn. n.* 1202.

Stellaria fol. omnibus linearibus. *Hall. belv. n.* 555.

S. aquatica fol. longis tenuissimis. *Raii syn.* 290. *Petiv.* 6. 4.

Lenticula palustris angustifolia, fol. in apice dissecto. *Loefel. pruss.* 140. t. 38.

Alfina aquatica minor f. fluitans. *Baub. pin.* 257.

All the leaves linear bifid at the end; *flowers* hermaphrodite.

DESCRIPTIONS, &c.

1. Stems long, round, branching, rooting; leaves in pairs, the upper ones radiating and floating on the surface of the water. Flowers sessile in the axils; the upper ones male, the lower female^l. Petals small, white, thick, flat, crescent-form; when magnified, they appear to be a collection of air-vesicles, to enable the flower to float^m. Male and female flowers frequently opposite, in the bosom of the corresponding leavesⁿ. Thunberg, who observed it in Japan, found the flowers always to be monocous, but in two different manners; first a male flower in the uppermost, and female flowers in the lower axils; secondly, a male and a female flower in opposite axils of a leaf. The male flower is often solitary in one axil; but the female flowers are often two, one in each axil.

Very common in ditches and standing waters, flowering from April to June. Annual.

β. The leaves of this are all conjugate, ovate, a little shorter and broader than in the foregoing, and slightly emarginate at the end^o. This is larger than the others: leaves petioled, roundish, quite entire, conjugate; whereas in the former the lower leaves are linear^p. Haller thinks that it may be the connecting link between the vernal and autumnal Starworts, and that they may possibly be one species. The difference in this variety is probably owing to

^f L'Heritier.

^g Fl. cochinch. p. 342.

^h Hort. kew.

ⁱ Linn.

^l Relhan,

^m Withering.

ⁿ Woodw. in With.

^o Pollich.

^p Haller.

its situation, in places where water has flood in the winter, or in ditches and marshes dried up.

2. Haller says that the lower flowers are female, the upper male, as in the former. Linneus and Pollich affirm that they are all hermaphrodite; Scopoli that they are polygamous (and those of the foregoing dioecous). Hudson unites both species, and attributes polygamous flowers to both. Wiggers insists that the flowers are generally polygamous; sometimes dioecous, seldom hermaphrodite.

This differs from the former in having all the leaves linear, and cleft at the end, to which Withering adds that the corolla is yellowish white; and Linneus that it flowers in september. It is sometimes so thickly matted together on deep marshes, that one may walk upon it without sinking.

In the Flora Lapponica he had united all these into one species.

CALLITRICHUM. See *Horminum*.]

[CALODENDRUM. (From *καλος* and *δενδρον*, a beautiful tree.)

Lin. gen. Schreb. n. 384. Thunb. nov. gen. 41. Juss. 427.

Class. 5. 1. Pentandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth one-leaved, permanent, five-parted: parts ovate, acute, thickish, villose-muricate on the outside, with the edges slightly revolute.

COR. Petals five, lanceolate, blunt, spreading, channelled, keeled, waved, villose, three times the length of the calyx.

NECTARIES five, shaped like the petals, inserted into the receptacle within them, linear-lanceolate, subulate at the tip, terminated by a gland, smooth, silvery-glandular, narrower than the corolla, but of the same length.

STAM. Filaments five, equal, the length of the corolla, four of which have anthers; one being usually barren. Anthers ovate-cordate, grooved, inserted into the back.

PIST. Germ pedicelled, capitate, muricate, superior. Style inserted into one side of the germ, filiform, the length of the stamens. Stigma simple, blunt.

PER. Capsule peduncled, ovate, bluntly five-cornered, five-grooved, muricate, five-celled, five-valved.

SEEDS in pairs, triangular, convex at the back, smooth.

OBS. The number of parts in the corolla, nectary, and stamens varies; it is seldom four, most frequently five, very seldom six. One of the stamens is commonly observed to be castrated.

ESSENTIAL CHARACTER.

Cor. spreading, five-petalled. Nect. five-leaved. Caps. five-celled.

SPECIES.

1. *Calodendrum capense*.

Thunb. diff. p. 43. Linn. syst. 241.

Dictamnus capensis. Linn. suppl. 232. syst. 397.

DESCRIPTION, &c.

This is a tree, with branches opposite or three together. Leaves entire, ever-green. Flowers in terminating panicles, on opposite one-flowered peduncles. Native of the Cape of Good Hope.

CALONNEA. See *Galaridia*.]

[CALOPHYLLUM. (*καλός* & *φύλλον*, fine-leaf.)

Lin. gen. n. 658. Reich. 716. Schreb. 1587.

Gertn. t. 43. Juss. 258. Jacq. amer. 269.

Calaba. Plum. nov. gen. 39. t. 18.

Class. 13. 1. Polyandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth four-leaved (two-leaved, Jacq.): leaflets ovate, concave, coloured, deciduous; the two outer ones shorter.

COR. Petals four, oblong, concave, spreading.

STAM. Filaments many (ten, Jacq.) filiform, short. Anthers erect, oblong.

PIST. Germ roundish. Style filiform; the length of the stamens, (none, Jacq.) Stigma headed, obtuse.

PER. Drupe globular.

SEED. Nut globular, subacuminate, very large.

OBS. Jacquin observed male flowers distinct; and Jussieu has seen a polyadelphous species.

* Linn. succ.

* Thunberg.

ESSENTIAL CHARACTER.

Cal. four-leaved, coloured. Cor. four-petalled. Drupe globular.

SPECIES.

1. *Calophyllum Inophyllum*.

Lin. spec. 732. Reich. 2. 583. fl. zeyl. n. 201. Gertn. fruct. 1. 200.

Inophyllum fl. octofido. Burm. zeyl. 131. Pluk. alm. 41. t. 147. f. 3. Rumph. amb. 2. 211. t. 71.

Rheed. mal. 4. 79. t. 38. Raii hist. 1525.

Leaves oval.

2. *Calophyllum Calaba*.

Lin. spec. 732. Reich. 2. 583. fl. zeyl. n. 202. hort. cliff. 206. Jacq. amer. 269. t. 165.

piet. 131. t. 249. Swartz obs. 216. Brown. jam. 372: 20.

Inophyllum fl. quadrifido. Burm. zeyl. 130. t. 60. (very good). Rheed. mal. 4. 81. t. 39. Raii hist. 1537.

Leaves ovate obtuse.

DESCRIPTIONS, &c.

These are trees, natives of the East and West Indies. The first was also observed by the late circumnavigators in the Society Isles and New Caledonia.

1. Calyx the size of the petals. Flowers more racemed, and the leaves twelve times larger than in the following species. Leaves a span long, and a hand broad, marked with transverse distant streaks. The root exudes a whitish, clear gum, without scent. Flowers eight-petalled, snow-white, sweet smelling, growing in racemes. Fruit the size of a walnut, under a fleshy bark, and a woody shell, having a very oily nut; which is bitter, and yields a yellow resinous juice.

It is a tree of great size, ninety feet in height, and twelve in thickness. Bark of the branches smooth, at first green, afterwards reddish; of the trunk thick, scaly, blackish and purple within, which when wounded exudes a yellowish, viscid juice, frequently hardening to a gum. Leaves like those of the Water-Lily. Fruit smooth, shining, green, when ripe reddish. The nut is at first sweet, but afterwards very bitter. It is common in Malabar, in sandy soils, and bears fruit twice a year, in march and september, frequently to the age of three hundred years. An oil is expressed from the nuts to burn in lamps, to assuage pains, and to make ointments. The bark and gum is also used for medical purposes.

In Java, &c. they plant this tree about their houses, for the elegance of the shade, and the sweetness of the flowers.

2. This also is a lofty tree, putting out branches from very near the ground, so that it is well adapted for hedges and walks: the younger branches are quadrangular. Leaves ovate obovate or oblong, blunt, emarginate, entire, shining, coriaceous, firm, with parallel transverse streaks, on short petioles, opposite, four inches long. Flowers on axillary, simple, loose racemes, usually seven together, white and smelling sweet. Fruit green, with little pulp and that hardish, involving a smooth, yellowish, ash-coloured nut, in which is a white solid kernel. It is not eaten, but the Caribes express an oil from it for domestic uses. From the above description it appears that there is a great affinity between this tree and the Mamea, except in the fruit. Calaba is the name by which it is known both among the Caribes and French.

Jacquin can hardly be induced to think that the Calaba of Martinico is the same with the Tsjerouponna of the Hortus Malabaricus. According to the author of that work the wood is very hard, and of a reddish colour. The fruit is first green, then red; in taste sweet mixed with acid; in shape, size, and substance not unlike our Cornelian Cherry. It is eaten by the natives, and an oil is expressed from it for lamps.

* Linn. zeyl.

* Burman.

* Hort. malab.

* Rumphius.

* Jacquin.

Browne says that it is a pretty good timber, but does not bear the weather well; and that it is frequently used for staves and heading.

Burman named it *Inophyllum*, because the leaves are striated like the fibres of a muscle dissected longitudinally. The structure of them is very curious.

CALOPHYLLUM. See *Grias* and *Mesua*.]

CALTHA. (Κάλαθος, a *Calathi* form, the name having been anciently applied to the Marigold, which when slightly expanded resembles a basket: others derive it from κάλλος, *Pulchritudo*.)

Lin. gen. n. 703. Reich. 761. Schreb. 957.

Gertn. t. 118. Juss. 234. Populago. Tournef.

145.

Class. 13. 7. Polyandria Polygynia.

Nat. order of *Multifloræ*. *Ranunculaceæ* Juss.

GENERIC CHARACTER.

CAL. none.

COR. Petals five, ovate, flat, spreading, deciduous, large.

STAM. Filaments numerous, filiform, shorter than the corolla: anthers compressed, obtuse, erect.

PIST. Germ superior, five to ten (four to twelve, *H. in With.* six to fifteen, *G.*) oblong, compressed, erect. Styles none. Stigmas simple.

PER. Capsules as many, short, acuminate, spreading, one-celled, two-keeled, gaping in the superior future.

SEEDS very many, (fifteen) ovate or ovate-oblong, smooth, affixed to the superior future, in a double row.

ESSENTIAL CHARACTER.

Cal. none. Pet. five. Nees. none. Caps. several, many-seeded.

SPECIES.

1. *Caltha palustris*. *Marsh Marygold*. *Souci de Marais*.
Lin. spec. 784. Reich. 2. 673. Lapp. n. 227.
Juss. n. 511. hort. cliff. 228. Hudf. angl. 245.
With. 583. Curt. lond. 1. t. 40. abr. t. 8.
Hall. belv. n. 1188. Neck. gallob. 243. Pollich
pal. n. 541. Krock. fles. n. 895. Villars
dauph. 3. 720. Fl. dan. t. 668. Berg. phyt. 2. 85.
Baub. hist. 3. 470. Raii hist. 700. Best. cyst.
hyem. t. 4. f. 2. vern. 7. t. 5. f. 1.

C. major. Mill. dict. n. 1.

C. pal. fl. simplic. Baub. pin. 276.

C. pal. major. Ger. 670. 1. emac. 817. 1.

C. pal. vulgaris simplex. Park. 1213. 1.

Populago. Raii syn. 272.—major. Tabern. ic. 750.
palustris. Scop. carn. n. 698.

β. *Caltha minor*. Mill. dict. n. 2. Ger. 670. 2.

Populago minor. Tabern. ic. 750. f. 2.

γ. *C. pal. fl. pleno*. Baub. pin. 276. Tabern. 751.
With. 2. Relb. n. 413. β. Clus. 2. 114. 2. Ger.
671. 3. emac. 818. 3. Park. 1213. 2.

DESCRIPTION, &c.

[1. Root perennial. Stems several, almost upright, about a foot high, hollow, nearly round, smooth, branched, purple at bottom. Radical leaves on long petioles, cordate-reniform, smooth, shining, and notched or crenated: sometimes scalloped, sometimes entire. Stem-leaves nearly sessile, more pointed at top, and sharply crenated. Stipules brown, membranous and withering. Branches dichotomous. Peduncles one-flowered, upright, grooved. Corolla of five petals, (from five to seven) somewhat concave, large, without any gloss on the upper side. Anthers oblong, flat, bending inward, yellow; the inner row of filaments with broad anthers; the outer twice as long, club-shaped, with compressed anthers. Seeds beautiful, at bottom of an olive, and at top of a reddish colour.—Wet meadows, and by the sides of rivers, making a noble appearance, in march and april, sometimes so early as february^a.

The flowers gathered before they expand, are said to be a good substitute for capers. The juice of the petals, boiled with alum, stains paper yellow. Cows will not eat it, unless compelled by extreme hunger; it is a vulgar notion therefore, wholly unfounded,

^a Curtis, Withering, and Woodw. in With.

that the yellowness of butter in the spring is caused by this plant: where a high colour is not given by art, it is the effect of abundance of rich pasture. Boerhaave says, that when kine eat this plant, it occasions such an inflammation, that they generally die. On may-day the country people strew the flowers before their doors^b. The garlands are also ornamented with it on that day. The leaves seldom appear to be eaten; but the flowers are often destroyed by a species of *Chrysomela*^c.

This is the first flower that announces the spring in Lapland, where it begins to blow toward the end of may^d.]

Miller insists that the greater and smaller Marsh-Marigolds never vary either in their natural places of growth, or when cultivated in a garden. The variety with very double flowers is preserved in many gardens for its beauty.

PROPAGATION AND CULTURE.

This is propagated by parting the roots in autumn. It should be planted in a moist soil and shady situation, and may be allowed room where few other plants will thrive; during the season of flowering it will afford an agreeable variety. The Marsh-Marigold with double flowers, does not appear so early in the spring as the single, but continues much longer in beauty. It flowers from may to the middle of june.

[CALTHA. See *Arnica*, *Calendula*, *Verbesina*.

CALTHOPS. See *Tribulus*.

CALYCANTHUS. (From κάλυξ, *Calyx*, and ανθος *Flos*; the flower consisting of calycine folioles, without petals.)

Lin. gen. n. 639. Reich. 695. Schreb. 870.

Juss. 342. Beureria. Ebrēt. Butneria. Dubam.

Bastaria. Miller.

Class. 121 5. Icosandria Polygynia.

GENERIC CHARACTER.

CAL. Perianth one-leaved, pitcher-shaped, squarrose; leaflets coloured, lanceolate; the superior ones gradually larger, resembling petals.

COR. none, except the calycine folioles; representing petals.

STAM. Filaments numerous, subulate, inserted into the neck of the calyx. Anthers oblong, furrowed, growing to the top of the filaments.

PIST. GERM. a great many, ending in subulate compressed styles of the length of the stamens. Stigmas glandulous.

PER. none; the calyx being thickened, obovate, and berried.

SEEDS very many, tailed.

ESSENTIAL CHARACTER.

Cal. one-leaved; pitcher-form, squarrose; with coloured leaflets. Cor. calycine. Styles very many, with a glandulous stigma. Seeds very many, tailed, within a succulent calyx.

SPECIES.

1. *Calycanthus floridus*. *Carolina All-spice*.

Lin. spec. 718. Reich. 2. 554.]

Bastaria. Mill. dict. and fig. t. 60.

[Beureria. Ebrēt. pict. t. 13.

Butneria. Dubam. arb. 1. 114. t. 45.

Frutex corni fol. &c. Catesb. car. 1. t. 46.

Inner petals longer than the outer.

2. *Calycanthus præcox*. *Japan All-spice*.

Lin. spec. 718. Reich. 2. 555. Ait. hort. kew. 2.

220. t. 10. Kämpf. amœn. t. 879.

Inner petals minute.]

DESCRIPTIONS, &c.

1. This shrub arrives at the height of eight or ten feet, where it grows naturally; but it seldom rises more than four feet high in this country, dividing into many slender branches near the ground; covered with a brown aromatic bark, with two entire leaves placed opposite at every joint on short foot-stalks; the flowers grow single on short peduncles at the extremity of the branches; they have two series of narrow thick petals, which spread open, and turn inward at the top, like those of the Starry

^b Withering.

^c Curtis.

^d Linn.

Anemone, or the Virgin's Bower: these are of a dusky purple colour, and have a disagreeable scent; they appear in May. The bark of this shrub is brown, and has a very strong aromatic scent; whence the inhabitants of Carolina gave it the title of All-spice.

[There are two varieties of it:

1. Foliis oblongis. *Long-leaved Carolina All-spice.*
2. Foliis subrotundo-ovatis. *Round-leaved Carolina All-spice.*]

Mr. Catesby, who first introduced it into the English gardens (in 1726), procured it from the country some hundred miles on the back of Charles-town in Carolina. It was very scarce here till about the year 1757, when many plants were brought from Carolina, having been greatly increased in the gardens near Charles-town.

Mr. Miller gave it the name of *Bastaria*, in honour of his worthy friend Dr. Job Bastar, F. R. S. of Zurick Zee, in Holland. About the same time Mons. Duhamel gave it the name of *Butneria*.

[2. Linneus says that this shrub is unknown to him; that it seems to be of this genus, but a different species, because it flowers before the leaves, and the inner petals are said to be yellow and smaller. Native of Japan^e.

Introduced 1771, by Benjamin Torin, Esq.^f]

PROPAGATION AND CULTURE.

1. This shrub will thrive in the open air in England, if it be planted in a warm situation and dry soil. It is propagated by laying down the young branches, which will take root in one year, and may then be taken from the mother plant, and set where they are designed to remain, for they do not bear transplanting well, after they are grown to any size. When the layers are transplanted, the surface of the ground should be covered with mulch, to prevent the drying winds from penetrating the ground to the roots; and if the season prove dry, they must be watered once a week, but should not have too much wet, for that will rot their tender fibres.

The best time for laying down the branches is in autumn, but they should not be transplanted till the spring twelve months after; for the spring is the safest time to remove these plants. After the branches are laid down, there should be some old tanner's bark laid upon the surface to keep out the frost; which should also be done every winter, whilst the plants are young.

[CALYPTRANTHES. (From *καλυπτρα*, a veil, and *ανθη* a flower.)

Lin. gen. Schreb. n. 845. Swartz prodr. 5. 79.
Chytraculia. Brown. jam. 239. Suzygium.
Brown. 240. Jambolifera. Lin. gen. n. 479.
Gertn. t. 36. Juss. 321.

Class. 12. 1. Icosandria Monogynia.

Nat. order of *Hesperideæ*. *Onagræ & Myrti* Juss.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, bell-shaped, truncate, toothless, or very obscurely four-toothed, superior, permanent: covered with an orbicular, concave, deciduous lid.

COR. none.

STAM. *Filaments* very many, capillary, inserted into the inside of the calyx at the rim. *Anthers* roundish, twin, small.

PIST. *Germ* roundish, fastened to the bottom of the calyx, two-celled: with a few seeds fixed to the partition. *Style* simple, filiform, bent in the length of the stamens. *Stigma* blunt.

PER. *Berry* globular or oblong, crowned with the calyx, one-celled.

SEED single, or few, slightly angular.

OBS. *Jambolifera* agrees with the other species of this genus in having a bell-shaped calyx covered with a lid, very many stamens inserted into the rim of the calyx and bent down into its cavity before the expansion of the flower, and a two-celled many-seeded germ, &c. And since it differs only in having an

oblong berry, often a little contracted in the middle, with a similar seed, it can hardly constitute a distinct genus.

ESSENTIAL CHARACTER.

Cal. superior, truncate; covered with a veil-shaped deciduous lid. Cor. none. Berry one-celled, one to four-seeded.

SPECIES.

1. *Calyptranthès Chytraculia.*

Swartz prodr. 79.

Myrtus Chytraculia. Lin. spec. 675. Reich. 2. 479. amoen. 5. 398.

Chytraculia. Brown. jam. 239. t. 37. f. 2.

Arboreous, peduncles terminating panicled trichotomous tomentose, leaves ovate attenuated at the tip.

2. *Calyptranthès Zuzygium.*

Swartz prodr. 79.

Myrtus Zuzygium. Lin. spec. 675. Reich. 2. 479. amoen. 5. 398.

Zuzygium. Brown. jam. 240. t. 7. f. 2.

Arborescent, peduncles axillary trichotomous patulous, leaves ovate blunt, branches dichotomous.

3. *Calyptranthès rigida.*

Swartz prodr. 80.

Arborescent, peduncles solitary axillary three-flowered or thereabouts, leaves ovate acute convex veinless rigid.

4. *Calyptranthès Jambolifera.*

Jambolifera. Linn. zeyl. n. 139. pedunculata.

Lin. spec. 497. Reich. 2. 156. Gertn. fruct. 1.

178. Lour. cochinch. 230.

Jambolana. Rumph. amb. 1. 131. t. 34. Acasta arom. 299. Bauh. pin. 460.

Prunus indica, fructu nigro, Olivæ magnitudine. Burm. zeyl. 197.

Leaves ovate emarginate, corymb terminating.

5. *Calyptranthès odorata.*

Jambolifera odorata. Lour. cochinch. 231.

Leaves ovate, obliquely truncate at the base, corymb terminating distich.

6. *Calyptranthès resinosa.*

Jambolifera resinosa. Lour. cochinch. 231.

Leaves oblong, peduncles lateral.

DESCRIPTIONS, &c.

1. The leaves of this tree are smooth and opposite. The lid is fastened to the calyx laterally, but afterwards turns back, and then the filaments issue forth, which before had been twisted and concealed.

It is reckoned an excellent timber wood, but it seldom exceeds fourteen or fifteen inches in diameter. Native of Jamaica, chiefly in the parish of St. John. *Bastard Green-heart*^g.

Introduced in 1778, by Thomas Clark, M. D.^h

2. This shrub seldom rises above ten or twelve feet in height; the whole is bushy, and bears black berries, crowned with the margin of the cup. These contain four smooth, slightly angular seeds, one or two only of which usually arrive at maturity. The style is longer than the stamens; and the stigma is acute. Native of Jamaicaⁱ.

Introduced in 1778, by Thomas Clark, M. D.^k

3. Native of Jamaica^l.

4. This is a tree above the middle size, with spreading branches, the smaller ones brachiate. Leaves opposite, quite entire, smooth, hardish, petioled. Flowers terminating, in racemed corymbs: calyx four-cleft, corolla four-petalled, white. Berry ovate-oblong, almost cylindric, blunt, umbilicate, black, juicy, sweetish-acid, esculent^m.

According to Linneus, the peduncles are axillary, opposite, trichotomous (the partial ones three-flowered) continuing frequently upon the boughs below the leaves, after the fruit is fallen offⁿ.

Gærtner describes the berry as inferior, crowned with the toothless annular base of the calyx, ovate-cylindric, slightly narrowing in the middle, coriaceous, slender, one-celled. Receptacle a small scar with a transverse wrinkle prominent on one side. Seed single, the size and form of the cavity of the

^g Browne. ^h Hort. kew. ⁱ Browne. ^k Hort. kew.
^l Swartz. ^m Loureiro. ⁿ Fl. zeyl. p. 58.

berry, fleshy, hard, bipartite. Native of the East-Indies and China.

5. This is a small tree about five feet high, with a very straight single stem, and brachiate branches. Leaves quite entire, thick, smooth, whitish underneath, dotted, smelling like Cummin. Peduncles, calyx, and corolla entirely white. Calyx four-cleft; corolla four-petalled; stamens eight. Berry superior, ovate, small, white, dotted, smooth, containing one seed. The young leaves are put into salads, and are not unpleasant.

Loureiro observed it in the gardens in Cochinchina. On account of its smell, it may be doubted, whether it be not the *Myrtus Cumini* of Linneus, or the *Jambosa ceramica* of Rumphius, though it should rather seem to be the *Folium Instinctus* of the latter, l. 5. c. 47. p. 202.

6. This is a middle-sized tree, with spreading branches, and a very tough resinous bark. Leaves quite entire. Flowers white, on many-flowered axillary peduncles: calyx four-toothed; corolla four-petalled, bell-shaped. Berry roundish, small, black, four-celled. Stamens eight.

Native of Cochinchina, where the fishermen dye their nets in a strong decoction of the root, to preserve them from rotting.

It appears to be the *Tenarius major* of Rumphius, l. 5. c. 38. t. 122.

[CAMANBAYA. See *Tillandsia*.

CAMARA. See *Lantana*.

CAMAX. (*Καμάξ*, the prop of a vine, a stake or pole.)
Lin. gen. Schreb. n. 365. Ropourea. Aubl. guian. t. 78. Juss. 421.

Class. 5. 1. Pentandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth one-leaved, five-parted: parts roundish.

COR. one-petalled, wheel-shaped: tube very short: border five-parted; parts roundish villose above.

STAM. Filaments five, inserted into the corolla between the segments, villose.

PIST. Germ roundish, villose, superior. Style capillary. Stigmas three or four, sharp.

PER. Berry ovate, villose, four-celled.

SEEDS very many, nestling in a viscid pulp.

ESSENTIAL CHARACTER.

Cor. wheel-shaped. Filaments inserted between the segments of the corolla. Berry four-celled, many-seeded. All villose.

SPECIES.

1. Camax guianensis.

Ropourea guianensis. Aublet. guian. 1. 198. t. 78.

DESCRIPTION, &c.

This is a shrub growing to the height of twelve or fifteen feet, with a simple, knotty, cylindric stem. Leaves many, in whorls at the joints, declining, unequally pinnate, with six alternate leaflets, which are sessile, oval, acuminate, the largest of them ten inches long, and three broad, and a little above each of them is a small spine issuing from the midrib, which is three feet or more in length. The flowers are sessile in great numbers at the base of the leaves, and in the intervals between them. It is called *Bois Gaulete* by the Creoles, and *Aroupouron* by the Couffaris, one of the nations of Guiana, where it is a native, and flowers in January. The inhabitants and negroes use the branches of this shrub for wattling their huts.

[CAMBOGIA. (So named because it comes from the province Cambodia or Cambodje.)

Lin. gen. n. 650. Reich. 706. Schreb. 883. Juss. 256.

Class. 13. 1. Polyandria Monogynia.

Nat. order of *Tricoccæ*. *Guttifera* Juss.

GENERIC CHARACTER.

CAL. Perianth four-leaved, leaflets roundish, concave, deciduous.

COR. Petals four, roundish-oblong, concave, with oblong claws.

STAM. Filaments very many, short. Anthers roundish.

• Loureiro.

• Aublet.

PIST. Germ roundish, striated, style none. Stigma four-cleft, obtuse, permanent.

PER. Pome roundish, eight-angled, eight-celled.

SEEDS solitary, reniform-oblong, slightly compressed.

ESSENTIAL CHARACTER.

Cor. four-petalled. Cal. four-leaved. Pome eight-celled. Seeds solitary.

SPECIES.

1. Cambogia Gutta.

Lin. spec. 728. Reich. 2. 576. amæn. 1. 402.

fl. zeyl. n. 195. mat. med. 135. Lour. cochinch.

332. Blackw. t. 392.

Coddam-pulli. Rheed. mal. 1. 41. t. 24.

Carcapuli. Acoftæ, p. 296, 297. Clus. Bauh. hist. 1.

137. Raii hist. 1661. Burm. zeyl. 27. Park. 1635.

Cambogium. Dale pharm. 357.

Gambogia. Lewis mat. med. 289.

DESCRIPTION, &c.

The Cambogia is a tall tree, with a trunk sometimes as thick as two men can compass, with spreading, opposite branches. Leaves lanceolate-ovate, quite entire, flat, thick, scattered, small, opposite, petioled. Flowers in whorls, sessile, saffron-coloured. Fruit two inches in diameter, on peduncles an inch in length; rind yellow, thin, smooth; pulp yellow, succulent, sweet, esculent. According to the *Hortus malabaricus*, the fruit is first green, then yellowish, and when ripe whitish.

Native of the East-Indies, and of the woods in China and Cochinchina; very abundant in Siam and Cambodia, where incisions are made in the bark and a great quantity of Gummi Guttæ or Gamboge is extracted and exported into foreign countries.

This concrete is a gum-refin, in part inflammable, compact, dry, yellow inclining to orange colour, without smell, and almost without taste, producing however a slight sensation of acrimony in the throat. A greater quantity of it is dissolved in spirits of wine than in water, to which it imparts a lemon colour.

It is used medicinally in the East, as a purgative, hydragogue and emetic, particularly in dropsies and worm cases. It is said to lose the latter quality when macerated in vinegar.

The principal use however of Gamboge is in painting in miniature and water colours.

The fruit is eaten at meals in the East-Indies, and being much esteemed for provoking the appetite, is a frequent ingredient in their sauces.

CAMBULU. See *Bignonia*.

CAMELINA. See *Erysimum*, and *Myagrum*.

[CAMELLIA. (So named in honour of George Joseph Kamel, a Jesuit, whose name is commonly written Camellius. His Syllabus stirpium in insula Luzone Philippinarum forms the appendix to the third volume of Ray's history.)

Lin. gen. n. 848. Reich. 914. Schreb. 1145.

Juss. 262.

Class. 16. 5. Monadelphia Polyandria.

Nat. order of *Columnifera*. *Aurantia* Juss.

GENERIC CHARACTER.

CAL. Perianth many-leaved, roundish, imbricate; the scales roundish, very blunt, the inner ones gradually larger, concave, deciduous.

COR. Petals five, obovate, coalescing at the base.

STAM. Filaments numerous, erect, coalescing below into a crown larger than the style; above unconnected, shorter than the corolla: anthers simple.

PIST. Germ roundish. Style subulate, length of the stamens; stigma acute, reflex.

PER. Capsule turbinate, woody, marked with some furrows.

SEEDS. Kernels equal in number to the streaks of the capsule, roundish, often filled with smaller seeds.

ESSENTIAL CHARACTER.

Cal. imbricate, many-leaved; the inner leaflets larger.

• Loureiro.

C A M

SPECIES.

1. *Camellia japonica*. *Japan Rose*.
Lin. spec. 982. *syft.* 632. *Reich.* 3. 368. *Thunb.*
jap. 272. *Curtis mag.* t. 42. *Jacqu. ic.* vol. 2.
collect. 1. 117.
Thea chinensis, *pimentæ jamaicensis* fol., fl. roseo.
Pet. gaz. t. 33. f. 4.
Tsubaki montanus. *Kämpf. amæn.* t. 851.
β. *Tsubaki hortensis*. *Kämpf. amæn.* 852.
Rosa chinensis. *Edw. birds.* 2. t. 67.
Leaves acutely serrate acuminate.
2. *Camellia Sasanqua*.
Lin. syft. 632. *Thunb. jap.* 273. t. 30.
Sasanqua. *Kämpf. amæn.* 853.
Leaves obtusely serrate emarginate.
3. *Camellia drupifera*.
Lour. cochinch. 411.
Leaves ovate-oblong slightly crenate, flowers two or three together, terminating, drupes four-celled.

DESCRIPTIONS, &c.

1. Bark ash-coloured; branches round and smooth. Leaves alternate, ovate, shining on both sides, thick and stiff, paler green beneath, on short petioles. Peduncles terminating, very short, commonly solitary, with the branches lengthened out beyond them. The calyx has about nine broad-ovate, thick, smooth leaves. Petals larger and longer, thickish, uniting at bottom into a tube full of nectareous juice. Stamens about fifty. Stigma unequally five-cleft^a.

It is a vast and lofty tree, in high esteem with the Japanese for the elegance of its large flowers, which exhibit a great variety of colours, but have no scent, and for its evergreen leaves. It is very common every where in their groves and gardens, flowering from october to april. It varies with single and double flowers, white, red and purple^b.

It is a native also of China, and occurs very frequently in Chinese paintings. It was cultivated before 1742, by Robert James Lord Petre^c.

2. A tree of a middling size, differing from the first species in having thinner, narrower leaves, obscurely serrate; flowers many times smaller, with oblong emarginate petals; and a much smaller and more slender stem. The flowers are borne singly at the ends of the branches: the calyx is five-leaved, sometimes six-leaved; the petals are five in number, sometimes six or seven, snow white and deciduous.

The leaves dried in the shade have a sweet smell; a decoction of them is used by the women to wash their hair with; and they are mixed with Tea, to give it a grateful odour. Indeed this so resembles the Tea plant, that it is distinguished by little else besides the coalescing stamens, and this is scarcely a sufficient mark of distinction, since the stamens coalesce only at the base, and even sometimes seem to be distinct. Native of Japan, flowering in november^d.

3. This is a middle-sized tree, with spreading branches. Leaves acuminate, smooth, hard, small, alternate, petioled. Flowers white, terminating, on two or three peduncles together, one on each. Petals eight, oblong, emarginate. Style quadrifid, equal to the stamens. Drupe roundish, with a grooved, four-celled nut, and roundish kernels. The fruit is equal in size to the walnut, and not much unlike it, it is not however esculent. It is both wild and cultivated in Cochinchina.

The oil expressed from the nuts is used by the natives to anoint their hair, and for various medical purposes; it has a pleasant odour, and does not easily become rancid^e.

PROPAGATION AND CULTURE.

1. Having been hitherto scarce, and kept up to a high price, it has been generally treated as a stove plant, though it has been sometimes placed in the greenhouse. When it shall hereafter become more common among us, it may perhaps be treated in the same manner as the Magnolia. It is propagated by layers^f. It may also be propagated by cuttings, in the same manner as directed for Gardenia.

^a Jacquin.

^b Thunberg.

^c Hort. kew.

^d Thunberg.

^e Loureiro.

^f Curtis.

C A M

The other species have not yet been introduced into Europe.

CAMEL'S HAY. See *Andropogon*.]

CAMERARIA. (So named by Plumier from Joachim Camerarius, a physician and botanist of Nuremberg, who published an edition of Matthiolus in Latin and German, with new figures, and many observations.)

Lin. gen. n. 300. *Reich.* 326. *Schreb.* 423.

Plum. gen. 18. t. 29. *Juss.* 145.

Class. 5. 1. Pentandria Monogynia.

Nat. order of Contortæ. Apocineæ Juss.

GENERIC CHARACTER.

CAL. Perianth five-cleft, acute, converging, very small.

COR. monopetalous, funnel-form; tube cylindric, long, bellied out at the base and tip; border five-parted, flat; divisions lanceolate, oblique.

STAM. Filaments five, very small, from the middle of the tube. Anthers converging.

PIST. Germs two, with lateral appendages; styles hardly any; stigmas obscure.

PER. Follicles two, horizontally reflected, oblong, obtuse at both ends, and sending forth a lobe each way near the sides of the base, one-celled, one-valved.

SEEDS numerous, ovate, inserted on the larger ovate membrane at the base, imbricate.

ESSENTIAL CHARACTER.

Contorted. Follicles two, horizontal. Seeds inserted into their proper membrane.

SPECIES.

1. *Cameraria latifolia*. *Bastard Mangeneel*.

Lin. spec. 308. *syft.* 254. *Reich.* 599. *hort. cliff.* 76.

Jacqu. amer. 37. t. 182. f. 86. *piet.* 24. t. 39.

Plum. ic. 60. t. 72. f. 1. *Brown. jam.* 182.

Leaves ovate acute at both ends, transversely striated.

2. *Cameraria angustifolia*.

Lin. spec. 308. *Reich.* 599. *Plum. ic.* 61. t. 72.

f. 2.

Leaves linear.

DESCRIPTIONS, &c.

1. [This is a tall elegant tree, about thirty feet in height, the whole abounding with an acrid milky juice. Branchlets mostly dichotomous. Leaves quite entire, very shining, rather rigid, petioled, opposite, numerous, somewhat resembling those of Myrtle. Peduncles one or many-flowered, slender, long, axillary or from the forks of the branchlets. Flowers small, white. Follicles brown, bivalve in their structure, but not opening.—Cuba, Jamaica, Domingo, in meadows^g.]

It was sent to Mr. Miller from the Havanna, by Dr. Houstoun. The flowers appear in august, but never produce any seeds in England.

2. [Stem irregularly branching, shrubby. Leaves opposite, quite entire, the middle nerve decurrent. Flower and fruit much smaller than in the foregoing species, as is the whole plant^h.]

It grows about eight feet high. The leaves have two ribs running longitudinally. The flowers are produced scatteringly at the ends of the branches. It abounds with an acrid milky juice, like the other sort, and grows naturally in Jamaica.

PROPAGATION AND CULTURE.

These plants are propagated by seeds, which must be procured from the places of their growth. They may also be increased by cuttings planted in a hot-bed during the summer months. They must have a bark-stove, for they are very tender; but in warm weather they must have plenty of air.

[CAMERARIA Dill. See *Montia*.

CAMMARUM. See *Aconitum*.

CAMMOCK. See *Ononis*.

CAMOCCLADIA. See *Comocladia*.

CAMOMILE. See *Anthemis*.]

CAMPANŪLA. (Dimin. from *Campana*; a little bell; from the shape of the corolla.)

Eng. Bell-flower. Fr. Campanule.

Lin. gen. 218. *Reich.* 234. *Schreb.* 290. *Gærtn.*

t. 31. *Tournef. t.* 37. *Juss.* 164.

Class. 5. 1. Pentandria Monogynia.

Nat. order of Campanaceæ.—Campanulaceæ Juss.

^g Jacqu. & Browne.

^h Plumier.

C A M

GENERIC CHARACTER.

CAL. *Perianth* five-parted, acute, erect-expanding, superior.

COR. monopetalous, bell-form, impervious at the base, half-five-cleft, marcescent; *divisions* broad, acute, spreading. *Nectary* in the bottom of the corolla, composed of five valves, acute; converging, covering the receptacle.

STAM. *Filaments* five, capillary, very short, inserted on the tips of the valves of the nectary; *anthers* longer than the filaments, compressed.

PIST. *Germ* angular, inferior: *style* filiform, longer than the stamens; *stigma* three-parted; oblong, thickish; *divisions* revolute.

PER. *Capsule* roundish, angular, three or five-celled, emitting the seeds at so many lateral openings.

SEEDS numerous, small; *Receptacle* columnar, adnate.

ORS. *The figure of the Pericarp is indeterminate.*

Trachelium of Ray, has the *Pericarp* villose, scarious, three-celled.

Rapunculus of Ray has the *Pericarp* smooth, ovate, three-celled.

Medium of Knaut has the *Pericarp* covered with five valves, five-celled.

Speculum Veneris of Ray has the *Pericarp* columnar, prismatic, three-celled.

Pentagonia has the corolla wheel-shaped.

Erinus differs in having the corolla unequal, stigma simple, capsule gaping at top.

In *C. peregrina* the sinuses of the calyx are not reflex, the corolla is intermediate between bell-shaped and wheeled, and differs in having the pistil shorter than the stamens.

ESSENTIAL CHARACTER.

COR. bell-form, the bottom closed with staminiferous valves. *Stigma* three-cleft. *Caps.* inferior, gaping with lateral pores.

SPECIES.

* *Leaves* more glossy and narrow.

[1. *Campanula cenisia*. *Ciliate Bell-flower*.

Lin. spec. 1669. *syft.* 206. *Reich.* 454. *Hall. helv.* n. 696. *Allion. pedem.* n. 395. t. 6. f. 2. *Vill. dauph.* 2. 499.

Stems one-flowered; *leaves* ovate, smooth, quite entire, subciliate.

2. *Campanula uniflora*.

Lin. spec. 231. *syft.* 206. *Reich.* 454. *lapp.* n. 85. t. 9. f. 5, 6.

Conf. Hall. enum. 495. n. 15. *emend.* 1. n. 163. *Allion. n.* 400. t. 6. f. 1. *Villars* 500. n. 2.

Stem one-flowered; *calyx* equalling the corolla.

3. *Campanula pulla*. *Ruffet Bell-flower*.

Lin. spec. 231. *syft.* 206. *Reich.* 454. *Jacqu. obs.* 1. 30. t. 18. *austr.* 3. t. 285. *Scop. carn.* n. 223. *D'Affo Aragon.* n. 176.

C. alpina latifolia, fl. pullo. *Bauh. pin.* 93. *prodr.* 33. *Raii hist.* 741.

β. *C. fol. subrotundis*. *Bauh. prodr.* 34. t. 35.

Stemlets one-flowered; *stem-leaves* ovate, crenate; *calyxes* drooping.

4. *Campanula rotundifolia*. *Round-leaved Bell-flower*.

Lin. spec. 232. *Reich.* 455. *lapp.* n. 83. *jucc.* n. 184. *Huds. angl.* 95. *With.* 216. *Curtis lond.* 4. 21. *Lightf. scot.* 141. *Hall. helv.* n. 701. *Scop. carn.* n. 224. *Pollich pal.* n. 206. *Neck. gallob.* 115. *Villars dauph.* 2. 501. *Allion. pedem.* n. 398. t. 47. f. 2. *Krock. filef.* n. 310. *Ger.* 367. 3. *emac.* 452. 3. *Fl. dan.* t. 855. *Raii hist.* 740. *syn.* 277.

C. minor rot. vulgaris. *Bauh. pin.* 93. *Mor.* 5. 2. 17.

C. min. sylvestris rot. *Park.* 651. 11.

β. *C. min. rot. alpina*. *Bauh. pin.* 93. *prodr.* t. 34. *Mor.* 5. 2. 16. *Hall. helv.* n. 702. *Huds. β.* *With. β.* *Raii syn.* 277. *hist.* 740. *Neck. gallob.* 116.

C. cæspitosa. *Scop. carn.* n. 225. *Villars dauph.* 2. 500.

γ. *C. alp. linifolia cærulea*. *Bauh. pin.* 93. *prodr.* 34. *Lin. lapp.* n. 84. *Magn. monsp.* 47. t. 46. *Oeder dan.* t. 189. *Hall. helv.* n. 700. *Bocc. mus.* t. 103.

Barr. ic. 457. *Huds. γ.*—*uniflora* edit. 1.—*With. γ.* *Raii hist.* 740. 16.

C A M

C. linifolia. *Scop. carn.* n. 226.

Radical leaves kidney-form; *stem-leaves* linear.]

5. *Campanula patula*. *Spreading; or Field Bell-flower*.

Lin. spec. 232. *Reich.* 455. *jucc.* n. 186. *Huds.* 95.

With. 216. *Hall. helv.* n. 698. *Scop. carn.*

n. 227. *Pollich pal.* n. 207. *Krock. filef.* n. 311

Villars dauph. 2. 504. *Oed. dan.* t. 373. *Dill.*

clib. t. 58. f. 68. (very good). *Sowerby Engl.*

bot. t. 42.

Rapuntium fl. purpureo. *Merr. pin.*

C. minor rotundifolia, fl. in summis cauliculis.

Bauh. pin. 93.

β. *Lin. jucc.* 1. n. 178.

Leaves stiff, the radical ones lanceolate-oval; *panicle* spreading.

6. *Campanula Rapunculus*. *Rampion*.

Lin. spec. 232. *Reich.* 456. *Gärtn. fruct.* 1. 154.

Huds. 95. *With.* 217. *Hall. helv.* n. 699.

Scop. carn. n. 231. *Pollich pal.* n. 208. *Neck.*

gallob. 116. *Krock. filef.* n. 312. *Villars dauph.*

2. 505. (*Fl. dan.* t. 855. is *C. rotundifolia*.)

Plenck, ic. t. 151.

Rapunculus esculentus. *Bauh. pin.* 92. *Raii hist.*

739. *Mor.* 5. 2. 13.

R. esc. vulgaris. *Park.* 648. 1.

Rapuntium parvum. *Lob. obs.* 165. *Ger.* 369. 2. *emac.* 453.

Rapunculum. *Dod. pempt.* 165.

Leaves waved, the radical ones lanceolate-oval; *panicle* contracted.

7. *Campanula persicifolia*. *Peach-leaved Bell-flower*.

Lin. spec. 232. *Reich.* 456. *jucc.* n. 187. *Gouan*

illust. 7. *Bulliard.* t. 367. *Hall. helv.* n. 697.

Scop. carn. n. 228. *Pollich pal.* n. 209. *Krock.*

filef. n. 313. *Villars dauph.* 2. 505. *Ger.* 367. 1.

emac. 451. *Park.* 651. *parad.* 355. f. 1. *Raii*

hist. 738.

C. decurrens. *Mill. dist.* n. 2.

Rapunculus persicifol., magno fl. *Bauh. pin.* 93.

β. *R. nemorosus angustifolius*, magno. fl. *Bauh.* *pin.* 93.

Radical leaves obovate, *stem leaves* lanceolate-linear subserrate sessile remote.

8. *Campanula pyramidalis*. *Pyramidal Bell-flower*.

Lin. spec. 233. *Reich.* 457. *Scop. carn.* n. 229.

C. lactescens pyram. *Ger.* 367. 2. *emac.* 451. 2.

Raii hist. 738. *Park. parad.* 354. 2.

Rap. hortensis, latiore fol., f. pyram. *Bauh. pin.* 93.

Pyramidalis lævis. *Bauh. hist.* 2. 808. f. 3.

Leaves smooth and even serrate cordate, *stem-leaves* lanceolate; *stems* rusty simple; *umbels* sessile lateral.

[9. *Campanula americana*. *American Bell-flower*.

Lin. spec. 233. *Reich.* 457. *mant.* 337. *Ait. hort.*

kew. 1. 220.

Leaves cordate and lanceolate serrate; *petioles* of the lower ciliate; *flowers* axillary sessile; *corollas* five-parted flat; *styles* longer than the corolla.

10. *Campanula lilifolia*. *Lily-leaved Bell-flower*.

Lin. spec. 233. *Reich.* 457. *hort. upf.* 41. *Gmel.*

fib. 3. 148. t. 26. *Anm. rnth.* 11. n. 17. and 10.

n. 15.

Leaves lanceolate, *stem-leaves* sharply serrate; *flowers* panicked nodding.

11. *Campanula rhomboidea*. *Germanger-leaved Bell-flower*.

Lin. spec. 233. *Reich.* 458. *Hall. helv.* n. 693.

Scop. carn. n. 230. *Villars dauph.* 2. 503.

Bauh. pin. 94. 6. *prodr.* 36. 2. *Bauh. hist.* 2.

806. f. 2. *Raii hist.* 733. 9. *see* 739. 10.

Rapunculus Teucris fol. *Barr. ic.* 567.

R. alpinus Teucr. fol. rhomboidalis. *Bocc. mus.* 75. t. 61.

β. *C. Alpini*. *Lin. spec.* 1669.

C. pyramidalis minor. *Alp. exot.* 340. *Raii hist.* 738. 6.

Leaves rhomboid serrate; *spike* one-ranked; *calyxes* toothed.

12. *Campanula unidentata*. *One-toothed Bell-flower*.

Lin. syft. 206. *suppl.* 139.

Erect smooth; *leaves* lanceolate acute, one-toothed on each side; *panicle* divaricate leafy.

13. *Campanula capillacea*. *Fine-leaved Bell-flower*.
Lin. syst. 206. *suppl.* 139.
Herbaceous erect; leaves filiform smooth; panicle terminal; flowers alternate.
14. *Campanula linearis*. *Linear-leaved Bell-flower*.
Lin. syst. 207. *suppl.* 140.
Herbaceous erect; leaves linear entire smooth; flowers drooping; capsules hispid.
15. *Campanula Lobelioides*. *Lobelia-like Bell-flower*.
Lin. syst. 207. *suppl.* 140. *Ait. hort. kew.* 1. 219.
Small stems round stiff smooth; leaves linear-lanceolate toothblotted; corollas nearly funnel-form trifid and quadrifid.
16. *Campanula carpatica*. *Carpathian, or heart-leaved Bell-flower*.
Lin. syst. 207. *suppl.* 140. *Jacqu. hort.* 1. t. 57.
Ait. hort. kew. 1. 219. *Curt. magaz.* t. 117.
Leaves smooth cordate ferrate petioled; branches filiform one-flowered.
17. *Campanula grandiflora*. *Great-flowered Bell-flower*.
Lin. syst. 207. *suppl.* 140. *Jacqu. hort.* 3. t. 2.
Curtis magaz. t. 252.
Leaves tern oblong ferrate; stem one-flowered; flower spreading.
18. *Campanula aurea*. *Golden Bell-flower*.
Lin. syst. 207. *suppl.* 141. *Ait. hort. kew.* 1. 223.
Capsules five-celled; leaves elliptic ferrate smooth; flowers subpanicked five-parted; stem shrubby fleshy.
19. *Campanula tenella*.
Lin. syst. 207. *suppl.* 141.
Stems diffused filiform; leaves ovate sometimes one-toothed reflex; flowers solitary terminal.
20. *Campanula porosa*. *Porous-stalked Bell-flower*.
Lin. syst. 207. *suppl.* 142.
Leaves lanceolate glossy; stem erect porous with dots upward.
21. *Campanula undulata*.
Lin. syst. 207. *suppl.* 142.
Leaves lanceolate toothed waved; flowers subsolitary peduncled.]
- ** *Leaves rugged, broader.*
22. *Campanula latifolia*. *Broad-leaved Bell-flower*.
Giant Throatwort.
Lin. spec. 233. *syst.* 207. *Reich.* 458. *suec.* 188.
Huds. 96. *With.* 218. *Lightf.* 141. *Hall. belv.* n. 691. *Oeder. dan.* t. 85. (white flower)—
t. 782. *Murr.* (blue) *Krock. filef.* n. 314.
Villars dauph. 2. 506.
C. maxima fol. latissimis. *Baub. pin.* 94. *Raii syn.* 276. *Mor.* 5. 3. 27.
Trachelium candidum anglicum majus. *Baub. hist.* 2. 807.
T. majus belgarum. *Clus. hist.* 2. 172. 1. *Ger. emac.* 448. 3. *Park.* 643. 1. *parad.* 356. 6. 355. f. 4. *Raii hist.* 732.
Leaves ovate-lanceolate; stem very simple; columnar; flowers solitary, peduncled; fruits drooping.
- [23. *Campanula rapunculoides*. *Rampion-like Bell-flower*.
Lin. spec. 234. *Reich.* 458. *Gertn. fruct.* 154.
Hall. belv. n. 692. *Pollich pal.* n. 210. *Krock. filef.* n. 315. *Villars dauph.* 2. 507. *Weig. pomer. rug.* n. 140. *Plenck, ic.* t. 152. *Baub. pin.* 94. 2. *Mor. hist.* 2. 460. f. 5. t. 3. f. 32. *Baub. hist.* 2. 807. f. 1. *Raii hist.* 733. 6.
Leaves cordate-lanceolate; stem branching; flowers one-ranked, scattered; calyxes reflex.
24. *Campanula bononiensis*. *Bologna or panicked Bell-flower*.
Lin. spec. 234. *syst.* 207. *Reich.* 459. *mant.* 337.
Hall. n. 689. *Scop. carn.* n. 232. *Segu. ver.* 1. 176. *Baub. hist.* 2. 806. f. 3. *Mor.* 461. t. 4. f. 38. *Raii hist.* 733. n. 7.
Leaves ovate-lanceolate, rugged beneath, sessile; stem panicked.
25. *Campanula graminifolia*. *Grass-leaved Bell-flower*.
Lin. spec. 234. *syst.* 208. *Reich.* 459. *Baub. pin.* 94. 16. *Raii hist.* 736. 24.
Trachelium. *Col. phyt.* 2. 25. f. 26. *Baub. hist.* 2. 802. f. 3. *Barr. ic.* 332.
Leaves linear-subulate; head terminal.
26. *Campanula cinerea*.
Lin. syst. 208. *suppl.* 139.
Erect, tomentose; leaves subulate, entire, erect, approximating; flowers solitary, terminal.
27. *Campanula hispidula*.
Lin. syst. 208. *suppl.* 142. *Comm. hort.* 2. 73. t. 37.
Hispid; flowers erect; calyxes the length of the corolla.]
28. *Campanula Trachelium*. *Great Bell-flower, great or nettle-leaved Throatwort, or Canterbury bells*.
Lin. spec. 235. *Reich.* 460. *suec.* n. 189. *Huds.* 96.
With. 218. *Lightf.* 142. *Sowerb. eng. bot.* t. 12. *Relb. cantab.* n. 180. *Hall. belv.* n. 690.
Bulliard. t. 319. *Pollich pal.* n. 211. *Neck. gallob.* 114. *Scop. carn.* n. 234. *Thunb. jap.* 88.
Krock. filef. n. 316. *Villars dauph.* 2. 507.
C. vulgatio, fol. urticae, vel major & asperior. *Baub. pin.* 94. *Raii syn.* 276.
Trachelium majus. *Ger.* 364. *emac.* 448. 1. *Raii hist.* 732.
T. maj. fl. purpureo. *Park. parad.* 354. 4.
Stem angular; leaves petioled; calyxes ciliate; peduncles trifid.
29. *Campanula glomerata*. *Small or clustered Bell-flower. Little Canterbury bells*.
Lin. spec. 235. *Reich.* 460. *suec.* n. 190. *Huds.* 96.
With. 219. *Sowerby eng. bot.* t. 90. *Lightf.* 142.
Relb. cantab. n. 182. *Hall. belv.* n. 685. *Scop. carn.* n. 235. *Pollich pal.* n. 212. *Allion. pedem.* n. 411. t. 39. f. 1. var. *Krock. filef.* n. 317. *Villars dauph.* 2. 508.
C. pratensis, fl. conglomerato. *Baub. pin.* 94. *Raii syn.* 277.
Trachelium alpinum, fl. conglom. &c. *Herm. par.* t. 235.
T. minus. *Baub. hist.* 2. 801. 2. *Ger. emac.* 449. 4. *Park.* 644. 4. *Raii hist.* 735.
β. Tr. oblongo fol. alpinum. *Bocc. mus.* 70. t. 58.
Stem angular simple; flowers sessile; head terminal.
30. *Campanula Cervicaria*. *Waved-leaved Bell-flower*.
Lin. spec. 235. *Reich.* 461. *suec.* n. 191. *Hall. belv.* n. 686. *Dill. giff.* 121. *Pollich pal.* n. 213. *Gmel. fib.* 3. 157. n. 26. t. 31. *Fl. dan.* t. 787. *Allion. pedem.* n. 412. *Krock. filef.* n. 318. *Villars dauph.* 2. 509.
C. fol. echii. *Baub. prodr.* 36.
Hispid; flowers sessile; head terminal; leaves lanceolate-linear waved.
- [31. *Campanula thyrsoides*. *Long-spiked Bell-flower*.
Lin. spec. 235. *syst.* 208. *Reich.* 461. *Hall. belv.* n. 688. *Scop. carn.* n. 233. *Jacqu. vind.* 211. *obs.* 33. t. 21. *Fl. austr.* 5. t. 411. *Villars dauph.* 2. 510.
C. fol. echii. *Baub. pin.* 94? *Echium alpinum luteum. ejusd.* 154.
Alopecurus alpinus, &c. *Baub. hist.* 2. 809.
Cervicaria major tenuifolia. *Thal. harc.* 32. t. 4.
Trachelium thyrsoides. *Clus. paun.* 688. *Raii hist.* 734.
T. spicatum tenuifolium. *Park.* 645.
Hispid; raceme ovate-oblong terminal, stem entirely simple; leaves lanceolate-linear.
32. *Campanula petraea*. *Great Stone Throatwort*.
Lin. spec. 236. *Reich.* 461. *Pluk. phyt.* t. 152. f. 5. *Segu. ver.* 1. 179. *Baub. pin.* 94. 15. *Krock. filef.* n. 319.
Trachelium majus petraeum. *Pona bald.* 161. *Baub. hist.* 2. 801. f. 802. 1. *Ger. emac.* 449. 5. *Park.* 643. f. 2. *Raii hist.* 734.
Stem angular, simple; flowers sessile beaded-glomerate; leaves tomentose beneath.
- *** *Capsules covered with the reflected sinuses of the calyx.*
33. *Campanula dichotoma*. *Dichotomous Bell-flower*.
Lin. syst. 208. *Reich.* 462. *See n.* 38. *β. amær.* 4. 306.
Capsules five-celled covered; stem dichotomous; flowers drooping.]
34. *Campanula Medium*. *Coventry or Canterbury Bells*.
Lin. spec. 236. *Reich.* 462. *vir. cliff.* 16. *hort. cliff.* 64. *Scop. carn.* n. 236. *Krock. filef.* n. 320. *Baub. pin.* 94. 4. *Raii hist.* 732. 2.

- Viola mariana*. Dod. pempt. 163. Ger. 362. emac. 448. 1. Park. par. 354. f. 3.—*Dodonæi*, quibusdam Medium. Baub. hist. 2. 804.
Capsules five-celled covered; stem undivided erect leafy; flowers erect.
- [35. *Campanula barbata*. Bearded or one-leaved Bell-flower.
Lin. spec. 236. syst. 208. Reich. 462. Hall. belv. n. 694. Jacqu. obs. 2. 14. t. 37. Allion. pedem. n. 417. Krock. files. n. 321. t. 38. Villars dauph. 2. 511. Scop. ann. 2. 45. Baub. pin. 94. 11. prodr. t. 36. 1. Pluk. phyt. t. 153. f. 6. Raii hist. 733. 10.
Rapunculus montanus. Baub. hist. 2. 808. f. 4.
Capsules five-celled covered; stem quite simple with only one or two leaves; leaves lanceolate; corollas bearded.
36. *Campanula spicata*. Spiked Bell-flower.
Lin. spec. 234. Reich. 463. Hall. belv. n. 687. Pluk. phyt. t. 153. f. 3. Allion. pedem. n. 414. t. 46. f. 2. & t. 47. f. 1. Krock. files. n. 322. Villars dauph. 2. 510.
Trachelium altissimum hirsutum asperius, fol. angustis, flor. parvis. Baub. hist. 2. 801. f. 3. Raii hist. 734. 11.
Hispid; spike loose; flowers alternate; leaves linear, quite entire.
37. *Campanula alpina*. Alpine Bell-flower.
Lin. spec. 1669. syst. 208. Reich. 463. Jacqu. vind. 210. austr. 2. t. 118. Hall. belv. n. 695. Baub. pin. 94. 13. Krock. files. n. 323.
Trachelium pumilum alpinum. Clus. hist. 171. Raii hist. 736. 21. Park. 645. 9.
Stem simple; peduncles one-flowered axillary two-leaved.
38. *Campanula mollis*. Soft Bell-flower.
Lin. spec. 237. syst. 209. Reich. 464. Bocc. sic. 83. t. 45. f. 1.
Viola mariana minor cærulea, &c. Barr. ic. 759.
β. *C. dichotoma*. Lin. spec. 237.
Capsules five-celled covered peduncled; stem prostrate; leaves suborbiculate.]
39. *Campanula saxatilis*. Rock Bell-flower.
Lin. spec. 237. Reich. 464. Tourn. inst. 111. 18. Barr. ic. 813.
Trachelium saxatile, &c. Bocc. mus. 2. 76. t. 64.
Capsules five-keeled covered; flowers alternate nodding; leaves obovate, crenate.
- [40. *Campanula fibrica*. Siberian Bell-flower.
Lin. spec. 236. syst. 209. Reich. 464. Gmel. fib. 3. 154. t. 29. Jacqu. austr. 2. 60. t. 200.
Capsules three-celled covered; stem panicled.
41. *Campanula tridentata*. Three-toothed Bell-flower.
Lin. syst. 209. Reich. 465. mant. 44. Schreb. dec. 3. t. 2.
C. orientalis pumila, repens. fl. magno. Tournef. cor. 3.
Capsule five-celled covered; stem one-flowered; radical leaves three-toothed.
42. *Campanula laciniata*.
Lin. spec. 237. Reich. 465. Tourn. itin. 1. t. 99–260.
Capsules covered peduncled; leaves serrate; the radical ones lyrate; stem-leaves lanceolate.
43. *Campanula stricta*.
Lin. spec. 238. Reich. 465. Tournef. cor. 3. penult.
Capsules covered; leaves rough with hairs; stem-leaves lanceolate serrate; stem quite simple; flowers sessile.]
44. *Campanula canariensis*. Canary Bell-flower.
See CANARINA.
- [45. *Campanula fruticosa*. Shrubby Cape Bell-flower.
Lin. spec. 238. Reich. 466. Herm. afr. 5.
Prismatocarpus fruticosus. L'Herit. fert. 2. n. 4.
Capsules columnar five-celled; stem shrubby; leaves linear-subulate; peduncles very long.]
46. *Campanula Speculum*. Venus's Looking-glass.
Lin. spec. 238. Reich. 466. hort. upf. 41. Curt. magaz. t. 102. Krock. files. n. 324. Hall. belv. n. 703. Villars dauph. 2. 514. Scop. carn. n. 237. Pollich pal. n. 214. Neck. gallob. 115. Mor. 21.
Speculum Veneris. Ger. emac. 439. 1. Raii hist. 742.—majus. Park. 1331. 1.
Prismatocarpus Speculum. L'Herit. fert. 3. n. 7.
- Stem very much branched, diffused; leaves oblong, sub-crenate; flowers solitary; capsules prismatic.
47. *Campanula hybrida*. Corn Bell-flower; small Venus's Looking-glass; coddled corn Violet.
Lin. spec. 239. Reich. 466. Hudf. 97. With. 219. Krock. files. n. 325. Villars dauph. 2. 514. Hall. belv. n. 704. Mor. 2. 457. f. 5. t. 2. f. 22. Speculum Veneris minus. Raii hist. 743. 4. syn. 278. Ger. emac. 439. 2. Park. 1331. 2.
Prismatocarpus hybridus. L'Herit. fert. 3. n. 8.
Onobrychis altera Belgarum & Dodonæi. Lob. ic. t. 418.
Pentagonion, Viola pentagonia. Tabern. 316.
Stem a little branching at the base and stiff; leaves oblong crenate; calyxes aggregate, longer than the corolla; capsules prismatic.
- [48. *Campanula limonifolia*.
Lin. spec. 239. Reich. 467. Tournef. cor. 3. 14.
Branches expanding undivided; radical leaves elliptic even quite entire; flowers sessile in threes.]
49. *Campanula Pentagonia*.
Lin. spec. 239. syst. 210. Reich. 467.
Prismatocarpus Pentagonia. L'Herit. fert. 3. n. 9.
Speculum Veneris, fl. amplissimo, thracicum. Raii hist. 742. Tourn. inst. 112.
Stem subdivided, very branching; calycine leaflets linear acuminate.
50. *Campanula perfoliata*. Perfoliate Bell-flower.
Lin. spec. 239. Reich. 467. hort. upf. 40. hort. cliff. 65. Gron. virg. 22. 29. Mor. 5. 2. 23. Barr. ic. 1133. Raii hist. 743. 3.
Stem simple; leaves cordate, toothed, stem-clasping; flowers sessile, aggregate.
- [51. *Campanula capensis*. Cape Bell-flower.
Lin. spec. 240. Reich. 467. Comm. hort. 2. 69. t. 35.
Leaves lanceolate toothed hispid; peduncles very long; capsules strigose.
52. *Campanula Elatines*.
Lin. spec. 240. Reich. 468. Allion. pedem. n. 422. t. 7. f. 2.
Leaves cordate toothed pubescent, petioled; stems prostrate; peduncles capillary many-flowered.
53. *Campanula hederacea*. Ivy-leaved Bell-flower.
Lin. spec. 240. Reich. 468. Hudf. 97. With. 220. Sowerb. eng. bot. t. 73. Oed. dan. t. 330. bad. Baub. pin. 93. 24. prodr. 34. 6. Mor. 2. 456. f. 5. t. 2. f. 18. Pluk. phyt. t. 23. f. 1. Raii syn. 277. 7. hist. 741. 17. Baub. hist. 2. 797. Pet. gaz. t. 51. f. 2. Ger. emac. 452. 7. Park. 652. 16.
Leaves cordate five-lobed petioled smooth; stem lax.
54. *Campanula erinoides*. See *Lobelia Erinus*.
Lin. syst. 210. Reich. 468. mant. 44. Herm. lugdb. 110. t. 111?
Stems diffused; leaves lanceolate subserrate decurrent with a scabrous line; flowers peduncled solitary.
55. *Campanula heterophylla*.
Lin. spec. 240. syst. 210. Reich. 468. Tourn. cor. 3. n. 8, 9. itin. 1. t. 243.—1. 289. edit. oct.
Leaves subovate smooth quite entire; stems diffused.]
56. *Campanula Erinus*. Forked Bell-flower.
Lin. spec. 240. syst. 210. Reich. 469. Loebl. it. hisp. 127. n. 15. Villars dauph. 2. 514.
Erinos Fabii Columnæ minor. Baub. hist. 2. 799. 2. Raii hist. 743.
Erini f. Rapunculi minimum genus. Column. phytob. 122. t. 37.
Rapunculus minor, fol. incis. Baub. pin. 92. 2. Mor. hist. 2. 458. n. 25.
Alfine oblongo fol. ferrato, fl. cæruleo. Baub. hist. 3. 367.
Stem dichotomous; leaves sessile, the upper ones opposite three-toothed.
- [**** New species from the Supplement, Thunberg, &c.]
57. *Campanula sessiliflora*.
Lin. syst. 210. suppl. 139.
Prostrate; leaves linear-subulate entire; flowers axillary solitary sessile.
58. *Campanula fasciculata*.
Lin. syst. 210. suppl. 139.

- Shrubby, erect; leaves ovate, with a tooth or two, recurved; flowers glomerate, terminal.*
59. *Campanula paniculata.*
Lin. syst. 210. suppl. 139.
Herbaceous; stem panicled; branches divaricate; leaves lanceolate entire; flowers terminal, solitary.
60. *Campanula adpressa.*
Lin. syst. 210. suppl. 140.
Herbaceous, erect; leaves lanceolate toothed recurved ciliate at the base appressed; panicle decomposed.
61. *Campanula verticillata.* *Whorled-leaved Bell-flower.*
Lin. syst. 210. suppl. 241. Pallas it. 3. 719. t. G. f. 1.
Leaves and flowers verticilled.
62. *Campanula procumbens.*
Lin. syst. 211. suppl. 141.
Stem dichotomous, diffused; leaves ovate crenate obtuse; flowers solitary erect.
63. *Campanula triphylla.*
Lin. syst. 211. Thunb. jap. 87.
Leaves tern, linear; flowers by threes in a whorl.
64. *Campanula tetraphylla.*
Lin. syst. 211. Thunb. jap. 87.
Leaves by fours, oblong, serrate.
65. *Campanula glauca.*
Lin. syst. 211. Thunb. jap. 88.
Leaves sessile ovate ferrate glaucous beneath; stem angular panicled; peduncles one-flowered.
66. *Campanula marginata.*
Lin. syst. 211. Thunb. jap. 89.
Leaves lanceolate waved ferrate margined; branches weak; flowers terminal solitary.
67. *Campanula gracilis.*
Forst. florul. austr. n. 84.
Leaves linear-lanceolate obscurely ferrate; stem dichotomous; flowers solitary terminal.
68. *Campanula Bellardi.*
Allion. pedem. n. 396. t. 85. f. 5.
Stem naked one-flowered; leaves petioled elliptic-lanceolate toothed.
69. *Campanula vesula.*
Allion. pedem. n. 397. t. 7. f. 1.
One-flowered; leaves smooth oval toothed; stem almost naked; calyx smooth.
70. *Campanula cespitosa.*
Allion. pedem. n. 399. Scop. carn. n. 225. t. 4. ann. 2. 47. Villars dauph. 2. 500. Scheuch. ic. 6. p. 454. Hall. belv. n. 702. Baub. prodr. 34. hist. 2. 797.
Radical leaves kidney-form gasbed, stem-leaves toothed, upper ones quite entire.
71. *Campanula valdensis.*
Allion. pedem. n. 400. t. 6. f. 1.
C. Scheuchzeri. itin. 454. t. 14. f. 1. Vill. dauph. 2. 503. t. 10.
Hirsute; leaves lanceolate sometimes toothblotted; flower solitary nodding.
72. *Campanula urticifolia.*
Allion. pedem. n. 406. Turra prodr. 64. n. 9. Baub. hist. 2. 804. f. 2.
Stem roundish simple; upper leaves sessile; spike one-ranked; peduncles one-flowered; calyxes smooth.
73. *Campanula alpestris.*
Allion. pedem. n. 418. t. 6. f. 3. Hall. belv. n. 694. β.
C. Allionii. Villars dauph. 2. 512.
C. trilocularis. Turra prodr. 64. n. 10.
C. faxatilis, Echii folio, flore magno. Tournesf. inst. 110. Raii hist. 734. var. n. 10.
Stem quite simple one-flowered, leaves lanceolate quite entire acute hispid, corolla bearded, capsules three-celled-covered.
74. *Campanula nitida.* *Smooth-leaved Bell-flower.*
L'Herit. fert. angl. Hort. kew. 1. 221.]
C. americana. Mill. dict. n. 13.
[C. amer. minor, fl. cæruleo patulo. Rob. ic. Herm. lugdb. 107.
Trachelium amer. minus, fl. cær. pat. Dod. mcm. 119. t. 118.
Leaves oblong crenate glossy, those on the stem lanceolate almost entire, corollas campanulate-rotate.

75. *Campanula prismatocarpus.* *Long-capsuled Bell-flower.*
L'Herit. fert. angl. t. 3. Hort. kew. 1. 224.
Capsules linear two-celled, leaves lanceolate loosely serrate very smooth, stem decumbent.
76. *Campanula fragilis.*
Cyrill. rar. neap. fasc. 1. 32. t. 11. f. 2.
C. faxatilis, &c. Barr. ic. 453.
C. parva rotundifolia, flore cæruleo pentagono grandi. Raii hist. 741.
Stems procumbent, branches directed one way many-flowered, root-leaves kidney-form crenate, calyxes angular.
77. *Campanula virgata.*
Billard. syr. dec. 2. 11. t. 6.
Branches wand-like; leaves lanceolate, sharp at both ends, toothed, somewhat rugged; flowers in pairs sessile; corollas deeply parted.
78. *Campanula repens.*
Lour. cochinch. 139.
Stem subdivided creeping, leaves oblong fleshy, flowers solitary.

DESCRIPTIONS, &c.

1. Root perennial, creeping, often a foot long, dividing into several branches at top. Stems numerous, simple, small, weak, about three inches high. Root-leaves roundish, smooth, ciliate: stem-leaves (four or five) oblong, lanceolate, or linear, sessile. Peduncle terminating, solitary. Flower large in proportion to the plant. Calyx hirsute with white hairs, simple or without any appendages; the segments triangular, broad, deep, blunt, commonly blue. Corolla blue, divided to the middle into five segments, which are frequently bent back, twice as long as the calyx. Capsule three-celled^a.

Native of the higher rocks of the Alps, about the Glacieres. On the highest pike of Mont Cenis, called Ronche: by the head of the river Durance; and on other neighbouring eminencies: also in Dauphiné. It was introduced in 1775, by Doctors Pitcairn and Fothergill, and flowers in June and July^b.

Haller has confounded this with the second species.

2. Root fibrous, annual. Stem absolutely, simple, the length of a finger, obliquely erect, round, entire. Stem-leaves six or seven, alternate, the lowest vertically ovate, the middle ones lanceolate, the uppermost linear, the last of these is immediately under the flower. A single flower terminates the stem; it is nodding, bell-shaped, contracted towards the base, and blue. Fruit turbinate-ovate or pear-shaped, very large in proportion to the plant, slightly inclined, opening with three holes near where the capsule unites with the crowning calyx^c.

Native of the mountains of Lapland; where it is very rare, and flowers in the beginning of July.

If it be the same species with that of Haller, Allioni, and Villars, it also grows wild in Switzerland, Piedmont, and Dauphiné.

There is certainly no agreement whatever between Linneus's and Allioni's figures. (See n. 71.) In the latter it is represented a span high, the stem and leaves very hairy, some of the latter toothed, and none of them ovate, the flower is not nodding.

Haller characterizes his plant as having the bottom leaves cordate and ferrate, the upper ones entire and hirsute. Villars his, with quite entire hirsute leaves, roundish lanceolate and linear. The latter thus describes it. Stems three or four inches high, straight, a little villose, with entire villose leaves, of a dark green colour; the lower ones almost round but pointed, diminishing in breadth insensibly as they are higher on the stem. At the top is one flower, which is straight, with the segments of the corolla acute; it is a little larger than that of our common Bell-flower (n. 4.), somewhat longer and less open, accompanied by the divisions of the calyx, which are lengthened out beyond the middle of it. Monf. Villars thinks that this is the same with

^a Linn. spec. Haller, Villars. ^b Hort. kew. ^c Linn. lapp.

Haller's plant; but says that he has seen a specimen entirely smooth, with the segments of the calyx toothed, and the root-leaves oblong, which approaches nearer to the *C. uniflora* of Linneus than this which he has described.

This perhaps may vary as much as the fourth species, and we should not be surprised if a plant should put on a different appearance in the Alps of Lapland and of Dauphiné.

3. Root filiform, creeping. Stems a short span in length, erect, flexuose, filiform, sometimes having a branch or two bearing a single flower. Root and stem-leaves ovate, obtuse, with a few distant notches, naked and petioled. Peduncle terminating. Flower drooping, the same size as in the next sort, with a smooth calyx. The variety has several flowers at the top of the stalk^d.

According to Scopoli, the leaves are notched; the lower ones roundish, blunt, not in the least cordate; the upper ones ovate-lanceolate, acuminate; the stems are slightly villose, usually one-flowered, sometimes branching. He asserts that the flowers are never drooping, but Linneus, Jacquin, and D'Affo affirm the contrary. The latter of these authors says, that the lower leaves are petioled, ovate, and notched, the upper linear and sessile. The flowers large and terminating. He remarks, that in Jacquin's figure some of the upper leaves are roundish. The corolla is of a very deep blue^e.

Native of the mountains of Austria, Carniola and Aragon.

4. Root perennial, creeping, sweetish. Stems several, a foot or more in height, varying from two inches to a yard, rather upright, but weak and crooked, round, smooth, solid, milky and branched. Radical leaves heart or kidney form, petioled, toothed (frequently quite entire); stem leaves near the base lanceolate and toothed, near the summit linear and entire. Flower-branches spreading, simple or subdivided, almost naked. Flowers nodding a little: corolla blue, sometimes white. Calyx permanent, segments linear, smooth, grooved, considerably expanded when out of blossom. Nectary at the bottom of the corolla, formed of five pointed valves closing and covering the receptacle; fringed, white. Capsule three-celled. The radical leaves, whence this plant has its name, are usually hid in the herbage, and therefore seldom observed: they also dry away and drop off, when it is advancing to maturity. It grows plentifully on heaths and other waste grounds, in dry hilly situations, flowering from June to September^f.

A green pigment is obtained from the flowers^g. The juice stains blue, but with the addition of alum, green^h. The stalks and branches, when broken, give out a milky juice, which has a disagreeable smellⁱ.

β. This variety has firmer and more shining leaves, the stem-leaves broader, serrate, the first rhomboidal, the rest elliptic, acute; the radical leaves are also more narrowly toothed. It is common in the Alps^k. Ray also found it in the mountains of Stiria and Carinthia. With us it has been observed on Snowdon, and about Rickmansworth and Croydon.

γ. The other variety has the radical leaves roundish, roughish and serrate: the stems are hirsute; so are the stem-leaves; the first of these are serrate, most of them resemble the leaves of Flax. Peduncles an inch long, one-flowered hirsute; calyx villose, lanceolate; corolla wide, short, blue. In the valley of Urseren, and mountains about Aigle^l; on mount Wasserfall. In Lapland, Denmark: and with us on the highest mountains of Wales and Westmorland, near Perth, and on Skiddaw, in Scotland.

Scopoli is of opinion that the *linifolia* (var. γ.) is a distinct species—1. because it does not produce several stems from the same root; 2. because it is twice or three times larger; 3. because it has much broader and larger flowers; 4. because it has no bottom cor-

date leaves, at least while it flowers, nor leaf-stems separate from the floriferous ones.

5. Root-leaves many together, spreading, small, roundish or oval, soon turning yellowish; those on the stems lanceolate, straight and even; not waved, as in *C. Rapunculus*. Panicle much more spreading than in that species, and fewer flowers. The herb though bitter being frequently eaten down by cattle, side branches spring up, and flower till the winter frosts destroy the root. Corolla of an elegant form, tapering at the base, but spreading in the rim. It has no resemblance to *C. rotundifolia*, for which it is sometimes mistaken, when the root-leaves are gone^m.

Native of Sweden, Denmark, Germany, Switzerland, Carniola, Piedmont; in corn fields, woods, hedges, and by road sides; flowering in July and August. In England it is not common. Merrett found it at Adforton near Wigmore in Herefordshire; Littleton Brown found it in the same place: Dillenius in a wood called Elberry-hill, about a mile from Worcester, and near Bishop's Castle in Shropshire; Dr. Pulteney, by Buddon-wood, near Loughborough, and between Litchfield and Meriden: Mr. Nash, near Malvern: Mr. Woodward, near the Bath at Lichfield, and on the road to Colehill: Dr. Smith, in the park of the late Lord Ligonier, at Cobham in Surry.

β. The variety, which Linneus thought a distinct species in the first edition of the *Flora suecica*, and the *Species Plantarum* (*C. decurrens*), turned out not to be so, on sowing their seeds in a gardenⁿ.

6. The whole plant is full of a milky juice. Root biennial, spindle-shaped, sometimes branching. Stem upright, angular, two feet high, hairy towards the base, smooth above: branches alternate, short, upright. Leaves towards the base of the stem hairy above or on both sides, blunt; the upper ones smooth, and becoming gradually more pointed; obscurely notched, teeth glandular, whitish, not projecting beyond the edge of the leaf. An awl-shaped bract at the base of each peduncle. Segments of the calyx awl-shaped, or setaceous, twice as long as the germ, with a small tooth on each side of the base. Flowers upright. Corolla blueish purple, sometimes very pale purple or whitish; each segment marked with three lines. Nectary fringed^o.

It grows wild in France, Flanders, Switzerland, Germany, Carniola, Piedmont; by hedge and road sides and woods; in fallow fields and dry pastures; flowering in June, July, and August. In England it has been found growing near Croydon and Esher in Surry; Old Buckenham Castle in Norfolk; about Hindlip and Enville in Worcestershire.]

The fleshy roots are eatable, and are much cultivated in France for salads. Some years past it was cultivated in the English gardens for the same purpose, but is now generally neglected. [Haller says that it is in great request among the Swifs, in the spring; and that it increases milk. The roots are eaten not only raw in salads, but boiled like Asparagus^p. They were boiled tender, and eaten cold with vinegar and pepper, in the time of Parkinson.

7. Root like that of Navew, and eatable. Stem very straight, eighteen inches high and more, (in gardens two feet and a half) unbranched, angular, smooth, as is the whole plant (except the germ and capsule). Flowers in a thin spike, one or two together, on very long peduncles, which have two stipules at the base. Corolla large, broad bell-form, deep blue, the segments short, and moderately acuminate^q.

This is a perennial plant, native of most parts of the continent of Europe from Sweden to Spain, but not of Britain. It was cultivated here by Gerarde, in 1596^r.]

Varieties are, the single blue, and white; and double flowers of both colours. The latter have not been more than fifty years in England, but have

^d Linn. spec.
^h With.

^e Jacquin.
ⁱ Curtis.

^f Curtis.
^k Haller.

^g Lin. succ.
^l Ibid.

^m Engl. bot.
^p With.

ⁿ Lin. succ.
^q Haller.

^o Stokes in With.
^r Hort. kew.

been propagated in such plenty, as to have almost banished those with single flowers from the gardens.

8. [Pyramidal or Steeple Bell-flower is thus described in its wild state by Scopoli. The root and stem are milky; the latter is four feet high, panicled with short branches from top to bottom. All the leaves are ovate, petioled, and shortly toothed; the teeth paler and terminated by a gland. The corolla spreading, five-cleft beyond the middle. The calycine teeth, even whilst the corolla is closed, spreading out horizontally, and twice as long as the germ, which is three-cornered.

It is found about Idria, in Struk, &c. and, according to Allioni, in Savoy.

As it appears in the garden it is thus described by Miller.]

It has thick tuberous roots, which are milky; these send out three or four strong, smooth, upright stalks, which rise near four feet high, and are garnished with smooth oblong leaves, whose edges are a little indented. The lower leaves are much broader than those on the stalks. The flowers are produced from the side of the stalks, and are regularly set on for more than half their length, forming a sort of pyramid; these are large, open, and shaped like a bell. The most common colour of the flowers is a light blue; but there have been some with white flowers, which make a variety when intermixed with the blue, but the latter is most esteemed.

This plant is cultivated to adorn halls, and to place before the chimnies in the summer, when it is in flower, for which purpose there is no plant more proper; for when the roots are strong, they will send out four or five stalks, which will rise as many feet high, and are garnished with flowers great part of their length. These upright stalks send out some short side branches, which are also adorned with flowers, so that by spreading the upright stalks to a flat frame composed of slender laths (as is usually practised) the whole plant is formed into the shape of a fan, and will spread near the width of a common fire-place. When the flowers begin to open, the pots are removed into the rooms, where, being shaded from the sun, and kept from the rain, the flowers will continue long in beauty; and if the pots are every night removed into a more airy situation, but not exposed to heavy rains, the flowers will be fairer, and continue much longer in beauty.

[This also was cultivated in 1596, by Gerard^s.

9. Root annual. Stem and germs smooth. Leaves acuminate. Flowers three or more from each axil or bracte. Corollas small. Style longer than the corolla^c.

Native of Pennsylvania. Introduced in 1763, by Mr. John Bartram. It flowers in July^a.

10. It is singular in this plant, that the stem, before it produces the panicle, puts out leaves in a kind of rose, which, when the panicle comes forth, are dispersed about the stem^z. It varies much in the size and colour of the flower, quantity of branches, hardness and softness, smoothness and roughness of the leaves.

It is found from the Jaick eastward to the very confines of China.

The roots are eaten by the inhabitants both raw and boiled^y.

It was introduced in 1784, by Mons. Thouin, and flowers most part of the summer. It is perennial^z.

11. Root creeping, perennial. Stem erect, smooth, from six, eight or ten to eighteen inches in height, unbranched. Leaves few, tender, smooth, ending in a point; the upper ones smaller. Peduncles axillary, few-flowered, sometimes one-flowered, some inches long, forming a thin spike, all directed to one side. Corollas blue, sometimes white, short and swelling. Calyx capillary^z.

Native of the mountains of Switzerland, Dauphiné, Carniola, and Italy on Mont Cenis.

Introduced in 1775, by Doctors Pitcairn and Fothergill. It flowers in July^b.

β. The variety observed by Alpinus near Bassano, and by Arduini on monte Somma and other mountains of Italy, has the leaves very much acuminate, and the ferratures distant; the flowers are in a nodding raceme: the leaflets of the calyx have often two acuminate ferratures on each side: the pistil is longer than the corolla^c.

12. Stems extremely simple: the leaves have one ferrature on each side.

13. This and the foregoing sort were found at the Cape of Good Hope by Thunberg.

14. Differs from the *capillacea* in having hispid capsules, and the calyx the length of the corolla.— Found also at the Cape by Thunberg.

15. This species has the air of a *Lobelia*, the same tenderness, divided in the same manner, and even the same inflorescence. Perianth three or five-leaved, leaflets ovate, obtuse, permanent: corollas very small, purplish-white, twice as long as the calyx, funnel-form, tube round, gradually widened; segments erect. It varies with the calyx and corolla three and five-parted, and even with three and five stamens: the capsule also is two-celled^d. Native of Madeira; found there by Mr. Francis Masson. Introduced in 1777. It flowers in July and August^e.

16. This pours out a milky juice when wounded: The root is whitish and perennial. Stems herbaceous, annual, weak, hardly branching; bearing one or very few flowers. In gardens it becomes branching and many-flowered. The root-leaves are kidney-form roundish; the peduncle elongated and smooth; the corolla blue. It flowers the whole summer, and was first observed on the Carpathian alps by Fr. Jos. Lipp^f. It was introduced in 1774, by Jos. Mich. de Jacquin, M. D.^g

It is observed by Mr. Curtis, that it is yet scarce in our gardens, but deserves to be more generally known and cultivated; its flowers in proportion to the plant, being large and showy; and, like many other Alpine plants, being well suited to decorate rock-work, or such borders of the flower-garden as are not adapted to large plants.

17. The whole plant is very smooth. Root perennial white, fusiform, the thickness of a finger and branched. Stems few, erect or ascending, simple, round, a foot high, leafy all over, annual, terminated with one handsome flower, but without scent, nodding a little; with sometimes one or two flowers more from the upper axillas. Leaves irregularly scattered, sessile or on very short petioles, ovate or sub lanceolate, short and sharply serrate: sometimes a few of the leaves, and at others all of them are in threes. Corolla two inches in diameter or more, very deep blue with numerous blue veins; elegantly pear-shaped before expanding, and at first green. No holes in the capsule. It flowers in June and the beginning of July, and ripens its seeds in August^h.

The flowers being of the same form as in the foregoing sort, it is doubted in the supplement of Linnæus whether it be any thing more than a variety of it; but the leaves are never cordate.

Native of Siberia. Introduced in 1782, by Mr. John Bell. It flowers in Julyⁱ.

18. Stems panicled, growing close to the rocks. Leaves lanceolate, smooth. Calyx superior, coloured. Tube of the corolla distant from the calyx; segments linear, reflex. Discovered in the island of Madeira by Masson^k. Introduced in 1777. It flowers in August and September^l.

19. This very much resembles *Lobelia tenella*. Stem determinately branched and hard: branches simple, and covered with leaflets. Leaves alternate, rather crowded, sessile, minute, subimbricate, glossy, obtuse, channelled; in the bosom of these are small leaflets, much resembling them, which are a kind of rudiments of small branches. Peduncles from the top of the branches, one-flowered, lateral, longer

^a Hort. kew.
^x Linn.

^c Linn. mant.

^y Gmelin.

^z Hort. kew.

^b Hort. kew.

^u Hort. kew.

^a Haller.

^c Linn. spec.

^z Hort. kew.

^d Linn. suppl.

^h Jacquin:

^l Hort. kew.

^e Hort. kew.

ⁱ Hort. kew.

^f Jacquin.

^k Suppl.

than the leaves. Calyx glossy, acute. Corolla five-parted. The leaves are seldom without a lateral tooth. Found at the Cape, by Thunberg^m.

20. This is a plant difficult to be distinguished, unless by the pores, scarcely distinguishable by the naked eye, which penetrate into the stem, not downwards but upwards. Stem round, a foot high, erect; branches numerous, erect, short. The upper leaves linear, even, quite entire. Racemes terminal, erect. Flowers small, less than those of n. 4., rather erect. Calyx shorter by half than the corolla, even; with lanceolate segmentsⁿ.

21. Stem a foot and half high, erect, filiform, glossy, somewhat branched at top. Leaves sessile, reflected at the edge, subdecurent, repand, somewhat glossy. Peduncles terminal, long, leafless. Flowers the size of the fourth species. Calyx glossy, with short, acuminate teeth. Thunberg discovered these two at the Cape^o.

22. Stem three feet high and more, angular, smooth, not branching. Leaves sharply ferrate, on short petioles, hirsute. Flowers axillary, one or two together, on peduncles shorter than the leaf. Calyx smooth, with broad triangular segments. Corolla very large, blue, the segments triangular, divided by a line. The fruit obliges the peduncle to bend down with its weight. Oeder has very well expressed the coalescing claws of the stamens^p.—The peduncles have two subulate bractes about the middle. The segments of the calyx are a little ferrate. Corolla oblong-ovate, with five angles; the segments shallow. Nectary fleshy, purplish, woolly. Anther woolly, twice as long as the filaments. The whole plant abounds with a milky liquor^q. It varies with purple, and with white flowers. It grows naturally in the northern parts of England, in Flintshire, Scotland, Denmark, Sweden, Switzerland, Piedmont, &c. flowering in July and August; and is perennial.

Johnson says that it was kept by Gerarde in his garden, as also by Parkinson in his: but that he found it in the year 1626 in great plenty, upon the banks of the river Ouse in Yorkshire, as he went from York to visit Selby, the place where he was born.

23. This is in many respects like *C. Trachelium* (n. 28.): the lower leaves are on long petioles and ferrate; the upper ones stem-clasping: the stem is simple, or only branched at top. But the whole is more soft: the stem purple, smooth, slightly hairy: flowers from the axillas, solitary, on long peduncles, large, nodding all one way in a spike at the top of the stalk. The throat of the corolla is not very hairy. The root creeps prodigiously, and is said to be esculent. M. De Saussure found a variety with leafy spikes^r.

Native of France, Germany, Austria, Switzerland, Piedmont, &c. Ray remarked it about Geneva, towards Gex, and on Mont Saleve. It affects a dry soil, and flowers in July and August. Perennial. Cultivated 1683, by Mr. James Sutherland^s.

24. The stem has the air of *Verbascum nigrum*. Leaves stem-clasping, lanceolate, ferrate. Flowers in a very long thyrse: peduncles generally three-flowered^t. Root large, woody, like that of Navew. Stem three feet high and more, erect, with many ascending, conjugate branches. Leaves stem-clasping, almost cordate, villose with a white nap beneath, but not rough, moderately ferrate; the same under the flowers, which come out on almost naked branches, and at the top of the stem, the lower ones on erect, short peduncles, three together, the upper ones sessile in the axillas solitary or two together, at the top of the stem very numerous but small, forming a spike. They are of a violet colour. Calyx hairy, with lanceolate segments. Tube of the corolla angular, brim not entirely femiinquedid; segments lanceolate, divided by a line. Filaments and pistil hairy^u. Stem round. Nerves of the leaves

underneath pubescent with ferruginous wool. Flowers in a long, stiff, panicle. Peduncles three to five-flowered; the upper one-flowered. Calycine segments erect, double the length of the germ^x. It has the appearance, according to Scopoli, of *C. pyramidalis*. Native of Bologna, monte Baldo, Austria, Switzerland, Piedmont. Perennial. Introduced 1773, by John Earl of Bute^y.

25. Like *Phyteuma hemisphaerica*, but larger. Root of many tufts. Leaves very narrow like Grass, ciliate at the base; stem-leaves almost stem-clasping, and presently subulate. Stems extremely simple, scarcely longer than the leaves. Flowers fascicled into a head, with ovate bractes subulate at top. Stigma bifid^z. Native of Italy, in the mountains of Abruzzo near Salmone, and monte Vergine.

26. Found at the Cape by Thunberg.

27. Stem branching, a hand high, and hispid, more branching at top. Leaves alternate, linear, acuminate, ciliate, especially the midrib. Calyxes subsessile, terminal, linear, with the keel ciliate. Corolla funnel-form. Stigma trifid. Annual. Observed at the Cape by Sparrman^a.

28. Root perennial. Stems from two to three feet in height, upright, stiff, hairy, angular, the angles membranaceous, putting out a few short side branches. Leaves resembling those of the great Nettle, but rather shorter and broader, alternate, ovate, cordate, pointed, hairy, deeply toothed, sometimes having two or three lobes: petioled, except the upper ones, which are sessile. Peduncles alternate, axillary, trifid and three-flowered. The number of flowers however varies from one or two to three, four and even five. They are large and nodding. Bractes oblong, ferrate. Calyx angular, acute, hispid. Corolla pale or deep blue, purple or white, spreading very much, hairy within, the segments triangular, divided by a hairy line. Capsule villose, rugged, three-celled, and perforated by three holes. When the corolla is double, there are no stamens or nectary. The whole plant contains a juice of a dirty yellow colour. Besides the common varieties, Haller mentions a monstrous one, with the corolla and calyx imperfect, and the leaves collected into a head^b.

Native of most parts of Europe, and of Japan, in woods and hedges; flowering in July and August.

29. Root perennial. Stem upright, angular, hairy, commonly somewhat rugged, but sometimes smooth, from six to eighteen inches in height but varying from two and even three feet in strong soils, down to two inches in lofty dry situations; seldom or ever branched, unless when it is eaten down by cattle. The bottom leaves are cordate-oblong, on long winged petioles; the upper ones are lanceolate and sessile or half-stem-clasping; all ferrate, rough, pale but not hoary underneath, commonly blunt, sometimes rather acutely pointed. From the axils, towards the upper part of the stalk come out long naked peduncles, supporting two or three flowers, closely joined together, and the main stem is terminated by a larger cluster of five or six of the same flowers; except when the plant is dwarfish, and then it has sometimes one flower only. Bractes ovate-lanceolate. Calyx hirsute. Corolla blue, purple, or white, five-cleft to the middle (sometimes four-cleft), usually villose on the inside, and sometimes on the outside, with white hairs. Anthers slender, sulphur-coloured. Stigma blunt. Style white or blue, pubescent. Capsule three-celled, with three holes^c.

Native of most parts of Europe, in hilly and dry pastures, particularly in a calcareous soil; flowering from June to September.

This plant is no contemptible ornament for rock-work or dry flower borders. A moist or rich soil makes it too luxuriant, and renders the flowers pale and degenerate^d.

β. The alpine variety has handsomer, larger flowers^e.

^x Scopoli. ^y Hort. kew. ^z Linn. syst. ^a Linn. suppl.

^b Linn. With. Lyons in Relh. Haller.

^c Relhan. Engl. bot. Woodw. in With. Krock. Linn.

^d Engl. bot.

^e Haller.

^m Suppl. ⁿ Ibid. ^o Ibid. ^p Haller. ^q Withering.

^r Haller.

^s Hort. kew.

^t Linn. mant.

^u Haller.

30. This resembles the foregoing; but the root is biennial, the whole plant is more rugged and hispid, the stems are higher, the leaves much narrower, the flowers smaller, less open, and a little villose on the outside. It is also a wood plant, whereas the other grows in open situations^f.

Native of Sweden, Denmark, Germany, Switzerland, Piedmont, Siberia; flowering in July and August. The root is esculent. Introduced in 1783, by William Pitcairn, M. D.^g.

31. Root large, woody, biennial; from which rises a round tuft of rough broad ovate-lanceolate leaves, as in the Sedums. From the centre of these springs a stem eight or ten inches high, unbranched, covered with leaves and flowers, the leaves tongue-shaped, longer than the radical ones, equal to the whole stem; the flowers hirsute, white or yellowish white, long and slender, collected into one very long ovate-cylindric close terminating spike, leafy at bottom but naked at top^h. Sometimes the corolla is cut into four or six parts, and then there is a proportional number of stamens and two stigmasⁱ.

In Switzerland it is common in stony alpine meadows; on the lower mountains it is more rare. It was observed by Ray to grow plentifully on the highest tops of Jura. It is also a native of Germany, Hungary, Austria, Carniola, Savoy, and Dauphiné. It was introduced in 1785, by William Pitcairn, M. D. and flowers in July^k.

32. Stem upright, rough, hairy, from a foot to two feet in height, beset with flowers from the top to below the middle, in alternate distinct bunches, with a leaf between each. The lower leaves are petioled, the rest are sessile; they are all bluntish, ferrate, rugged on the upper surface, white with nap on the under. Corolla white^l, divided into five (sometimes seven) sharp spreading segments, twirling at the extremity^m.

It was first observed by Pona on monte Baldo, flowering in August. It is a native also of Piedmont, Silesia, &c.

33. Leaves oblong, rugged. Flowers solitary from the forks and ends of the branches, of the same structure as in *C. Medium*, but only half the size; they are twice as large however as in *C. fibrica*ⁿ.]

34. Root biennial. Leaves oblong, rough, hairy, ferrate, coming out without order from the root, narrowing into a petiole. From the centre of these the second season, arises a stiff, hairy, furrowed stalk, about two feet high, sending out several lateral branches, with long, narrow, hairy, ferrate, sessile leaves, placed alternately. From the setting on of these leaves come out the peduncles, those on the lower part of the stem and branches four or five inches long, diminishing gradually in length upwards, and thus forming a sort of pyramid. The flowers are very large, and make a fine appearance; they are smooth, and the segments turn back at the end: they come out the beginning of June, and if the season be not very hot, will continue a month in beauty. The seeds ripen in September, and the plants decay soon after.

It grows naturally in the woods of Germany, Austria, and Italy; and is cultivated in the English gardens for the beauty of its flowers, of which there are the following varieties: blue, purple, white, striped, and double: but the two last are not very common in England.

[It was cultivated here in 1597^o.

35. Root perennial, (according to some, biennial) white, large, and woody, fusiform or rather tuberos, two, three or more inches in length. The whole of the plant is villose. Root-leaves many (five to ten), oblong-lanceolate or tongue-shaped, bluntish, obscurely crenulate, somewhat rugged, from two to three inches long and upwards, narrowing into flat petioles. From these arises a simple upright round stem, from six to eighteen inches in

height, with very few sessile leaves on it; and towards the top from three or four to five or six, and sometimes ten or eleven flowers, forming a kind of loose spike; they are large, solitary, nodding, alternate, and commonly all directed one way: the lower ones are on long peduncles, and the upper flowers on very short ones. Corolla pale blue (sometimes white), smoothish on the outside, but within bearded with long white hairs. Calyx hispid with white hairs, covered in part with ears or appendices turning downwards from the origin of its divisions^p. According to Haller, the fruit is five-angled, and has five obscure grooves, but is three-celled.

Native of the mountains of Italy, Austria, Switzerland, Dauphiné, and Silesia.

Introduced in 1775, by Doctors Pitcairn and Fothergill. It flowers in June and July^q.

According to the observations of Scopoli, it varies: 1. With one flower; the stem scarcely six inches high; the leaves entire; the calyx villose, only half the length of the corolla, deeply five-cleft, appendicled. This is the one-flowered variety of Haller, mentioned by Caspar Bauhin (prodr. 37.) to be found by Burser on the alps. 2. With two flowers. 3. With three flowers, the stem a foot high, and the leaves unequally notched. 4. With four flowers or more; well figured by Jacquin (Obs. bot. 2. t. 37.), with many flowers on a stem.

36. Root biennial, the thickness of a finger, two or three inches long, fusiform. Root-leaves linear-lanceolate, quite entire, rough, hairy: stem-leaves like them, but shorter and narrower. Stem a foot high (Krock says, four, five, or six feet; according to Haller, very high), with white stiff hairs, like all other parts of the plant, and alternate branches, terminating in a very long loose spike of many sessile, alternate, remote flowers. Calyx hoary with white hairs. Corolla small in comparison of the plant, subcylindric, blue^r.

Haller observes, that it resembles *C. Cervicaria* (n. 30.) so much, that it may seem doubtful whether it be really distinct, but that it is however probably a different species. The flowers, he says, are not in a few whorls, but one or two in each axil from top to bottom, within a boat-shaped leaf; the calyxes and bractes are wholly white with hairs; and the top of the stalk ends, not in a white umbel of flowers, but in a narrow point.

These long spikes of flowers bear so much resemblance to those of *Echium*, that Mons. Villars would have this species named *Campanula echinoides*.

Allioni remarks, that it puts on a variety of appearances in very dry open situations at the foot of the Alps; where it has very rough linear leaves, with a curled waving edge, and flowers in a very long close continued spike. In the county of Nice it has elliptic leaves, not curled about the edge, with flowers in an interrupted spike. But it has more usually linear leaves, and flowers, though in a spike, yet interrupted, so as to form lateral heads, as it is represented by John Bauhin.

It is common both in the Upper and Lower Valais, about Chiavenna, and by the Lago Maggiore and Como, in the vineyards. Between Pignerolles and la Perosa, and in the whole valley of Fenestrelles, very common in dry open rocky situations. In Alsace between Sultz and Zenne. In Dauphiné, but not common. In Silesia. It flowers in July. Introduced in 1786, by William Pitcairn, M. D.^s

37. Root perennial, fusiform. Stem absolutely simple, smooth, a span high, loaded the whole length with axillary, solitary flowers. Root-leaves oblong, lanceolate, blunt, growing wider towards the top, hirsute, entire: stem-leaves ligulate, smaller, sessile. Peduncles upright, very long, with two bractes. Valves of the nectary semiovate, blue. Germ blue, three-cornered, semiovate, fastened by its base to the bottom of the calyx; stigma trifid. Capsule

^f Villars, Allioni, Linn.

^g Hort. kew.

^h Haller.

ⁱ Villars. ^k Hort. kew. 3. 486.

^l Krock.

^m Seguier.

ⁿ Linn. amoen.

^o Hort. kew. from Ger.

^p Krock, Scop. Haller.

^q Hort. kew.

^r Linn. Krock.

^s Hort. kew.

roundish, three-celled. Seeds brownish, with a membranaceous edge^c.

Haller observes, that it much resembles the *barbata* (n. 35.); that the stem however is scarcely nine inches high and smooth, producing one peduncle from each axil, with two narrow leaves and only one flower, which is nodding, shorter, wide, smooth and pale blue: calyx blue at the base, with five darker spurs, hairy, and the segments triangular.

On Schneeberg, Scheidegg, &c. also in Silesia; flowering in July.

38. Stems decumbent, with few branches, rather stiff, villose. Leaves small, sessile, nearly entire, tomentose, pubescent. Flowers from the axils solitary, on long peduncles, six times as big as the leaves: calyxes large, naked, with reflex sinuses. In short, it has the herb of *Antirrhinum molle*, the flowers of *Campanula Medium*, and the stature of *Campanula heterophylla*^a.

Native of Syria, Sicily, and Spain.]

39. The stalks rise a foot high; the flowers are large, blue, nodding, alternate; they open in July, and are succeeded by five-celled capsules, filled with small seeds. It grows naturally in Crete, upon rocks, where the roots penetrate the fissures, and the plants continue much longer than in gardens.

[Cultivated by Mr. Miller in 1768.]

40. Root biennial. Stem a foot high, angular, a little hispid, straight, undivided. Panicle thin, loose. Leaves linear, half-stem-clasping; stem-leaves rugged. Flowers oblong, small: peduncles generally three-flowered: calyxes hispid. There is a variety, with a subdivided stem, and broader leaves. Native of Siberia, Austria^a, and Piedmont. Introduced in 1783, by William Pitcairn, M.D. It flowers from July to September^c.

41. This has the root-leaves of *Statice reticulata*, lanceolate, wedge-form, having frequently three teeth at the end. Stem twice as long as the leaves, with some linear leaves on it. Flowers upright, rather large, solitary. Found in the Levant by Tournefort.

42. Root biennial. Stem two feet high, suffruticose, branched from the bottom. Lower leaves eight inches long and two inches and a half wide; those on the branches two or three inches long and sessile; the uppermost only four or five lines in length, slightly crenated and pointed. Flowers large, pale blue. Capsule five-celled, nine or ten lines in diameter. Found by Tournefort in the island of Policandro, and cultivated in the Paris garden from seeds sent by him^a.

43. Stem eighteen inches high, rough with hairs. Root-leaves cordate or ovate, somewhat oblong, serrate, rough with hairs on both sides, petioled: stem-leaves alternate, remote, sessile, obtuse, serrate-toothed, rough with hairs, narrower at the base. Flowers axillary, solitary, erect. Calyxes rough with hairs, covering the germ with their sinuses. Native of Syria and Palestine^a.

44. This is now made a distinct genus, under the name of *Canarina*.

45. This is shrubby, and a native of the Cape of Good Hope. It was introduced in 1787, by Mr. Francis Masson, and flowers here in August^b.]

46. *Venus's Looking-glass* is an annual plant, which rises with slender stalks a foot high. The flowers are of a beautiful purple, inclining to a violet colour, (sometimes pale purple or white) and in the evening fold up into a pentagon figure, whence it is called *Viola pentagonia*. The calyx is composed of five narrow leaves, which spread open, turn back, and are much longer than the petals; these remain on the top of the prismatic seed-vessel, which is filled with small angular seeds.

[The stem is tender, quadrangular, naturally procumbent, branched from the bottom at very great angles. Leaves sessile, obovate, waved about the edge. Flowers axillary, erect, on very long peduncles. Corolla wheel-shaped, and so deeply five-

cleft, that the segments, which are ovate, scarcely cohere. The filaments are not united by their claws. The capsule is longer and narrower than in the generality of the species; the seeds are ovate and shining^c.

Native of most of the southern countries of Europe, among corn. It flowers from May to September.

Some authors make two species of this: one larger, which is Morison's *Campanula five Pentagonia folio oblongo latiori*; and another smaller, which is *Campanula arvensis minima* of the same author; though he says that this grows wild in England, which must be a mistake.

Johnson on Gerard, says that he had only seen some branches of it brought from Leyden, by his friend Mr. William Parker. It was cultivated in 1683, by Mr. James Sutherland^d.

47. This is also an annual plant. It differs from the foregoing in having the stem upright; it is very stiff and straight, and scarcely ever branches any where but at bottom. The flowers are sessile, three or four together, much smaller than in the other; the corollas frequently lurking in the rudiment and not unfolding^e. To this we may add, that the segments of the calyx are broader, being oval-lanceolate, whereas in that they are subulate: it is permanent, crowning the ripe capsule^f.

Linneus supposes this to be a hybridous or mule plant, and the foregoing species to be the mother of it. The English name of *Venus's Looking-glass*, which is applied to both, is derived from the shining smoothness of the seeds. Our wild species is well described, and not ill figured by Johnson in Gerard. It is common in corn fields, in England, France, Switzerland, &c. flowering in June and July.

Haller has a larger and smaller variety of this also. To the first he gives the synonyms of Lobel and *Tabernæmontanus*; to the second those of Linneus and Morison, *C. arvensis minima erecta*, *hist. oxon.* n. 22.

48. Root-leaves petioled, but not rigid. Stem with very simple, wand-like branches, and linear or subulate leaves. Flowers remote, axillary, with bractes the length of the germ. Native of the Levant^g.

49. This is a small plant, a hand or not more than six inches in height, with a simple white root. The stem is slender, weak, shrubby with frequent branches. Leaves a finger's length, narrow, the breadth only one third of the length, sessile; the lower ones broader, resembling those of *Gratiola* and *Hyssop*, the upper ones narrower and sharp. Flowers at the ends of the stem and branches, twice as large as in *C. Speculum Veneris*, and of a paler purple, the bottom or eye white, but less so than in that; a broad blue band surrounds the eye, and the edges are purple. The flowers are more concave and bell-shaped than in our common garden sort, and the segments are not so deeply cut. The leaflets of the calyx are narrow, oblong, sharp, spreading but not revolute, and sometimes have little bristles at the edges. The flowers before they open are folded up, like the other sorts, and have five wings like the feathers of a shaft; and hence the name *Pentagonia*; they sit upon a square oblong capsule, at the base of which are two opposite leaves; and from the axils of the leaves come out two branchlets. The seeds are round, large, and shining^h.

Linneus says, that with him the flowers were generally mutilated or imperfect.

Ray cultivated this plant before the year 1686. He informs us, that the seed was collected in Thrace by Mr. Covill of Cambridge, and that it was given to him by his old friend Mr. Dent, an apothecary and excellent botanist there.]

50. This is an annual plant, which in good ground, will rise a foot and half high, but in poor ground, or where it grows wild among corn, scarcely

^a Krock. Linn. ^b Linn. spec. ^c Linn. ^d Hort. kew. ^e Linn. spec. ^f Withering. ^g Linn. spec. ^h Ray hist.

ⁱ Haller.

^j Hort. kew.

^k Linn. spec.

^l Withering.

^m Linn. spec.

ⁿ Ray hist.

rises to the height of six inches. The stalk is single, rarely putting out any branches, unless near the root, whence sometimes one or two short lateral branches are produced. The leaves are roundish and stem-clasping, sharply serrate at the edge, and from their base comes out a close tuft of flowers, surrounded with a leaf as with the calyx. The flowers are five-cornered and shaped like those of *C. Speculum Veneris*, but much smaller; they are produced the whole length of the stalk.

[Linneus observes, that it is very distinct from its congeners; the stem being commonly upright without branches; the leaves cordate, crenate, alternate; flowers three, commonly sessile, within each axil; all, except the terminating one, generally mutilate¹.

Ray remarks, that the simple woolly angular stem is higher than that of *C. Speculum Veneris* and *Pentagonia*, being a long span or about nine inches in height; that the leaves on the stem are frequent, an inch broad and roundish; that there are commonly three flowers, seldom four, from each axil, not spreading so much as in *C. Speculum Veneris*, but with rounder segments, and of a paler colour: the segments of the calyx are broader; and the stem sometimes puts forth branches.

Native of North America. Cultivated in 1680; and flowers in June².

51. Root annual. Stem round. Leaves long-pointed. Branchlets from the axils generally simple. Stem, leaves and calyx hirsute. Peduncle sometimes a foot long. Corolla blue. Capsule three-celled. Native of the Cape of Good Hope; flowers in August and September, ripens its seeds in October, and then dies¹.

52. Root perennial. Stems many, procumbent, round, generally simple, from the fissures of rocks. Leaves alternate, petioles longer than the leaves in the bottom ones, but successively shorter up the stem, cordate, acuminate, ash-coloured, but paler beneath. Racemes three or four-flowered, axillary; sometimes in the lower ones branched, but usually simple. Flowers purple, half-five-cleft, the segments lanceolate, revolute. Calyx half-five-cleft, spreading; the segments not appendicled. All the flowers except the extreme one have a linear bracte. An axillary raceme terminates the stalk. The whole plant is pubescent with soft hairs, and is very milky. At the foot of the Alps, in the country of the Valdenses or Vaudois, in rocky, shady situations².

53. Root perennial, fibrous, slender, creeping. Stems procumbent, filiform, trailing, matted together, and covering spots of a foot diameter. The whole herb pale, tender, delicate, and smooth, except a very few scattered hairs occasionally found on some of the leaves; the lower of which are heart or kidney-form, and nearly entire. Peduncles long, filiform, solitary, either terminating or axillary. Segments of the calyx pointed and entire. Corolla pale blue, slender, oblong. Filaments longer than the anthers³.

Linneus has a suspicion that this is a hybrid plant, produced from one of the Campanulas impregnated by *Veronica hederifolia*. The reason he gives is, that the leaves are quite foreign to those of others in this genus; yet surely they resemble much more the root-leaves of *Camp. rotundifolia* than those of *V. hederifolia*⁴.

Native of England and Wales, Denmark, France, and Spain, in moist shady places. It was first discovered to grow in this country, says Johnson in Gerarde, by Mr. George Bowles in 1632, who found it in Montgomeryshire; in Cornwall and Devonshire it is common. In Bagley-wood near Oxford. Near Baly, Maresfield, &c. in Sussex; near Sheffield and Halifax in Yorkshire. And on Epping Forest. Said to be common in the western counties and many parts of Wales. It flowers from May to August.

54. See *Lobelia Erinus*.

55. Root perennial, white, sweet, and full of milk.

Lower leaves like those of the Daisy, disposed in a ring, brownish green, shining, two inches and a half long, and half an inch wide: those on the stem are more like those of *Nummularia*, fleshy, smooth, bright green, eight or nine lines in length, terminating insensibly in a point, on a very short petiole, frequent, alternate. Stems eight or nine inches long, a line in thickness, milky, and full of white pith. Flowers axillary, seven or eight lines long, and four or five wide, pale blue. Calyx five lines in length, and three in width, pale green. Fruit three-celled, filled with brownish red, polished, oval seeds, the third of a line in length. The whole plant is insipid⁵.

According to Linneus, the leaves are obovate, pubescent, waved at the end; the stem branches alternately; and the flowers pendulous⁶.

Native of the Levant. Found by Tournefort in the desert isle of Cheiro.

56. This is a low annual plant, seldom rising six inches high, but dividing into many branches. [Root white, simple, with few fibres. Leaves alternate, but where the branches come out two opposite, very deeply toothed. Flowers small, pale blue⁷.] They are produced at the ends of the branches, are shaped like those of *C. Speculum Veneris*, but their colours are less beautiful, and the leaflets of the calyx are broader.

[Villars remarks, that the whole plant is villose, and that it has rather the air of an annual *Veronica* than of a *Campanula*: it agrees however, as Linneus observes, in all respects with the *Campanulas*.

Native of Spain and Portugal, Italy, Sicily, and the South of France. Morison observed it in Poitou near Rochelle; Ray about Montpellier and Messina; Villars near Vienne, Valence, Montelimar, &c.; Allioni in the county of Nice; and Loefling at Oporto and St. Ybes. It was cultivated by Mr. Miller in 1768; and flowers in July and August⁸.

57, 58, 59, 60. These were found at the Cape of Good Hope by Thunberg⁹.

61. Root perennial. Stems many, straight. Leaves in fives or sixes, lanceolate, serrate. Whorls of flowers usually five, very remote; peduncles somewhat branching, with a linear upright stipule at the base. Calyxes small, simple; the segments brittle-shaped; corollas small, pale blue; style double the length of the corolla. Native of Siberia; flowering in June¹⁰. Introduced in 1783, by Mr. John Bell¹¹.

62. This is a tender plant, found in moist places, near the Cape of Good Hope by Thunberg¹².

63. Root fusiform. Stem herbaceous erect, the whole smooth. Leaves sessile, acute, entire, reflected at the edge, expanding, smooth, an inch long. Flowers axillary, peduncled. Peduncles capillary, one-flowered, seldom divided, three times the length of the leaves. It flowers in September¹³.

64. Stem obscurely angular, jointed, smooth, simple at bottom, panicled at top, two feet high. Branches four, opposite and alternate, wand-like, diffused, obscurely four-cornered, floriferous, smooth; the upper ones shorter, capillary. Leaves sessile, attenuated towards the base, acute; green above, pale beneath with the midrib raised; smooth, erect, an inch or more long, the length of the internodes. Flowers on the branches racemed, drooping. Bractes setaceous, smooth. Racemes many-flowered, on capillary peduncles, half an inch in length. Perianth permanent, decurrent. Corolla whitish. Anthers linear. Style double the length of the corolla; stigma trifid¹⁴.

65. Stem undershrubby, smooth, erect, two feet high. Branches very angular, flexuose, erect, subfastigate, smooth. Leaves scattered, acute, serratures argute, the edge a little reflected; above green, beneath glaucous, scabrous, netted; the lower ones larger, expanding; the upper gradually less, erect, about an inch in length. Flowers axil-

¹ Spec. and hort. cliff.

² Hort. kew.

³ Commelin.

⁴ Allioni.

⁵ Engl. bot. With. Ray.

⁶ Engl. bot.

⁷ Tournef. voy. du Levant.

⁸ Syst.

⁹ Ray.

¹⁰ Hort. kew.

¹¹ Linn. suppl.

¹² Pallas.

¹³ Hort. kew. 3. 486.

¹⁴ Linn. suppl.

¹⁵ Thunb.

¹⁶ Ibid.

lary on the tops of the branches. Peduncles erect, bracted, an inch long. Bractes one or two on a peduncle, alternate, lanceolate, resembling the leaves. Calyx subangular, glaucous; divisions lanceolate, reflex. Corolla large, blue. It flowers in july and august; and is cultivated in Japan.

66. Stem thick at the base, rather woody, decumbent. Branches very many, capillary, rather erect, with a very few subdivisions, striated, smooth, a short span in length. Leaves on the lower part of the branches sessile, alternate, white-edged; serrature remote, hispid with white hairs, half an inch long.—By road sides; flowering in may and june^b.

These four were discovered in Japan by Thunberg.

67. Native of New Zealand and New Caledonia^c.

68. This very elegant Campanula has a few leaves at the bottom, rather erect, on petioles the length of the leaves, and grooved within. The leaves are drawn to a point at each end, have on each side two or three sharpish teeth, are of a deep green, roughish, rather firm and not juicy. The little stem is erect, rather firm, round, smooth, half a finger high. Flower erect: calyx smooth, five-cleft beyond the middle, the segments lanceolate-linear, not reflected, nor expanded, nor appendicled. Corolla blue.

Native of Piedmont. Perennial^d.

69. Radical leaves very many, petioled, decurrent, acute, shortly toothed or rather notched, nerved beneath, finely and thinly haired so as to seem almost smooth. Stem round, a short span in height. Calyx livid, five-cleft beyond the middle; segments lanceolate, not reflex. Corolla spreading. Native of Piedmont. Perennial^e.

70. Many stems and shoots form a tuft. The shoots have only ovate, acuminate, toothed, petioled leaves; they flower the second year, are a short span in length, and branching; the branches lax, slender, bearing few flowers: leaves at the base imbricate, lanceolate, sessile, scattered, dotted beneath, above the middle moderately concave, toothed: teeth terminating in a reddish gland. A third part of the stem is covered with these; the rest are linear, quite entire, and more remote. The flowers nod: corolla deep blue, half an inch long and four lines over, form oval wider below than at the edge; with three lines on each segment. Divisions of the calyx the length of the segments of the corolla, erect, not toothed, slender and very sharp. Germ very smooth, ten-angled, the angles alternately thicker. Haller took it for a variety of *C. alpina*. In dry rocky mountains, flowering the beginning of august^f.

Very nearly allied to the *rotundifolia*. Perennial.

Native of Switzerland, Dauphiné, Carniola, Piedmont.

Bellardi found a variety of this with all the leaves lanceolate^g.

71. Root perennial. Very nearly allied to *C. linifolia* of John Bauhin, but the leaves are rather strigose, hirsute, broader, and toothed^h.

It seems to be the intermediate link between the *rhomboidea* and *uniflora*. Haller has united it to the latter. The root is small, and throws out one or two stems only two or three inches high, often bending to one side and arched. Stem-leaves oval oblong and linear. A single flower at the top is deep blue or almost black, more lengthened out than in the species that most resemble itⁱ.

Native of Piedmont and Dauphiné.

72. Root perennial. Plant entirely smooth. Stem three feet high, simple, streaked, round. Leaves soft, ovate-lanceolate, unequally and sharply toothed. Each axil produces a flower on a short peduncle. Towards the top the flowers are nearer each other, and have linear bractes. Calyx five-cleft beyond the middle, with narrow segments, not reflex. Corolla and calyx nearly equal. Native of Italy, in woods^k.

73. Root perennial, creeping. Stems only two or three inches in height, having at top a single flower, which hangs down, is a little villose, shorter than in *C. barbata*, but wider and more puffed out; calyx rough, the segments reaching to the middle of the corolla, and having small appendages at the base. Root-leaves, which appear the first year, small, blunt, and almost round; those which come afterwards are longer; the bottom stem-leaves are still longer, pointed, and a little waved on the edge, they are all roughish, and ciliate on the edge with small stiff hairs^l.

Haller gives this as a variety of *C. barbata* (n. 35.). Allioni is persuaded that it is a distinct species; and says, that he has found a one-flowered variety of that on Mont Cenis, but differing entirely from this in not having the leaves acute. *C. alpestris* is seldom, if ever, many-flowered. It grows on the very high Alps; and on Mont Cenis varies with a white flower^m. According to Villars, it does not keep to the high Alps, among the turf, as the *barbata* does, but is frequently found in loose ground, among shattered rocks, and in and about torrents which carry it down into lower situations. Add to this, that the *barbata* is biennial, and pushes up only one stem or at most two; whereas this, from a perennial root, pushes up several stems, which creep on every side. It is not always one-flowered, but then the flowers are axillary, upright, and not hanging down at the extremity of the stem, as in the *barbata*.]

74. This has many stiff oblong leaves coming out from the root on every side, which form a sort of head like those of Houseleek, crenate, having a strong rib running on their border longitudinally. From the center of the plant proceeds the stalk, which rises about a foot high, and is thinly garnished with very narrow stiff leaves, of a shining green. From the wings of the leaves come out the peduncles, which are from two to four inches long, each being terminated by one spreading bell-shaped flower, whose calyx is short, and cut into five acute segments. The style of this is longer than the petal, and is crowned by a bifid stigma. There is a white and a blue flower of this sort in the gardens, but in Holland they have it with a double flower.

It is a native of North America, and has been long known in the gardens both of Holland and England. [Mr. Miller cultivated it in 1743. It flowers in julyⁿ.

75. The stems are a little shrubby at the base^o. Native of the Cape of Good Hope, where it was found by Mr. Francis Maffon. Introduced in 1787. It is an annual, and flowers in september^p.

76. This is a very beautiful plant, but extremely brittle, abounding in milk, commonly quite smooth, bright green and lucid, but sometimes lanuginous; it has a handsome head of flowers. The root is perennial and brown. The root-leaves are crowded, and kidney-form, with about eight ovate notches on the edge; petioles grooved, from an inch to two inches in length: stem-leaves alternate, ovate-lanceolate, with smaller notches: floral-leaves or bractes lanceolate-ovate, quite entire. Stems numerous, crowded, weak, hanging from the clefts of the rocks, branching towards the middle. Flowers two, three or more from the ends of the branches: segments of the calyx lanceolate, acute, rendered angular by a ridge along the back of each: corolla large, bright blue, flat with a very short tube, and sharp segments deeply cut: the nectariferous scales have the edge rough with hairs^q.

Native of the kingdom of Naples, especially on the coast of the bays of Salerno and Amalfi. First observed by Ray, then by Barrelier, and finally by Cyrilli and his family.

77. Root biennial. Stem upright, streaked, a foot or more in height, scarcely leafy, with spread-

^a Thunberg.

^c Forster.

^d Allioni.

^e Ibid.

^f Scopoli.

^g Allioni.

^h Ibid.

ⁱ Villars.

^k Allioni.

^l Villars.

^m Allioni.

ⁿ Hort. kew.

^o L'Heritier.

^p Hort. kew.

^q Cyrilli.

ing branches. Leaves radical, petioled. Flowers remote, commonly two together, blue, with a bracte under them the length of the germ : segments of the calyx acute ; those of the corolla lanceolate, cut almost to the base. Capsule turbinate, angular, three-celled, with three holes opening laterally.

It differs from *C. limoniifolia* in having the corolla so deeply cut, whereas in that they are divided only half way ; the leaves also are toothed and somewhat rugged.

Native of Mount Libanus'.

78. Stem herbaceous, procumbent, subdivided, very much branched ; the small branches creeping. Leaves oblong-ovate, quite entire, small, hairy, opposite. Flowers white, sessile, axillary, solitary : calyxes acute, upright ; corollas small, with rounded, acuminate segments ; stigma trifid. Capsules roundish-three-cornered, hairy, three-celled, one-seeded. Native of Cochinchina'.]

PROPAGATION AND CULTURE.

6. *Rampion* is propagated by seeds, which should be sown in a shady border the latter end of may, and when the plants are about an inch high, the ground should be hoed, as is practised for Onions, to cut up the weeds, and thin the plants to the distance of three or four inches ; and when the weeds come up again, they must be hoed over to destroy them : this, if well performed in dry weather, will make the ground clean for a considerable time, so that being three times repeated, it will keep the plants clean till winter, which is the season for eating the roots, when they may be taken up for use as they are wanted. These will continue good till april, at which time they will send out their stalks, when they will become hard and unfit for use, as do also those roots which have flowered ; the young roots only are fit for the table, when the seeds are sown too early, the plants frequently run up to flower the same year, and the roots are spoiled.

7. The *Peach-leaved Bell-flower*, and all the other hardy perennial sorts, which are very numerous in this genus, are easily propagated by parting their roots in autumn, at which time every head that is slipped off will grow. They will thrive in any soil and situation ; and are proper furniture for the common borders of the flower-garden and shrubbery.

8. Those plants of the *Pyramidal* or *Steeple Bell-flower* which are trained for adorning halls and chimnies are seldom fit for the purpose the following season ; a supply of young plants therefore should be annually raised. The common method of doing this is by dividing the roots ; and the best time for doing it is in september, that the offsets may have time to get strong roots before winter.

This method of propagating by the offsets is the quickest, therefore generally practised, but the plants which are raised from seeds, are always stronger ; the stalks will rise higher, and produce a greater number of flowers ; therefore I recommend it to the practice of the curious ; but in order to obtain good seeds, there should be some strong plants placed in a warm situation, near a pale, or wall, in autumn ; and, if the following winter should prove severe, they should be covered either with hand-glasses or mats, to prevent their being injured by the frost ; and, in the summer, when the flowers are fully open, if the season should prove very wet, the flowers must be screened from great rains, otherwise there will be no good seeds produced : the not observing this, has occasioned many to believe that the plants do not bear seeds in England, which is a great mistake, for I have raised great numbers of the plants from seeds of my own saving ; but I have always found that the plants which have been long propagated by offsets, seldom produce seeds, and this is the case with many other plants which are propagated by slips, or cuttings, which in a few years become barren.

When the seeds are obtained, they must be sown in autumn in pots, or boxes, filled with light undunged

earth, and placed in the open air till the frost or hard rains come on, when they should be placed under a hot-bed frame, where they may be sheltered from both, but in mild weather the glasses should be drawn off every day, that they may enjoy the free air ; with this management the plants will come up early in the spring, and then they must be removed out of the frame, placing them first in a warm situation ; but when the season becomes warm, they should be removed where they may have the morning sun only. During the following summer they must be kept clean from weeds, and in very dry weather, now and then refreshed with water, which must be given with great caution, for the roots are very subject to rot with too much moisture. In september the leaves of the plants will begin to decay, at which time they should be transplanted ; therefore there must be one or two beds prepared, in proportion to the number of plants. These beds must be in a warm situation, and the earth light, sandy, and without any mixture of dung, which last is an enemy to this plant. If the situation of the place is low, or the natural soil moist, the beds must be raised five or six inches above the surface of the ground, and the natural soil removed a foot and a half deep, putting lime rubbish eight or nine inches thick in the bottom of the trench, to drain off the moisture. When the beds are prepared, the plants must be taken out of the pots, or cases, very carefully, so as not to break or bruise their roots, for they are very tender, and, on being broken, the milky juice will flow out plentifully, which will greatly weaken them. These should be planted at about four inches distance each way, with the head or crown of the root half an inch below the surface ; if there happens a gentle shower of rain soon after they are planted, it will be of great service to the plants ; but as the season sometimes proves very dry at this time of the year, in that case, it will be proper to give them a gentle watering three or four days after they are planted, and to cover the beds with mats every day, to prevent the sun from drying the earth ; but these must be taken off in the evening, that the dew may fall on the ground. Towards the end of october the beds should be covered over with some old tanners bark to keep out the frost, and where there is not convenience of covering them with frames, they should be arched over with hoops, that in severe frosts they may be covered with mats ; for these plants, when young, are often destroyed in winter, where this care is wanting. In the spring the coverings must be removed, and the following summer the plants must be kept clean from weeds ; and, if the season should prove very dry, they must now and then be refreshed with water. The following autumn the surface of the ground should be stirred between the plants, and some fresh earth spread over the beds, and in the winter covered as before. In these beds the plants may remain two years, during which time they must be treated in the manner before directed ; by which time the roots will be strong enough to flower : in september they should be carefully taken up, and some of the most promising planted in pots ; the others may be planted into warm borders, or in a fresh bed, at a greater distance than before, to allow them room to grow. These plants which are potted should be sheltered in winter from great rains and hard frosts, otherwise they will be in danger of rotting, or at least be so weakened, as not to flower with any strength the following summer ; and those which are planted in the full ground, should have some old tanners bark laid round them, to prevent the frost from entering deep to the roots ; with this management these plants may be brought to the utmost perfection, and a constant succession of good roots raised, which will be much preferable to those which are propagated by offsets. I have been informed that there is a double flower of this kind, but as I have not seen any, I can give no farther account of it.

[16. This, and several other sorts of *Campanula* deserve to be more generally cultivated ; for their large and showy flowers. They are well adapted to the

the decoration of rock-work, and being hardy perennials, may be propagated by parting their roots in autumn.]

22. *Broad-leaved Bell-flower* is easily propagated by seeds, which it furnishes in great plenty; if these be suffered to scatter the plants will come up abundantly the following spring, when they may be removed into the nursery till autumn, at which time they should be transplanted where they are designed to remain. As this sort delights in shade, the plants may be placed under trees, or in shady borders, where few better things will thrive, and they will there afford an agreeable variety when in flower.

28. With respect to the *Great Canterbury Bells*, the double sorts are propagated by parting their roots in autumn, which should be annually performed, otherwise the flowers are apt to degenerate to single. The soil should not be too light or rich, in which they are planted, for in either of these they will degenerate; but in a strong fresh loam their flowers will be in the greatest perfection. These plants being extremely hardy, may be planted in any situation; those with single flowers do not merit a place in gardens.

5, 30, 39. *Spreading or Field Bell-flower*, *Cervicaria* or *waved-leaved Bell-flower*, and *Rock Bell-flower*, with several others, may be propagated by seeds, sown in the autumn; for such as are sown in the spring often fail, or at least lie a year in the ground. When the plants come up they should be removed into beds, and kept clean from weeds. A few plants of the thirty-ninth sort may be set in pots, to be sheltered in winter.

34. The *Medium*, commonly called *Coventry or Canterbury Bells*, is propagated by seeds, sown in the spring on an open bed of common earth. When the plants are fit to remove, they are to be transplanted into other beds in the flower-nursery, six inches asunder, observing to water them frequently till they have taken new root; after which they will require no other culture, but to keep them clean from weeds till the following autumn, when they may be transplanted into the borders of the flower-garden. As these plants perish the second year, young ones should be raised annually for a succession.

46. [*Venus's Looking-glass* is commonly sown in patches in the borders of the flower-garden among other hardy annuals in the spring;] but if it be sown in autumn, it will grow much taller, and flower a month earlier, namely in may.

49, 50, 56. May be treated in the same way; or if the seeds be permitted to scatter, they will come up without care.

74. This not producing seeds in England, is only propagated by offsets, which should be taken off in august, that they may get good root before cold weather comes in. They must be planted in small pots, filled with fresh, light, loamy earth, and placed in the shade until they have taken root; then they may be put along with other hardy exotic plants; and in autumn they must be removed into shelter, for in severe winters plants which are exposed are often destroyed; though in mild winters they will live in the open air.

[The directions given above, under the different articles, may serve for all the other hardy annuals, biennials, and perennials, of which this genus chiefly consists. Some of the species come from the Cape; these must be kept in the dry stove, and otherwise treated like the plants from that country; they may in general be increased from cuttings.]

CAMPANULA. See *Canarina*, *Hamellia*, *Linum*, *Lobelia*, *Phyteuma*, *Roella*.

CAMPANULATA. See *Linnaea*.

CAMPECHE WOOD. See *Hematoxylum*.

CAMPHIRE OR CAMPHOR WOOD and CAMPHORA. See *Laurus*.

CAMPHORATA. See *Camphorosma*, *Herniaria*, *Polycnemum*, and *Selago*.]

CAMPHOROSMA. (From *Camphora* and *ὄσμη* odor: swelling of Camphor.)

Lin. gen. n. 164. Reich. 176. Schreb. 221.

Camphorata. Tournef. atl. 1705. Juss. 84.

Class. 4. 1. Tetrandria Monogynia.

Nat. order of *Holoraccæ*. *Atriplices* Juss.

GENERIC CHARACTER.

CAL. Perianth pitcher-shaped, half-four-cleft, compressed, permanent: segments acute; the opposite ones largish, recurved.

COR. none.

STAM. Filaments four, filiform, equal. Anthers oval.

PIST. Germ ovate, compressed. Style filiform, half-two-cleft, longer than the calyx. Stigmas acute.

PER. Capsule one-celled, gaping above, covered by the calyx.

SEED single, oval, compressed, shining.

OBS. Calyx four-leaved, the two larger leaflets keeled, the two smaller ones flat. Stamens four, shorter than the calyx. Styles two, longer than the calyx. Zinn. Stamens five, longer than the flower; calyx five-toothed. Pollich palat. 1. p. 166.

ESSENTIAL CHARACTER.

Cal. Pitcher-form: two of the teeth opposite, and the alternate ones very small. Cor. none. Caps. one-seeded.

SPECIES.

1. *Camphorosma monspeliaca*. Hairy *Camphorosma*.
Lin. spec. 178. Reich. 347. amæn. 1. 392. mat.
med. 53. Villars dauph. 2. 308. Allion pedem.
n. 2062. Plenck, ic. t. 68.
Camphorata hirsuta. Baub. pin. 486. Buxb. cent. 1.
18. t. 28. f. 1. Zinn. gott. 36. Raii hist. 210.
C. monspeliensium. Baub. hist. 3. 379. f. 380.
Tabern. hist. 57. 1. Park. 568. 1.
Leaves hirsute.
- [2. *Camphorosma acuta*. Sharp-leaved *Camphorosma*.
Lin. spec. 178. Reich. 348. amæn. 1. 393. 2.
Pollich pal. n. 167.
Camphorata altera. Tabern. hist. 57. 2.
Camphoratae congener. Baub. pin. 486. Raii hist.
210. Park. 568. 3.
Anthyllis altera Italorum. Lob, ic. 407, Ger.
emac. 623. f. 3.
Leaves subulate, rigid, smooth.]
3. *Camphorosma glabra*. Smooth *Camphorosma*.
Lin. spec. 178. Reich. 348. amæn. 1. 393. 3.
Camphorata glabra. Baub. pin. 486. Dalech. hist.
1179. Hall. helv. ed. 1. 183. n. 1.
Polycnemum. Hall. helv. n. 1570.
Leaves subtriquetrous, smooth, unarmed.
- [4. *Camphorosma Pteranthus*.
Lin. syst. 166. Reich. 348. mant. 41.
Louichea cervina. L'Herit. monogr.
Pteranthus dichotomus. Forsk. ægypt. 36.
Very branching; peduncles ensiform, dilated; bractes
crested.
5. *Camphorosma paleacea*.
Lin. syst. 166. suppl. 128.
Shrubby, branches spike-form chaffy hairy.]

DESCRIPTIONS, &c.

1. This is an annual plant with trailing branches; extending a foot or more in length. Leaves linear, hairy, placed close on the branches. The flowers are produced from the joints, and are so small as to be scarcely perceptible. [Native of the South of France, Spain, the county of Nice, &c. Ray observed it about Montpellier, Avignon, &c. It was cultivated in 1739 by Mr. Miller^a.

The whole plant smells of Camphor. It abounds in a volatile oily salt, and is warm and stimulating. An infusion of it is of service in the asthma. The dose from half an ounce to an ounce and half^b. In *Leucorrhæa eximium medicamentum*. Lin. amæn.

2. Root perennial, slender, fusiform, fibrous. Stems many, woody, decumbent, round, hairy, roughish, from a finger's length to a foot in height. Branches alternate. Leaves alternate, sessile, linear, rather acute, quite entire, at the base, especially the floral leaves, ciliate, five lines long, and hardly a quarter

^a Hort. kew.

^b Allioni.

of a line broad, bright or yellowish green, pubescent, soft: there are usually two smaller ones by the side of these, a line in length. Two small flowers, half a line in length and breadth are sessile in each axilla. Calyx roundish, villose, with five ciliate toothlets. Stamens five, longer than the flower, with roundish, yellow anthers. Style one: germ ovate, rather acute.—In very dry sandy fields: flowering in July and August^c. Native of the Palatinate, Italy, and Tartary.]

3. This is a perennial plant, with trailing branches. The flowers are not more visible than those of the first sort.

[Haller, in the first edition of his Swiss plants, keeps this, and *Polycnemum arvense* separate, both under the name of *Camphorata*: but in the second edition he puts the synonym of *Camph. glabra*, *Bauh. pin.* to his *Polycnemon*. Linneus gives that of *Anthyllis altera* Italorum, *Lob.* both to the *Polycnemon*, and his second species of *Camphorosma*: as he does also that of *Camphoratæ* congener, *Bauh. pin.* Lin. spec. edit. 2.

4. Root annual, fibrous. Stem herbaceous, jointed, a palm high, dichotomous or trichotomous. Leaves linear, a little branched, roundish, verticillate, the two lower somewhat larger. Flowers subsessile, green, small, surrounded with a very short bifid membrane, from which on each side are three imbricate, foliaceous bractes, like the rudiments of leaves. Capsule globular, clothed with a two-horned spreading calyx and two awns from the outer leaflets of the calyx. Peduncle membranaceous, very much compressed. Native of Arabia^d, Egypt, and Barbary.

Monf. L'Heritier has constituted a new genus from this plant, under the name of *Louichea*, from his friend Monf. René Louiche Desfontaines, M. D. Prof. Bot. Member of the Academy of Sciences at Paris; he having sent the seeds from Barbary to Monf. L'Heritier, in whose garden it flowered and perfected seeds.—It is singular in its manner of flowering, and its fruit resembling a stag's horns.

5. A shrub scarcely a foot high, determinately-branched. Branches alternate, the leaves and flowers mixed and imbricate. Chaffs membranaceous, white, minute. Leaves minute, elliptic, even, sessile. Calyxes four-leaved: petals four, very short, ciliate, obtuse. Stamens scarce longer than the calyx. Germ superior; style capillary; stigma simple. All which is hardly visible to the naked eye. Found at the Cape, by Thunberg.]

PROPAGATION AND CULTURE.

These plants are preserved in gardens merely for the sake of variety. They are propagated by seeds, which succeed best when sown in the autumn. The European sorts require only to be thinned, and kept clean from weeds; and if they are permitted to scatter their seeds, there will be a supply of young plants in the spring.

[*CAMPHOROSMA*. See *Dracocephalum*.]

CAMPION. See *Agrostemma*, *Cucubalus*, and *Lychnis*.

[*CAMUNUM*. See *Chalcas*.]

CANARINA. (From the Canary islands, of which it is a native.)

Lin. gen. Reich. n. 480. Schreb. 603. Juss. 164.

Class. 6. 1. Hexandria Monogynia.

Nat. order of *Campanaceæ*. *Campanulaceæ* Juss.

GENERIC CHARACTER.

CAL. Perianth superior: leaflets six, lanceolate, recurved, permanent.

COR. monopetalous, bell-form, six-cleft, nerved. Nectary of six valves, equal, distant, covering the receptacle.

STAM. Filaments six, subulate, spreading outwards, originating from the valves. Anthers pendulous from the tip.

PIST. Germ inferior, six-cornered. Style conical, short. Stigma longer than the stamens, clavated, six-cleft.

PER. Capsule six-angled, obtuse, six-celled.

SEEDS numerous, small.

^c Pollich.

^d Linn. mant.

ESSENTIAL CHARACTER.

Cal. six-leaved. *Cor.* six-cleft, bell-form. *Stigmas* six. *Caps.* inferior, six-celled, many-seeded.

SPECIES.

1. *Canarina Campanula*. *Canary Bell-flower*.

Lin. syst. 344. Reich. 2. 110. mant. 225.]

Campanula canariensis. Lin. spec. 238. syst. 209.

Mill. dict. n. 14. hort. cliff. t. 8. Pluk. alm. t. 276. f. 1.

[Stem erect, leaves hastate, in threes or opposite.]

2. *Canarina Zanguebar*.

Lour. cochinch. 195.

Stem scandent, leaves hastate alternate.

DESCRIPTIONS, &c.

1. Root perennial, tuberous-fusiform. Stem three feet high erect solitary round even with swelling joints. Branches by three from each joint; the upper ones longer, dichotomous at the end; branchlets alternate. Leaves on the stem in threes, on the branches opposite, petioled, hastate, toothletted, even, veined. Flowers from the forks of the upper branches solitary, peduncled, drooping. Corolla larger than the leaves, resembling that of Crown Imperial, rufous, brighter within, with a yellow eye; each segment with three purple nerves. Style club-form, longer than the stamens.

It is very nearly allied to the *Campanulas*, but is distinguished from them, because the number six generally prevails in the germ, calyx, corolla, nectary, stamens, and stigma^e.

It was cultivated in 1696, in the royal garden at Hampton Court; and flowers from January to March^f.

2. Stem shrubby, round, even, branched. Leaves cordate-hastate, quite entire, smooth, veined, petioled. Flowers solitary, lateral. Corolla pale-coloured. Capsule subovate, sharp at the base, six-nerved, opening at the base. Seeds cordate, compressed, surrounded by a turbinate wing, odorous. Native of Zanguebar on the coast of Africa^g.]

PROPAGATION AND CULTURE.

1. It is propagated by parting the roots, which must be done with caution, for if they be broken or wounded, the milky juice will flow out plentifully, so that if they be planted before the wounds are skinned over, it occasions their rotting, therefore whenever any of them are broken, they should be laid in the green-house a few days to heal. The roots must not be too often parted, for that weakens the plants, and prevents them from flowering well. The best time for doing it is July, soon after the stalks are decayed. The earth should not be rich, for that will cause the plants to be luxuriant in branches, but poor in flowers. The soil in which they succeed best, is a light sandy loam, with a fourth part of screened lime-rubbish. The pots should at first be placed in the shade, and, unless the season be very dry, they should not be watered. About the middle of August the roots will begin to put out fibres; when, if the pots be placed under a hot-bed frame, and as the nights grow cool, be covered with the glasses, opening them every day, it will greatly forward their flowering, and increase their strength: when the stalks appear, the plants must be now and then refreshed with water, but it must not be given too often, nor in great quantity. By the middle of September the plants will be grown so tall, that they must be removed into a dry airy glass-case, where they may enjoy the free air in fine weather, and yet be screened from cold. In winter they must be frequently refreshed with water, and screened from frost. In spring, when the stalks begin to decay, the pots should be set abroad in the shade, and not watered.

[*CANARIUM*. (From its vernacular name *Canari* in the Malay language.)

Lin. gen. Reich. n. 480. Schreb. 1516. Juss. 370.

Gartn. t. 102.

Class. 22. 5. Dioecia Pentandria.

^e Linn. mant. and syst.

^f Hort. kew.

^g Loureiro.

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GENERIC CHARACTER.

Male.

CAL. *Perianth* two-leaved; *leaflets* ovate, concave, permanent.

COR. *Petals* three, oblong, like the calyx.

STAM. *Filaments* five, very short. *Anthers* oblong, of the length of the petals.

Female.

CAL. As in the male; *leaflets* reflex.

COR. As in the male.

PIST. *Germ* ovate. *Style* scarcely any. *Stigma* headed, three-cornered

PER. *Drupe* dry, ovate, acuminate, base surrounded by a crenate membrane.

SEED. *Nut* ovate, three-cornered, acute.

ESSENTIAL CHARACTER.

MALE. *Calyx* two-leaved. *Corolla* three-petalled;

FEMALE. *Calyx* two-leaved. *Corolla* three-petalled. *Stigma* sessile. *Drupe* with a three-cornered nut.

SPECIES.

1. *Canarium commune*.

Lin. syst. 885. *mant.* 127. *Reichb.* 4. 248. *Rumph.* *amb.* 2. 145. *t.* 47. *Besl. mus.* p. 22. *t.* 5. *Baub. hist.* 1. l. 3. p. 308.

C. *Mehenbethene*. *Gertn. fruct.* 2. 98.

β. *Canarium sylvestre*.

Gertn. fruct. 2. 99. *Rumph. amb.* 2. 155. *t.* 49.

γ. *Canarium decumanum*.

Gertn. fruct. 99. *Rumph. amb.* 2. 166. *t.* 55.

DESCRIPTION, &c.

Leaves alternate, pinnated with an odd foliole; the common petioles striated: folioles nine, petioled, ovate-oblong, acuminate, even. Panicles with divaricate, rigid branches. Flowers sessile^a.

The fruit is a superior, ovate-acuminate berried drupe, covered with a thin olive-coloured skin; and having within it very little pulp full of capillary fibres. Shell bony, either very obscurely furrowed or smooth, three-celled, with three blunt teeth at the tip, and three obscure raised lines on the sides, bored with a filiform canal the whole length of the axis. In each cell a pair of seeds, of which one only comes to maturity; it is ovate-oblong.

The *Canarium commune* of Linneus is a mere variety of this. The drupe is a little larger, and the pulp without fibres. The shell is more acutely three-cornered, the angles near the vertex marked with white, and as it were fungous, the sides very smooth, flattish, without the middle raised streak. Of the three cells two almost obliterated, the third only fertile, and larger than in this. The seed also a little larger.

In the oldest seeds, the kernel is never rancid in either of these, but always sweet like that of sweet almonds; which is the more remarkable, because the cotyledons seem always as if anointed with oil, inasmuch that they are very slippery and repel water^b.

This is a tree, native of the Molucca isles, Banda, New Guinea, &c. The nuts are eaten both raw and dressed by the inhabitants; an oil is expressed from them which is used at the table when fresh, and for lamps when stale; bread is also made of them, and cakes, biscuits, &c. for the table. Eaten fresh, they are apt to bring on diarrhoeas and dysenteries, and to occasion an oppression of the breast^c.

β. The drupe is fleshy, obovate or thicker at top, rounded not three-cornered. Shell ovate, stony, very thick, very obscurely three-cornered, with three depressed longitudinal lines, to which as many small callous tubercles are joined below the tip of the shell. Cells three, two of which are often obliterated, the third only fertile, very irregular, and lined with a very smooth cartilaginous crust. Seed oblong, three-cornered, bent like the letter S, gibbous in contrary directions near each end: skin single, membranaceous, chestnut-bay-coloured. No albumen. Embryo very brittle. Cotyledons six, unequal, variously bent. It is very difficult to get out

^a Linn. mant.

^b Gartner.

^c Rumphius.

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the kernel from the shell, on account of its singular form and brittleness.

γ. The drupe is larger than that of the others. Shell ovate-oblong, three-cornered, stony, thick, six-toothed at the end: angles prominent, smooth, with a longitudinal groove in the middle, and the sides with holes, as if eaten with worms: axis perforated with a three-sided canal: cells three, large^d.

CANARY-GRASS. See *Phalaris*.

CANDEL and CANDELA. See *Rhizophora*.

CANDELABRUM. See *Ceropegia*.]

CANDLEBERRY-TREE. See *Myrica*.

CANDY-TUFT. See *Iberis*.

[CANE. See *Arundo*.

CANELLA.

Lin. gen. Schreb. n. 817. *Swartz obs.* 189. in

Linn. transf. 1. 99. *t.* 8. & 2. 356. *Brown.*

jam. 275. *Gertn. t.* 77. *Winterana. Lin. gen.*

n. 598. *Reichb.* 653. *Juss.* 263.

Class. II. 1. Dodecandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* one-leaved, three-lobed: lobes roundish, concave.

COR. *Petals* five, oblong, sessile, longer than the calyx; two a little narrower than the rest.

Nectary pitcher-shaped, the length of the petals, anther-bearing.

STAM. *Filaments* none. *Anthers* twenty-one (fifteen, S. twelve to twenty, G.) linear, parallel, distinct, fastened on the outside to the nectary.

PIST. *Germ* superior, within the nectary, ovate. *Style* cylindric, the length of the nectary. *Stigmas* two (two or three, Sw. obs. three, S.) blunt, convex, wrinkled.

PER. *Berry* oblong, three-celled.

SEEDS roundish-kidney-shaped (two to four.)—in pairs, cordate, Schreb.—geminat, shining, Gertn.

Obs. Allied to *Tinus*. In the ripe fruit, one cell only is fertile, the rudiments of the other two being rarely seen.

ESSENTIAL CHARACTER.

Cal. three-lobed. Cor. five-petalled. *Anthers* twenty-one (twelve to twenty-one) fastened to a pitcher-shaped nectary. *Berry* three-celled (one or two-cells abortive). *Seeds* two to four.

SPECIES.

1. *Canella alba*. Laurel-leaved *Canella*.

Lin. syst. 443. *Ait. hort. kew.* 2. 125. *Swartz*

obs. 190. in *Linn. transf.* 1. 96. *t.* 8. *Brown.*

jam. 275. *t.* 27. *f.* 1. 3. *Plenck, ic. t.* 363.

Woodv. med. bot. 318. *t.* 117.

C. *Winterana*. *Gertn. fruct.* 1. 373.

Winterania Canella. Lin. syst. ed. 13. 369. *Reichb.* 2. 418. *suppl.* 247. *mat. med.* 119. *Mill. dict.*

Laurus Winterana. Lin. spec. ed. 1. 371. *hort. cliff.* 448.

Cortex Winteranus. Blackw. herb. t. 206. *Dale pharm.* 296. *Lemery,* 170. *Pomet,* 147. &c.

Cassia cinnamomea. Pluk. phyt. t. 160. *f.* 7.

Pseudo-Cassia cinnamomea americana. Baub. pin: 409.—*Canella peruana. ejusd.* 461. *Park. theat.* 1581.

Canella Cubane. Johnst. dendr. 165.

Lignum s. potius cortex aromaticus. Monard. 334. *Laet.* 24.

Arbor baccifera, &c. Sloan. jam. 2. 87. *t.* 191. *f.* 2. & *Philos. transf. n.* 192. *p.* 462. *Catejb. var.* 2. *t.* 50.

Arbor Jucaia. Nieremb. 294.

DESCRIPTION, &c.

This is a tree, the stem of which rises from ten to fifty feet in height, very straight and upright, and branched only at the top. The bark is whitish, by which it is known at first sight in the woods. The branches are erect, and not spreading. Leaves petioled, alternate, but not regularly, oblong, pointed, entire, without any distinct nerves or veins, dark green, of a thick consistence like those of Laurel; and shining. The flowers grow at the tops of the branches in clusters, but upon divided peduncles;

^d Gartner.

they are small and seldom open, and of a violet colour. The lobes of the calyx are divided almost to the bottom, incumbent, green, smooth, membranaceous, permanent. The petals are concave, upright, thick and deciduous; as is also the nectary. The berry is fleshy, smooth, black: the receptacle is the central angle of the cells, to which the seeds are fixed. The seeds are regularly two in each cell, but one or two cells are commonly abortive; they differ in form, but are usually globular, and beaked, always very smooth, black and shining, the outer skin is crustaceous, thin and brittle; the inner of a bay-brown colour^f.

It is common in most of the West-India islands, and is frequently found near the coast; then seldom exceeding twelve or fifteen feet: in the inland woods it attains a more considerable height.

The whole tree is very aromatic, and when in blossom perfumes the whole neighbourhood. The flowers dried, and softened again in warm water, have a fragrant odour, nearly approaching to that of Musk. The leaves have a strong smell of Laurel. The berries, after having been some time green, turn blue, and become at last of a black colour and glossy, with a faint aromatic taste and smell. When ripe, the white-bellied and bald-pate Pigeons (*Columba jamaicensis* and *leucocephala*) feed greedily upon them, and thence acquire their peculiar flavour.

This bark, and the fruit of Capficum, were formerly common ingredients in the food and drink of the Caribs; and at present it makes a necessary ingredient in the meagre pot of the negroes^g. It was cultivated in 1739, by Mr. Miller^h.

The bark is brought to Europe in long quills, which are about three quarters of an inch in diameter, somewhat thicker than Cinnamon, and both externally and internally of a whitish or light brown colour, with a yellowish hue, and commonly intermixed with thicker pieces, which are probably obtained from the trunk of the tree. In taste it is moderately warm, aromatic, and bitterish. Its smell is agreeable, and resembles that of Cloves. Its virtues are extracted most perfectly by proof spirit. The use of Canella alba now supersedes that of the old bark of Winter, on the authority of both the London and Edinburgh pharmacopœias. It has been supposed to possess considerable virtues, and is said to be useful in scorbutic and many other complaints. It is now however considered merely in the light of an aromatic, and like many other spices, is employed for the purpose of correcting disagreeable drugs. It is therefore an ingredient in the pulv. aloet. Pharm. Lond. and in the tinctura amara, vinum amarum, vinum rhei, &c. of the Pharm. Edinb.]

PROPAGATION AND CULTURE.

This tree is too tender to live in England out of a stove. The plants require to be plunged in the tan-bed, and in winter should be sparingly watered; in summer they should have it in greater plenty, when also they should have a good share of air admitted to them when the weather is warm. With this management the plants may be preserved very well, but they are difficult to propagate either by layers or cuttings. The surest method is to procure fresh seeds from the West-Indies.

CANNA. (Usually not distinguished from arundo and calamus, but it is larger than the first, and less than the second. *Káwa* is interpreted *ψαδος*, which signifies a mat, and was made of this plant. Hence our word Cane.)

Engl. Indian Flowering Reed, or Indian Shot.

Fr. Balisier.

Lin. gen. 1. Reich. 1. Schreb. 1. Gært. t. 12.

Juss. 63. Cannacorus Tournes. 192.

Class. 1. 1. Monandria Monogynia.

Nat. order of Scitamineæ. Cannæ Juss.

GENERIC CHARACTER.

CAL. Perianth three-leaved; leaflets lanceolate, erect, small, coloured, permanent.

COR. monopetalous, six-parted; divisions lanceolate, conjoined at the base, the three outer ones erect, larger than the calyx; the three inner ones larger than the outer, two erect, one reflected; and thus constituting the upper lip.

Nectary petal-like, two-parted, of the length and figure of the petals; the upper division ascending, the inferior revolute, imitating the lower lip of a corolla.

STAM. Filament none. Anther linear, growing to the upper margin of the division which bears the nectary.

PIST. Germ roundish, rugged, inferior. Style single, ensiform, growing to the anther-bearing nectary, lanceolate, of the length and figure of a petal. Stigma linear, growing to the margin of the style.

PER. Capsule roundish, rugged, crowned, three-grooved, three-celled, three-valved.

SEEDS few, globular.

OBS. The nectary was afterwards regarded by Linneus as the lip of the corolla, to which the style grows.

Syst.

ESSENTIAL CHARACTER.

Corolla six-parted, erect; lip two-parted, revolute. Style lanceolate, growing to the corolla. Calyx three-leaved.

SPECIES.

1. *Canna indica*.

Lin. spec. 1. Reich. 2. fl. zeyl. 1. Gært. fruct. 1. 37. t. 12. Mill. illustr. Amer. nurnb. t. 1. Riv. mon. t. 111, 112. Bess. exst. ant. 2. t. 1, 2.

Cannacorus. Rumph. amb. 5. 177. t. 71. f. 2.

Arundo indica latifolia. Baub. pin. 19. Mor. hist. 3. 250. f. 8. t. 14. f. 1.

Canna f. A. ind., quibusdam Flos Cancr. Baub. hist. 1. 752. Raii hist. 1202.

C. ind. fl. rubro. Park. parad. 376. f. 1. 381.

Gladiolus indicus. Camer. epit. 731.

Arundo florida. Ger. 36. fig. emac. 39.

Katu-Bala. Rheed. mal. 11. 85. t. 43.

β. *Canna latifolia*. Mill. dict. n. 2.

Cannacorus amplissimo fol., fl. rutilo: Tourn. inst. 367.

γ. *C. coccinea*. Mill. dict. n. 3. Hort. kew. 1. γ.

C. fl. coccineo splendente. Tourn. inst. 367.

Scarlet Indian Reed or Shot.

δ. *C. lutea*. Mill. dict. n. 4.

C. ind. fl. flavo punctato. Hort. kew. 1. β. Park. parad. 376.

Cannacorus fl. luteo punctato. Tourn. inst. 367. Riv. t. 112.

Yellow Indian Reed or Shot.

Leaves ovate, acuminate at both ends, nerved.

[2. *Canna angustifolia*. Narrow-leaved Indian Reed. Lin. spec. 1. & 1675. Reich. 2. hort. cliff. 1. n. 2.

Cannacorus angustifolius, fl. flavescente. Tourn. inst. 367. Riv. t. 113.

Arundo indica florida angustifolia. Mor. hist. 3. 250. f. 8. t. 14. f. 6.

Albara, f. Pacivira. Pis. bras. 213.

Leaves lanceolate, petioled, nerved.]

3. *Canna glauca*.

Lin. spec. 1. Reich. 2. vir. cliff. 104. hort. cliff. 488. Hort. kew. n. 2.

Cannacorus glaucophyllus, ampliore fl. Iridis palustris facie. Dill. elth. t. 59. f. 69.

Leaves lanceolate, petioled, nerveless.

[4. *Canna flaccida*.

Salisb. ic. rar. 3. t. 2.

Leaves narrow lanceolate, smooth and even on both sides; inner limb of the corolla five-cleft, segments flaccid obovate, the inmost largest.

5. *Canna juncea*.

Retz. obs. 1. 9.

Leaves linear nerved.]

DESCRIPTIONS, &c.

1. This plant has a thick, fleshy, tuberous root, which divides into many irregular knobs, spreading wide near the surface of the ground, sending out many large ovate leaves without any order; these at their

^a Swartz.

^b Gærtner.

^c Swartz.

^d Hort. kew.

their first appearance, are twisted like a horn, but afterwards expand and are near a foot long, and five inches broad in the middle, lessening gradually to both ends, and terminating in points. They have many large transverse veins running from the midrib to the sides, which are prominent on their under side; and between each of these run two smaller, parallel, pointed veins, which are peculiar to this species. The stalks are herbaceous, rising four feet high, encompassed by the broad leafy foot-stalks of the leaves; these are compressed on two sides; at the upper part of the stalk the flowers are produced in loose spikes, each being at first covered by a leafy hood, which afterwards stands below the flower, and turns to a brown colour. Each flower has one petal, which is cut almost to the bottom into six slender segments, the three upper broadest; these are of a pale red colour. The flower is encompassed by a three-leaved calyx, which sits upon a small, roundish, rough germ, which, after the flower is fallen, swells to a large fruit or capsule oblong and rough, having three longitudinal furrows, and is crowned by the three-leaved calyx of the flower which remains. When the fruit is ripe, the capsule opens lengthways into three cells, which are filled with round, hard, black, shining seeds. The principal season of these plants flowering, is in June, July, and August.

1. β . This variety grows naturally in Carolina, and some of the other northern provinces of America. The leaves are longer than those of the former, and terminate in sharper points. The stalks grow taller, and the segments of the flower are much narrower; the colour being a pale red, it makes no great appearance. The seeds are like those of the former.

1. γ . This variety has larger leaves than either of the former; the stalks rise much taller. I have received the seeds of this from America, and from the Brazils, by the title of Wild Plantain. The flower-stalks rise more than six feet high. The leaves are very large, and those near the root have long foot-stalks. The flowers are produced in larger spikes than those of the former, and are of a much brighter scarlet. The seed-vessels are longer, and the seeds larger.

1. δ . This variety is less common in America than either of the former. I received the seeds from India, but have had two varieties arise from the seeds, one with a plain yellow, and the other with a spotted flower, which I find are apt to change from one to the other, when propagated by seeds. This has shorter and rounder leaves than either of the former. The stalks seldom rise higher than three feet, and the spikes of flowers are like those of the first, excepting the colour of the flowers.

[Gerard informs us that in his time, it was in the garden at Padua, &c. that he had planted it in his garden divers times, but it never came to flowering: and that it must be set or sown in a pot with fine earth, or in a bed made of horse-dung, in such manner as Cucumbers and Musk Melons are.—Parkinson says, that in some kindly years this beautiful plant has borne its brave flowers, but never any ripe seed; and that it will not abide the extremities of our winters, unless it meet with a stove or hot-house, such as are used in Germany: for neither house nor cellar will preserve it. Clusius saw it flowering by house sides in Spain and Portugal: and says that the inhabitants there use the seeds for making their rosaries.—It is found wild within the tropics on all the Continents.

2. This is scarcely to be distinguished from the first, and therefore he who would consider it as a variety, would hardly be mistaken. It is however lower and narrower. The three inner petals are emarginate, as in that; but one of the lateral petals in this is so bent as to become the middle one.—Within the tropics in America, in shady spongy places^a.]

3. The roots of this are much larger than either of the former sorts, and strike down strong fleshy fibres deep in the ground. The stalks rise seven or eight feet high. The leaves are near two feet long, narrow, smooth, and of a sea-green colour. The flowers are produced in short thick spikes at the extremity, are large, and of a pale yellow colour; the segments of the petal are broad, but their shape like those of the other sorts. The seed-vessels are larger, and much longer than those of the other sorts, but contain fewer seeds, which are very large.

[Cultivated in 1732 at Eltham by James Sherard, M. D.^b] Mr. Miller received the seeds of this from Carthage in New Spain, in the year 1733, which produced very strong plants the first year, and some of them flowered the same autumn.

[4. Four feet high or more, very much resembling *Canna glauca* in the herb. Root horizontal, tuberous, perennial. Stem pale glaucous, upright, simple, round, jointed, smooth, herbaceous, annual, almost covered by the petioles. Leaves five to seven, pale glaucous, alternate, shorter than the petiole or sheath, spreading, quite entire with a very thin membranaceous edge, pointed at the end, very finely nerved, a little channelled on the upper, and keeled especially towards the base on the lower surface. Flowers one to three, without scent, nodding a little; peduncle a continuation of the stem, angular. Bractes two under each germ, very pale glaucous; the outer pressed close, the inner longer and narrower, often curved in and patulous; both blunt and quite entire, permanent. Calyx very pale glaucous; leaflets unequal, embracing the tube of the corolla, quite entire, blunt. Corolla pale yellow; tube much longer than the calyx, a little recurved: outer limb a little longer than the tube, reflex, deeply trifid; segments unequal, linear-lanceolate, quite entire, blunt, thicker; inner limb still longer, deeply quinquefid; segments unequal, much curled about the edge, the inmost emarginate; the whole is very tender, smooth, and deciduous. Anther whitish, confluent with the edge of the inner side of the inmost segment, upright, very minutely pointed, two-celled, gaping in front. Germ pale green, oval, minutely papillose. Style very pale yellow, linear-spatulate, smooth on both sides, flat. Stigma whitish, minutely pubescent. It is often confounded with *Canna glauca* in our stoves. Native of South Carolina, where it was found by Bartram^c.

5. Leaves resembling those of Grass, with five raised nerves, sheathing at the base, near the root covered with capillary fibres, a span or a foot in length. Scape with several lanceolate sheaths, and few flowers. Corolla small, of a dusky rufous colour. Pericarp muricated. It is very distinct from *C. angustifolia*, the leaves being by no means petioled, and much narrower. It was discovered in China by Bladh^d.]

PROPAGATION AND CULTURE.

All the sorts are propagated by seeds, which should be sown on a hot-bed in the spring; and when the plants are fit to remove, they should be transplanted into separate small pots, filled with rich kitchen-garden earth, and plunged into a moderate hot-bed of tanners-bark, observing to shade them till they have taken root; after which, they should have a large share of free air admitted to them every day in warm weather, and be frequently refreshed with water. As these plants will make great progress in their growth, they must be shifted into larger pots filled with the same sort of earth, and part of them plunged into the hot-bed again; and the others may be placed abroad in June, with other exotic plants, in a warm situation. Those which are placed in the hot-bed, will be strong enough to flower well in the stove the following winter; but those in the open air, will not flower before the following summer. These may remain abroad till the beginning of October, when they must be removed into the stove, and treated in the same manner as the old plants;

^a Linn. spec.

^b Hort. kew.

^c Salisbury,

^d Retz.

and in may, a gentle hot-bed should be made, covered a foot thick with rich earth, and the plants turned out of the pots, planting them with their balls of earth upon the hot-bed, covering each with a bell-glass, which may be raised on one side every day to admit air to the plants; and as they advance, they must be gradually inured to bear the open air. With this management the plants will grow much taller, and flower stronger than those which are kept in pots, and from these good seeds may be expected in autumn. These plants will continue many years with proper management; but as young plants always flower better than the old roots, it is scarce worth while to continue them after they have borne good feeds.

As the first sort is a native of the warmest parts of America, it requires to be placed in a moderate stove in winter, otherwise the roots will decay. I have frequently tried to keep these roots through the winter in a green-house, but could not succeed; for although some have escaped, yet they were so much weakened by the cold, as not to recover their strength the following summer, so as to flower in any tolerable degree of perfection; so that I have since constantly kept them in winter in a moderate stove, where they always flower in that season, at which time they make a fine appearance; and in the summer, place them abroad in a sheltered situation with other tender exotic plants, where they flower again, and produce ripe feeds annually.

β. The second variety, which is much hardier than the others, should have a different treatment. The young plants of this must be earlier inured to the open air, where they may remain till the frost begins; then they must be placed in the green-house, and should have but little wet in winter; and the beginning of may, these should be turned out of the pots, and planted in a warm south border, in a dry soil, where they will thrive and produce flowers annually; but as there is little beauty in this sort, a few plants for variety will be sufficient. Sometimes it has variegated leaves. This may be propagated by parting the roots, but having little beauty, it is scarcely worth cultivating.

3. The young plants which are raised from seeds of this sort, do more certainly flower than the old roots, or the offsets taken from them; for the roots send out many offsets, which will spread to a considerable distance where they have room, but seldom produce flowers; so that it is the best way to raise a succession of plants from seeds, and to throw out the old ones after they have perfected their feeds.

CANNABINA. See *Bidens*, *Datisca*, and *Verbesina*.

CANNABIS. (Gr. *Κάναβις* or *κάνναβος*, from *κάννα*. See *Canna*.—*Κάνναβοι*, are foul springs, wherein Hemp, &c. grow naturally.)

Eng. Hemp. Fr. Chanvre.

Lin. gen. 1115. Reich. 1220. Schreb. 1522.

Gertn. t. 75. Tourn. 308. Juss. 404.

Class. 22. 5. Dioecia Pentandria.

Nat. order of *Scabridae*. *Urtica* Juss.

GENERIC CHARACTER.

* Male.

CAL. Perianth five-parted; leaflets oblong, acuminate, obtuse, concave.

COR. none.

STAM. Filaments five, capillary, very short. Anthers oblong, four-cornered.

* Female.

CAL. Perianth one-leafed, oblong, acuminate, gaping longitudinally on one side, permanent.

COR. none.

PIST. Germ very small. Styles two, subulate, long. Stigmas acute.

PER. very small; calyx tightly closed.

SEED. Nut globose-depressed, bivalve.

ESSENTIAL CHARACTER.

MALE. Calyx five-parted. Corolla none.

FEMALE. Cal. one-leafed, entire, gaping on one side. Corolla none. Styles two. Nut bivalve within the closed calyx.

SPECIES.

1. *Cannabis sativa*.

Lin. spec. 1547. Reich. 4. 251. hort. cliff. 457. mat. med. 213. Gertn. fruct. 1. 357. Hall. belv. n. 1616. Gmel. fib. 3. 104. Lour. cochinch. 616. Blackw. t. 322. Mill. fig. t. 77. Bauh. pin. 320. 1. & 3. Bauh. hist. 1. 447. fig. 448. Raii hist. 158. Ger. 572. emac. 708. f. 1, 2. Park. 598.

DESCRIPTION, &c.

1. [Stem the height of a man or more (sometimes eighteen feet) branched, hairy, as are also the leaves, which are digitate, slender, serrate; the folioles seven, the outer ones smallest. In the female plant the flowers are solitary in the axillas: in the male, they are in thin pendulous spikes, at the ends of the stem and branches. Some female flowers are frequently found among the males, and some males among the females^a. It is therefore no objection to the sexual system, that female plants of the Hemp have produced perfect seed, when there have been no male plants near them. Mr. Miller however affirms, that he made trial of this for several years, by removing all the male plants; and although the female plants continued strong and flourishing, yet they never produced any good feeds^b. It may not be amiss to observe, that all the old authors, ignorant of the true doctrine of the sexes, and blindly following the ancients, are exactly wrong; for they call the male plants female, and the females male.

Like many other plants generally cultivated, it is difficult to ascertain the original place of its native growth. We may however trace it, with most of the rest, to the East. Linneus, in his *Materia Medica*, gives it to the East-Indies and Japan. Thunberg says it grows here and there, in Japan. Gmelin thinks it may be a native of Tartary, since he found it there, though the Tartars do not cultivate it. In the *Species Plantarum* it is said to grow wild in India, but in Reichard's edition of the *Systema* it is assigned to Persia. Father Hennepin found it wild among the Illinois in America. Pliny and Dioscorides speak of it as a native of Europe.

The uses of Hemp are well known, as well as its great importance to the navy for sails and cordage. Exceeding good huckaback is made from it, for towels and common table-cloths. The low priced hempen cloths are a general wear for husbandmen, servants, and labouring manufacturers; the better sorts (from 18d. to 2s. the yard) for farmers and tradesmen in the country; and the finer ones seven-eighths wide (from 2s. 6d. to 3s. 6d. the yard) are preferred by some gentlemen, for strength and warmth. They possess this advantage over Irish and other linens, that their colour improves in wearing, whilst theirs declines. English Hemp, properly manufactured, stands unrivalled in its strength, and is superior in this respect to the Russian. Considerable quantities of cloth are imported from that country for sheeting, merely on account of its strength, for it is coarser at the price than other linen. Our hempen cloth however is preferable, being stronger from the superior quality of the thread, and at the same time lighter in washing^c.

The Hemp raised in England is not of so dry and spongy a nature as what we have from Russia, and therefore it requires a smaller proportion of tar to manufacture it into cordage. Tar being cheaper than Hemp, the rope-makers prefer foreign Hemp to ours, because they can make a greater profit in working it: but cordage must certainly be stronger in proportion as there is more hemp and less tar in it, provided there be a sufficient quantity of the latter to unite the fibres^d.

An oil is extracted from the feeds of Hemp. The feeds themselves are reckoned a good food for poultry, and are supposed to occasion hens to lay a greater quantity of eggs. Small birds in general are very fond of them, but they should be given to

^a Haller.

^b Figures, p. 52.

^c Young's ann. of agric. 10. 383, 386.

^d Bath papers, 2. 377.

caged birds with caution, and mixed with other feeds. A very singular effect is recorded, on very good authority, to have been sometimes produced by feeding Bullfinches and Goldfinches on Hemp-seed alone, or in too great quantity; *viz.* that of changing the red and yellow on those birds to a total blackness.

It does not seem that the *Bangue* of the East-Indies, or the great Chinese Hemp, or the large sort which Parkinson received from Virginia, are different from our Hemp, except in size.

Hemp is named in German *Hanf*, or *Hampf*; in Dutch *Hennip* or *Kennip*; in Danish *Hamp*; in Swedish *Hampa*; in French *Chanvre*; in Italian *Canapa*; in Spanish and Portuguese *Canamo*; in Russian *Konapli*, *Konopel*, *Kaniaple*; in Polish *Konop*; in Illyrian and Slavonian *Konoplija*; in Walachian *Kanepe*; in Hungarian *Kender*; in Tartarian *Kinder*; in Armenian *Kanop*; in Arabian *Sjaranck*; in Persian *Cannab*; in Chinese *Ma fuen*, *Chu tsao*. There can be no doubt but that the Greeks took their name from the Eastern *Kanop* or *Cannab*, and that the plant originally migrated into Europe from those countries, notwithstanding what Pliny and Dioscorides affirm of its growing wild in Europe.]

PROPAGATION AND CULTURE.

Hemp is commonly sown on a deep, rich, moist soil, such as is found in the tract called Holland in the county of Lincoln, and the fens of the isle of Ely, where it is cultivated to great advantage; as it might in many other parts of England, where there is the like soil; but it will not thrive on clay, or stiff cold land. [It is however found that it will do very well after Turneps on friable loams, and good sands, provided it be well manured. Spaldingmoor in Lincolnshire is a barren sand, and yet with proper care and culture, it produces as fine Hemp as any in England, and in large quantities. In the isle of Axholme, in the same county, the culture and management of it is the principal employment of the inhabitants; and according to Leland, it was so in the reign of Henry VIII.* In the county of Suffolk, in the district extending from Eye to Beccles, it is cultivated on a sandy loam, with great success†. On such soils, the quantity is not so great as in a black rich mould, but the quality is much finer, and therefore better adapted to the fabric of hempen cloth.]

Hemp is esteemed a cleansing crop; for it destroys all weeds, by depriving them of their nourishment; but at the same time it is a great impoverisher of land, and therefore must not be repeated on the same ground. [It may however be grown, with success on the same land many years, by manuring annually; it is even said that it has been sown on the same piece for seventy years together. If it stands for seed, it is on all hands acknowledged to be an exhausting crop; but if it be cut without seed, it is on the contrary supposed by many to improve the land, and to be an excellent preparation for Wheat.]

The land on which Hemp is to be sown must have three earths given it, with harrowing sufficient to make the soil perfectly fine; it is laid flat with as few furrows as possible. It must be well manured with twenty-five or thirty three-horse loads of muck, or from sixteen to twenty loads of dung to an acre, immediately after wheat-sowing is finished‡; or, according to others, a fortnight before seed-time, which is from the beginning, or rather the middle, to the end of april. If sown earlier, the spring frosts will greatly injure, if not destroy the plants. Sowing is sometimes deferred to the middle of may; but the season permitting, early sowing is to be preferred, because the quality of the Hemp is then superior^h.]

Three bushels is the usual allowance for sowing an acre, but two is fully sufficient. [Others recommend eleven, or from nine to twelve pecks to the acre, according to the strength of the soil; and some

few as much as three bushels and halfⁱ.] In the choice of the seed, the heaviest and brightest coloured should be preferred; and some of them should be cracked to see if they have the germ perfect. [The seed should be gently and lightly harrowed in; and the birds must be kept off the land till the plants appear^k.]

In the fen countries the plants are hoed out in the same manner as is practised for Turneps, leaving them a foot or sixteen inches apart, and cutting down all the weeds: they give them a second hoeing about a month or six weeks after the first. If these hoeings be well performed, the crop will not require any farther care, for the Hemp will soon cover the ground, and prevent all growth of weeds.

[In other places no weeding is ever given it, the Hemp of itself choking every other plant.]

The first season for pulling the Hemp, is usually about the middle of august, when they begin to pull the Fimble [Femle or Thimble Hemp^l], that is, the male plants. But it would be much better to defer this a fortnight or three weeks, [if the Hemp is to stand for seed] until these male plants have fully shed their dust, without which it is well known, the seeds will not grow, nor will those concerned in the oil-mills give any thing for them. The second pulling is a little after michaelmas, when the seeds are ripe: this is of the female plants, Seed Hemp or Karle Hemp as it is usually called. It is bound in bundles a yard in compass; they are laid in the sun a few days to dry, and then are stacked up or housed till the seed can be threshed out. An acre of Hemp, on a rich soil, will produce near three quarters of seed; which, together with the unwrought Hemp, is worth from six to eight pounds.

[When Hemp is intended for making thread only, without any regard to the seed, the male and female Hemp is pulled together, thirteen or fourteen weeks after sowing. The leaves turning yellow, and the stalks white are signs of its maturity. The wetter the season the longer it stands; and it bears a dry year better than a wet one.]

When the Hemp is all pulled up, it is bound in small bundles, of such a size as may be grasped with both hands, and tied with bands at each end; these bundles are called *baits*. Thus prepared the Hemp is conveyed to the water, in order to undergo the operation of *water-retting*^m. For this purpose clay-pits are preferred to running water, and are cleaned out once in seven or eight years. Three small waggon loads, the common produce of one acre, may be laid in one bed. The same water is not proper for receiving Hemp more than three times in a season, although they will water sometimes five times in the same hole; the first water however always produces the best colour, in the least time. If it be necessary to wait, they pull as the hole is ready, not choosing to leave it on the land after it is pulled. The bundles are placed in rows crossing each other, and are kept under water by blocks and logs of wood. It soaks generally four days, if the weather be warm; if not, five or six; till the outside coat easily rubs off. It is then spread out singly on grass, and turned, if there be showers, thrice a week; if not, twice a week. This is called *grassing*, and requires five or six weeks. It is then tied up in large bundles of eight or ten baits, and carted home to a barn or house for *breaking*, by a machine called a *brake*: this is either done directly, or the bundles are laid up dry till december or january, for that purpose. Thus prepared, the Hemp is bound up in bundles, weighing a stone or fourteen pounds and a half each, and carried to market. The Hemp which breaks off in the operation, is called *shorts*; this is bound up by itself, and is about half the value of

ⁱ Ibid, and 10. 377. and Survey of Suffolk, 48.

^k Young's ann. 9. 377.

^l These names are a corruption of *Female*, the male plants having been taken for females, and *vice versa*; by all ancient, and many modern writers. This error is continued in Abbé Brulles's memoir on Hemp, printed by the Lords of Trade and Plantations.

^m Corrupted from *rotting*.

* Bath papers, 2. 375.

^f Survey of Suffolk, 48.

^z Ibid.

^h Mills in Young's ann. 9. 377.

the long Hemp. The offal is called hemp-sheaves, makes good fuel, and sells at two-pence a stone.

The custom of many places is to dew-ret their Hemp; that is, to spread it on meadow land, as soon as pulled, turning it frequently; but this is a very bad method, for the bark will not come off compleatly, it therefore requires more violent means to be used for bleaching the yarn, and consequently diminishes the strength: it is likewise much sooner injured in rainy seasons.

Hemp, when left for seed, is seldom water-retted. It is generally stacked and covered during the winter, and spread upon grafs in january or february. If the season suits, particularly if it be covered with snow, it will come to a good colour, and make a strong coarse cloth: but it is much inferior to Hemp pulled in proper time, and water-retted.

The Hemp now passes from the grower to the hickler or heckler, who first bunches or beats it, either by hand, or more frequently by a mill; and then dresses or combs it, by drawing it through hickles or heckles, resembling wool-combers tools, only fixed. It is dressed finer or coarser, to suit the demands of the purchasers: sometimes the whole is worked together for one sort, and sometimes it is divided into two or three sorts, called *long strike*, *short strike*, and *pull tow*. The heckler either sells the tow to spinners and weavers, or puts it out to spin himself; and disposes of the yarn to the latter. The weaver delivers the yarn to the whitefter, who returns it to him bleached. This is a difficult operation; the art consisting in procuring the best colour with the least diminution of strength. It is performed by laying the yarn in large tubs, covered with thick cloths, upon which ashes are placed; and pouring hot water daily through it, turning the yarn frequently, until the bark comes off; and then it is spread on poles in the air. In general, hempen cloth is sold as it comes from the loom, and is bleached by the purchaser; some however is bleached, ready for weaving either by the weaver or by a whitefter. This is done by boiling it in lye, made from ashes, and frequently spreading it on grafs.

Although Hemp, in the process of manufacturing, passes through the hands of the breaker, heckler, spinner, whitefter, weaver, and bleacher; yet many of these operations are frequently carried on by the same person. Some weavers bleach their own yarn and cloth, others their cloth only; some heckle their tow, and put it out to spinning, others buy the tow, and put it out; and some carry on the whole of the trade themselves.

When the trade is conducted by different persons, their interests often clash. By under-retting the Hemp, the grower increases the weight; by slightly beating it, the heckler increases the quantity of tow, but leaves it fuller of bark; by drawing out the thread beyond the staple, the spinner increases the quantity of yarn, but injures the quality; by forcing the bleaching, the whitefter increases his profit, but diminishes the strength of the yarn; in general, in manufacturing cloth, strength is sacrificed to fineness and colour. All this requires regulation.

The above is the practice in the county of Suffolk, and probably differs in some particulars in other counties.

The expense of an acre of Hemp may be estimated at eight or nine pounds; and the average produce at forty-five stones, which at 7s. 6d. the stone is 16l. 17s. 6d. Some crops rise to fifty-five stones, and even more; but there are bad ones so low as twenty-five: the price varies from 6s. to 9s. and even 10s. the stone. Some carry the expenses so high as 14l.; but in that case the crop is so much greater and better, as to be valued at 20l.

The objections to this crop are, that its coming in the midst of harvest is embarrassing; and that the attention it demands in every state of its progress is too great, where it is only a secondary consideration: it is however of great consequence to the

ⁿ Young's ann. 10. 378, &c. 9. 378. Survey of Suffolk, 49.

country, as a support for the poor, and therefore deserves every encouragement from the legislature.

CANNABIS LUTEA. See *Datisca*.

———— SPURIA. See *Galeopsis*.

———— VIRGINIANA. See *Acnida*.]

CANNACORUS. See *Canna*.

[CANSCHI. See *Trewia*.

CANTABRICA. See *Convolvulus*.

CANTERBURY BELLS. See *Campanula*.

CANTHARELLUS. See *Agaricus*.

CANTHARIFERA. See *Nepenthes*.

CAPA-VEELA. See *Cleome*.]

CAPE ASTER. See *Cineraria*.

———— JASMIN. See *Gardenia*.

CAPER. See *Capparis*.

[CAPER BEAN. See *Zygophyllum*.

CAPYLLUS VENERIS. See *Adiantum*.]

CAPNOIDES,

CAPNORCHIS, and } See *Fumaria*.

CAPNOS.

CAPPARIS. (Παρά τὸ καππάρειν ἀράν, from its curing madness and melancholy.)

Engl. *Caper-bush*. Fr. *Caprier*, *Taperier*.

Lin. gen. n. 643. Reich. 699. Schreb. 876.

Tournef. 139. Juss. 243. Breynia. Plum. II.

Cadaba. Forsk. Juss. 243. Crateva. Brown.

t. 28. f. 1.

Class. 12. 1. Polyandria Monogynia.

Nat. order of *Putamineæ*. *Capparides* Juss.

GENERIC CHARACTER.

CAL. *Perianth* four-leaved, coriaceous; leaflets ovate, concave, gibbous.

COR. *Petals* four, obtuse, spreading, very large.

STAM. *Filaments* numerous, filiform, patulous. *Antthers* oblong, versatile, inclined.

PIST. *Germ* pedicelled. *Style* none. *Stigma* obtuse, sessile.

PER. *Berry* corticose, one-celled, pedicelled.

SEEDS numerous, reniform, nestling.

OBS. The figure of the fruit is very different in different species. Hence the genus may be divided into two sections: 1. with a berried fruit; 2. with a siliquose fruit.

ESSENTIAL CHARACTER.

Calyx four-leaved, coriaceous. *Petals* four. *Stamens* long. *Berry* corticose, one-celled, pedicelled.

SPECIES.

1. *Capparis spinosa*. *Prickly Caper-bush*.

Lin. spec. 720. Reich. 2. 563. mat. med. 133.

hort. cliff. 203. Hall. herb. n. 1077. Scop.

carn. n. 632. Smith spicil. 2. 18. t. 20. Blackw.

t. 417. Gron. orient. 154. Bauh. hist. 2. 63.

pin. 480. 1. Raii hist. 1629. 1. Ger. 748. 2.

emac. 895. 2. Park. 1023. 1.

β. *C. fol. acuto*. Bauh. pin. 480. 2. Raii hist. 1629. 2.

Ger. 748. 1. emac. 895. 1. Park. 1023. 2.

C. ficula, &c. Bocc. sic. 79. t. 42. f. 3. Raii

hist. n. 5.

Peduncles one-flowered solitary, stipules spiny, leaves annual, capsules oval.

[2. *Capparis zeylanica*.

Lin. spec. 720. Reich. 2. 564. fl. zeyl. n. 210.

Lour. cochinch. 330.

C. spinosa, fol. oblongis. Burm. zeyl. 53. ind. 118.

Peduncles one-flowered solitary, stipules spiny, leaves ovate sharp at both ends.

3. *Capparis horrida*.

Lin. syst. 488. suppl. 264.

Peduncles axillary by two, stipules prickly, branches flexuose, leaves ovate-lanceolate mucronate smooth.

4. *Capparis sepiaria*.

Lin. spec. 720. Reich. 2. 564.

Arbuscula baccifera scandens spinosa, fol. buxi pallidioribus. Pluk. alm. 27. t. 338. f. 3.

Peduncles umbelled, stipules spiny, leaves annual ovate emarginate.

5. *Capparis frondosa*.

Lin. spec. 1674. syst. 488. Reich. 2. 564. Jacqu.

amer. 162. t. 104. pist. 79. t. 153.

Peduncles umbelled, leaves everywhere crowded.

6. *Capparis ferruginea*.
Lin. spec. 721. *Reich.* 2. 564. *amæn.* 5. 398.
Swartz obs. 208.
C. octandra. *Jacqu. amer.* 160. t. 100. (bad.)
Crataeva fruticosa, &c. *Brown. jam.* 247. t. 28.
 f. 1. (good.)
Peduncles umbelled, leaves permanent lanceolate tomentose beneath, flowers eight-stamened.]
7. *Capparis Baducca*.
Lin. spec. 720. *Reich.* 2. 564. *hort. cliff.* 204. 3.
Baducca. *Rheed. mal.* 6. 105. t. 57. *Burm. ind.* 118.
Raii hist. 1630.
Peduncles one-flowered, leaves perennial ovate-oblong, determinately crowded, naked.
8. *Capparis cynophallophora*.
Lin. spec. 721. *syft.* 488. *Reich.* 2. 565. *Jacqu. amer.* 158. t. 98. *piet.* 77. t. 145. (good.)
Plum. ic. 73. f. 1. *Brown. jam.* t. 27. f. 1. (Breynia 1.)
Cynophallophorus. *Pluk. alm.* t. 172. f. 4.
Acaciis affinis arbor filiquosa, &c. *Sloan. jam.* 2. 59.
Raii dendr. 102.
Peduncles many-flowered terminal, leaves oval obtuse perennial, glands axillary.
- [9. *Capparis pulcherrima*.
Lin. spec. 1674. *syft.* 488. *Reich.* 2. 565. *Jacqu. amer.* 163. t. 106. *piet.* 80. t. 155.
Peduncles racemed, leaves oblong obtuse, fruits berried.
10. *Capparis linearis*.
Lin. spec. 1674. *syft.* 488. *Reich.* 2. 566. *Jacqu. amer.* 161. t. 102. *piet.* 79. t. 151.
Peduncles subracemed, leaves linear.]
11. *Capparis Breynia*.
Lin. spec. 721. *Reich.* 2. 566. *hort. cliff.* 204. 2.
Jacqu. amer. 161. t. 103. *piet.* 79. t. 152.
Swartz obs. 210.
C. cynophallophora. *Lin. spec. ed.* 1. 503.
Breynia elæagni fol. *Breyn. ic.* 13.
Br. affinis arbor octandra. *Loefl. it.* 207.
Peduncles racemed, leaves permanent oblong, calyxes and peduncles tomentose, flowers eight-stamened.
- [12. *Capparis hastata*.
Lin. spec. 722. *syft.* 488. *Reich.* 2. 566. *Jacqu. amer.* 159. t. 174. f. 56. *piet.* 78. t. 147.
Peduncles many-flowered, leaves hastate-lanceolate glittering.
13. *Capparis flexuosa*.
Eadem cum cynophallophora. n. 8.]
14. *Capparis filiquosa*.
Lin. spec. 721. *Reich.* 2. 566.
Peduncles many-flowered compressed, leaves permanent lanceolate-oblong acuminate dotted beneath.
- [15. *Capparis grandis*.
Lin. syft. 488. *suppl.* 263.
Corymbs terminating, leaves ovate acute smooth, fruit globular.
16. *Capparis magna*.
Lour. cochinch. 331.
Stem arboreous, unarmed; leaves ternate lanceolate; corymbs terminating.
17. *Capparis falcata*.
Lour. cochinch. 331.
Stem arboreous, unarmed; leaves ternate sickle-shaped, racemes loose terminating.
18. *Capparis cantoniensis*.
Lour. cochinch. 331.
Peduncles racemed, stipules thorny, leaves ovate acuminate wrinkled.
19. *Capparis torulosa*.
Swartz prodr. 81.
Breynia arborescens, &c. *Brown. jam.* 246. 2.
Peduncles subbiflorous round terminating, leaves lanceolate-oval dotted with white underneath, pods round linear torulose.
20. *Capparis longifolia*.
Swartz prodr. 81. *Pluk. phyt.* t. 327. f. 6.
Leaves linear-lanceolate dotted with meal underneath.]
- Mr. Miller has also the following species.
21. *Capparis arborescens*.
Mill. dict. n. 3.
Leaves lanceolate-ovate, perennial; stem arborescent.

22. *Capparis racemosa*.
Mill. dict. n. 5.
Leaves ovate opposite perennial; flowers racemed.
23. *Capparis fruticosa*.
Mill. dict. n. 7.
Leaves lanceolate acute crowded perennial, stem shrubby.
24. *Capparis conferta*.
Mill. dict. n. 8.
C. alia arborescens lauri fol., fructu oblongo ovato.
Plum. cat. 7.
Leaves lanceolate alternate on very long petioles; flowers crowded.
25. *Capparis triflora*.
Mill. dict. n. 10.
Leaves lanceolate nerved perennial, peduncles three-flowered.

DESCRIPTIONS, &c.

This genus consists of shrubs. The leaves are simple, in the berry-bearing sorts having frequently two spines at the base, but in those which bear pods commonly naked or biglandular. Flowers solitary axillary or in a kind of corymb; terminating^a. Some of the species have a berry: as *spinosa*, *zeylanica*, *horrida*, *sepiaria*, *ferruginea*, *pulcherrima*, *grandis*, *magna*, *falcata*, *cantonienfis*. Others have a filique or pod for a fruit: as *froudosia*, *Baducca*, *cynophallophora*, *linearis*, *Breynia*, *hastata*, *torulosa*, *longifolia*^b. Swartz unites *Morisonia* to this genus, under the name of *Capparis Morisonia*.]

1. The common Caper-bush is a low shrub, generally growing out of the joints of old walls, the fissures of rocks, and among rubbish. The stems are woody, and covered with a white bark. [They are trailing, round, smooth, and branching: branches alternate, spreading, often downy, leafy. Leaves alternate, on short foot-stalks, spreading, oval or roundish, in the wild plant often terminated by a little sharp point, which disappears by culture, entire, veiny, succulent, bright green, deciduous. Scopoli adds, that they are four times as long as the foot-stalks. Stipules none; but in their stead two spines at [the base of the foot-stalks, acute, somewhat recurved, yellowish, in the cultivated plant nearly obliterated. Bractes none. Flowers numerous, axillary, solitary, large, handsome, inodorous. Peduncles round; longer than the leaves^c, reddish, nearly horizontal, but finally pendulous^d. Calyx of four unequal, concave leaves, tipped with purple^e; three of the leaflets are long and narrow, the fourth is larger, and turned downwards^f. Petals much larger than the calyx, spreading, obovate, waved, white with a faint tincture of red. Haller remarks, that they are tender and flaccid, that two of them are continued some way into the calyx, and the other two free. Stamens very numerous (about sixty, *Scop.*), the length of the petals, spreading, slender, in the upper part pale purple like the anthers. According to Scopoli, they are longer than the petals, and unequal: the anthers yellow, with a whitish pollen. Germ oval, small, green, standing on a round purplish foot-stalk, which is longer than the stamens. Capsule (Linneus calls it a berry) oblong-oval, coriaceous^g.

It grows wild in the southern countries of Europe, and in the Levant, on rocks, walls, and in dry places. Mr. Ray observed it on the walls of Rome, Sienna, and Florence wild, and about Toulon cultivated. I remarked it at Verona.

It is surprising, says Dr. Smith, that this beautiful shrub, which is as common in the South of France as the Bramble with us, and which grows luxuriantly in the open air when trained against a wall even at Paris, should be almost unknown in the English gardens, where it can scarcely be made to flower, except in a stove with all possible care.

Gerarde tells us, that he put some seeds into the brick walls of his garden, "which did spring and grow green:" and Bradley sowed some seeds, which he procured from Italy, in the garden walls of

^a Jussieu gen. ^b Swartz. obs. ^c Smith. ^d Scopoli.
^e Smith. ^f Haller. ^g Smith.

Campden house near Kensington, about the year 1716.] Mr. Miller mentions an old plant growing there, which resisted the cold many years, and annually produced many flowers, but the young shoots were frequently killed to the stump during the winter.

[The flower-buds, which are produced in great plenty on the wild plant, are well known as a pickle. The unripe fruit is in Italy prepared in the same manner. Every part of the plant in a recent state is highly acrid and burning to the taste^a.

β. This, which is a mere variety, was observed by Boccone near Girgenti and Terra di Palmi in Sicily. It has the flower, capsule and seed of the common sort; but the leaves are sharp at the end.

2. Stem shrubby, six feet high, upright but weak: branches divaricating. Leaves alternate, remote, quite entire, running into the petioles, which are very short; at their origin are two sharp, recurved spines. Peduncles axillary, single or two together, one-flowered. Petals white, oblong, spreading, nearly equal; with a lateral, prominent, cloven nectary. Stamens thrice the length of the corolla¹.

Linneus remarks, that it differs little from the first species; and that it is difficult to determine whether they be really distinct, so long as the fruit of this is unknown. Loureiro describes it to be a roundish, fleshy, black, small, one-celled berry, placed on a long pedicel, and containing three seeds. Native of Ceylon and Cochin China, in hedges.

3. This is a stiff tree, with double stipular prickles, red and rigid, from the base of the leaves, which are petioled, and end in a small spine. Peduncles in pairs, one-flowered. Found in Coromandel by Koenig².

4. Branches round and woody. Spines stipular, double, recurved, short, black. Leaves subpetioled, naked, quite entire. Umbels terminating, simple, many-flowered; with a short common peduncle. Native of the East-Indies¹.

5. Height about seven feet, extending as far as twenty. Branches very few and scarcely divided. Leaves acute, shining, waved, quite entire, subcoriaceous, petioled, varying much in size, frequently a foot long. Common peduncle round, shining, erect, terminal, solitary, bearing at the end in an umbel a few flowers without smell, green or purple, an inch in diameter: after fecundation the petals are revolved, and the stamens variously twisted. Pods an inch or an inch and half in length, shining, dark purple, with a whitish flesh^m. Native of South America, in thickets.

6. This is a small tree or a shrub, with striated rufous or ferruginous coloured branches. Leaves opposite, ovate-lanceolate, quite entire, lanuginous-ash-coloured beneath, smooth on the upper surface. Petioles ferruginous, short. Flowers in a sort of corymb, terminating, on bifid or trifid peduncles. Corollas white. Calyx quadrifid, flat at the base, and permanent: segments spreading, equal, acute. Petals equal, concave, the claws the length of the calyx, into the divisions of which they are inserted. Nectaries four, ovate, between the petals and the column of the pistil. Filaments eight, seldom more, fixed to the pedicel of the germ, shorter than the corolla: anthers oblong, inserted into the filaments. Germ ovate, on a round pedicel, half the length of the corolla: stigma sessile, head-club-shaped. Berry fleshy, oblong. Seeds few (five or six) oblong. The flowers are fragrantⁿ. The plant is strongly impregnated with an acrid volatile salt, like the Mustard tribe; and hence in Jamaica, where it grows wild, it has obtained the name of the Mustard shrub^o. Browne, misled by this circumstance, and the regularity in form and disposition of the calyx, petals and nectaries, has referred this plant to the Tetradynamia class.

7. Leaves smooth on both sides, obscurely netted,

especially beneath^p.] According to Mr. Miller, it has a tree-like stem dividing into smooth branches, having no spines on them; the peduncles come out singly from the axils: the flowers are like those of the first, but are much larger, as are also the buds.

[It is a native of the East-Indies, where it is cultivated for the beauty of the flowers, which are produced in the month of January^q.

8. This species varies considerably in its habit or general appearance, according to the soil in which it is found: in sunny hedges it is weak, thin, and as it were supported by the neighbouring vegetables; but in fields and towards the shores it is a kind of shrub or little tree of twelve feet high, and of a pretty appearance. The leaves are alternate, petiolated, smooth on both sides, thickish, somewhat stiff and about three inches long: they are also either ovate, obovate, or even lance-ovate, but more frequently oblong. In the axilla of the leaves there is a roundish solitary gland, which is scarce ever missing. The flowers are beautiful, very patulous, and extremely fragrant, of a white or greenish white; the stamens often four inches long. The filique about half a foot long, of various degrees of thickness, outwardly green or greenish purple with a red future; and when ripe split longitudinally, each part rolling back to the very footstalk, and successively letting fall the seeds, which are coated with a white bark externally, and greenish internally, and are surrounded by a scarlet flesh or pulp.

Native of the West-Indies^r.] Mr. Miller says, that it was sent him from Carthage, by Mr. Robert Millar, surgeon.

[9. This is an upright shrub, in open situations only two or three feet high, but in woods twelve. Branches smooth. Leaves shining, quite entire, coriaceous, alternate, on short petioles, and frequently ten inches long. Raceme terminating, simple, erect, thick, solitary, half a foot long, very specious. Flowers beautiful, pale yellow, of a very sweet scent. Filaments at first white, then bright purple. Each raceme has only one or two berries, from two to four inches in diameter variegated green and brown on the outside; the flesh or pulp when unripe hard and having little scent; but when ripe soft, nauseous, and so fetid that no animal will touch it. Native of Carthage in New Spain, on declivities of the mountains^s.

10. This species, which grows in great plenty on the woody hills of Carthage, is an elegant, upright, branchy tree, about fifteen feet high: the leaves are linear, coriaceous, entire, unveined, obtuse, with a very protuberant midrib: the sides are often revolute. The racemes are terminal, or axillary, supporting about ten flowers, more or less, and they commonly grow in an horizontal position. The flowers are white, inodorous, and about half an inch in diameter. The fruits are orange-coloured with a redness intermixed, and about an inch diameter^t.

11. This is a small tree, with an upright, smooth trunk, and flexuose branches, scarred with the fallen leaves; twigs angular and pubescent. Leaves alternate, scattered, acuminate, nerveless, smooth on the upper surface and shining, beneath hoary-ferruginous or ash-coloured, covered with very minute ferruginous dots. Petioles angular, hoary-ferruginous. Peduncles terminating, somewhat branched, forming a sort of umbel, compressed, marked with lines, ferruginous. Flowers rather large. Leaflets of the calyx reflex, convex, white on the inside, ferruginous beneath and somewhat rugged. Petals twice as large as the calyx, entire, white tinged with purple, spotted with rust-colour on the outside, deciduous. Nectariferous glands four, small, ovate, acute, compressed, permanent. Filaments long, meeting at the base round the germ, with a pale red pile on them. Anthers almost erect, acuminate, curved inwards, yellow. Germ elongated, minute, on a very short pedicel. Style the length of the

^a Smith.

¹ Lour. cochín. and Linn. zeyl.

² Linn. suppl. and Retz. obs. 5.

¹ Linn. spec.

^m Jacquin.

^o Swartz.

^p Browne.

^q Linn.

^r Hort. malab.

^s Jacquin.

^t Ibid.

stamens. Stigma thickened, obtuse, ferruginous. The fruit is a long, cylindric, subtorulose, two-valved legume; containing several, kidney-shaped seeds.

It is a native of dry coppices near the sea in Jamaica^a, and most of the other islands in the West-Indies.

12. A native of Carthage, growing in woody places. It is an upright, weak shrub, divided into a few very long branches, often six feet long. The leaves are alternate, petiolate, coriaceous, stiff, and from three to seven inches in length, and recede sometimes from an oblong and entire figure almost to a hastated one on the same shrubs. The common footstalks of the flowers are clustery, terminal, almost half a foot long, and support about eight flowers, which are somewhat odorous, purple, and nearly two inches in diameter.

13. This is in no wise different from *Capparis cynophallophora* of Linneus and Jacquin. It was determined from an imperfect specimen in the Linnean herbarium; and first described, in the *Amoenitates Academicæ* (5. 398.) under the name of *Morisona flexuosa*^a.

14. According to Linneus, this resembles the eighth species. The leaves are extremely acuminate, the upper surface is glittering, and the lower is powdered with ferruginous dust^y.]

Mr. Miller says, it rises with a shrubby stalk to the height of eight or ten feet, sending out many woody branches, covered with a reddish brown bark, and having oblong, spear-shaped, stiff leaves, with punctures on their under side; the peduncles are long, slender, compressed and axillary, each sustaining a small, white flower, which is succeeded by an oval pod, containing many, small, kidney-shaped seeds. It was sent him from Tolu in America.

[The specimen in the Linnean herbarium seems to be only a variety of *Capparis Breynia*. Browne's synonym (247. 2.) belongs to *Capparis torulosa* (n. 19.): and Plukenet's (327. 6.) to *C. longifolia* (n. 20.)^a

15. This is a large hoary tree. Leaves alternate quite entire, veined. Stipules none. Corymbs, when fruit-bearing, elongated into a raceme. Flowers whitish-yellow. Fruits very large, and globular. Found in Ceylon by Koenig^a.

16. This is a middling-sized tree, with spreading, unarmed branches. Leaves quite entire, smooth. Flowers large, white, in spreading corymbs. Calyx wheel-shaped, with lanceolate, flat, interrupted leaflets. Petals broad-ovate, sharp at both ends, many-nerved, veined, spreading, equal, with long claws. Filaments twenty-four, very long. Anthers three-celled, oblong, recurved. Germ roundish, pedicelled. Style short. Berry roundish, two inches long, fleshy, eatable, with a dotted, rough rind, of a greenish ash-colour, within one-celled, containing many, kidney-shaped nestling seeds.

Native of Cochinchina, on the banks of rivers. Much resembling *C. grandis*, and differing from it principally in its ternate leaves.

17. This is a large tree, with spreading, unarmed branches. Leaves ovate-lanceolate, the lateral ones sickle-shaped at the base, quite entire, smooth, petioled. Corolla white, resembling that of the foregoing sort. Stamens eighteen. Berry oblong, red, large, one-celled, pedicelled, with many nestling seeds.

18. Stem shrubby, upright, branched. Leaves quite entire, smooth, alternate. Flowers white, axillary and terminating. Calyx five-leaved; leaflets oblong, concave, coloured. Petals five, oblong, spreading, equal to the calyx. Filaments long. Berry ovate, small, brown, pedicelled, containing many seeds. This and the foregoing are natives of China near Canton^b.

19. This grows into a shrubby tree, and is a native of Jamaica^c.

20. This also is a native of Jamaica.]

21. This sort I received from Carthage in New Spain, near which place it grows naturally. This rises with a woody stem to the height of twelve or fourteen feet, sending out many lateral branches, covered with a russet bark, garnished with oblong oval leaves, standing upon long foot-stalks; the flowers are produced from the side of the branches, single, standing upon long peduncles, and are like those of the Baducca.

22. This was sent me from the same country. It rises with a trunk about twenty feet high, sending out many long slender branches, which are covered with a brown bark; and garnished with leaves like those of the Bay-tree, but longer and deeply ribbed on their under side; standing upon pretty long foot-stalks opposite. The flowers are produced upon long branching peduncles, which terminate the branches, each sustaining two or three flowers, which are large, white, and are succeeded by pods two or three inches long, the thickness of a man's little finger, which are filled with large kidney-shaped seeds: these pods have a thick fleshy cover.

23. This rises with a shrubby stem to the height of twelve or fourteen feet, sending out many strong lateral branches, covered with a dark-brown bark, garnished with spear-shaped pointed leaves; placed alternately, having very short foot-stalks; the leaves are of a thicker consistence than those of the Bay-tree; at the foot-stalk of each leaf comes out a single flower, almost the whole length of the branches, they are small, and stand upon short peduncles; the anthers are of a purplish colour, but the stamens are white. This sort was sent me from Tolu.

24. This sort rises with a shrubby stalk to the height of ten or twelve feet, sending out slender horizontal branches, which are covered with a reddish bark; the joints of these branches are far distant; at each of these come out several leaves in clusters, without order, standing upon pretty long foot-stalks; they are six inches long, and three broad in the middle, and as thick as those of the Laurel, of a shining green, smooth on their upper side, but have many transverse ribs on their under side, which are prominent. I received this sort from Tolu, with the former.

25. This has slender shrubby stalks, which rise seven or eight feet high, sending out many woody branches, with very long, nerved, spear-shaped leaves. The flowers come out at the ends of the branches, three standing upon each peduncle; they are small, white, and are succeeded by oval fruit.

PROPAGATION AND CULTURE.

1. The plants of the first sort are with difficulty preserved in England, for they delight to grow in crevices or rocks, and the joints of old walls or ruins; and always thrive best in an horizontal position; so that when they are planted either in pots, or the full ground, they rarely thrive, though they may be kept alive for some years. They are propagated by seeds in the warm parts of Europe, but it is very difficult to get them to grow in England. I have several times sowed these seeds without success, as have many other persons; I never had raised any of the plants from seeds, excepting in the years 1738 and 1765. In 1738 I had three plants come up in an old wall, which being young and tender, were destroyed in the year 1740; but in the year 1765, I raised a good number of plants from seeds, which were sown the year before.

The roots of this plant are annually brought from Italy, by the persons who import Orange-trees, some of which have been planted in walls, where they have lived a few years, but have not continued long.

[In order to have them flower here, they are now kept in a stove.]

The other sorts being natives of hot countries will not live through the winter in England without the assistance of a stove. They are propagated by seeds, which must be procured from the countries where they grow naturally, for they do not produce any in England; these must be sown in small pots, filled

^a Swartz.

^b Swartz obs. 211.

^x Swartz obs. 211.

^a Linn. suppl.

^c Browne.

^y Spec.

^b Lourciero.

filled with light sandy earth, and plunged into a hot-bed of tanner's-bark; which should be now and then refreshed with water, but by no means should have it given in too great plenty: these seeds frequently remain in the ground a year before they vegetate, therefore the pots in which they are sown should be protected in winter; and the spring following they must be plunged into a fresh hot-bed of tanner's-bark, which will bring up the plants, if the seeds were good; when the plants appear they must have little water, but much air in warm weather: when they are large enough to remove, they must be each transplanted into a separate small pot; filled with the same earth, and then plunged into the hot-bed again, observing to shade them until they have taken fresh root; after which they must have fresh air admitted to them every day, in proportion to the warmth of the season. In the autumn they must be removed into the stove, and plunged into the bark-bed, where they should constantly remain, and will require the same treatment as other tender exotic plants from the same countries; with this difference only, that they require little water, especially in winter, for the roots of these plants are very subject to rot with wet.

If the seeds are brought over in their capsules, they will keep much better than without them; but these should be secured from insects, by wrapping them in tobacco leaves which are well dried; without this precaution, the seeds will be destroyed before they arrive.

[The seeds in general germinate immediately, and therefore cannot well be sent dry to Europe. This, with the difficulty of preserving the plants, accounts for the present scarcity of them in our stoves, although many of them were cultivated by Mr. Miller.]

CAPPARIS Fabago. See *Zygophyllum*.

CAPRARIA. (From *Caper*, a Goat. Goat-weed.)

Lin. gen. n. 768. Reich. 827. Schreb. 1030.

Gärtn. t. 53. Juss. 118.

Class. 14. 2. Didynamia Angiospermia.

Nat. order of *Personatae*. *Scrophulariæ* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leafed, five-parted, oblong; divisions linear, erect, distant, permanent, shorter than the corolla.

COR. monopetalous, bell-form, five-cleft, nearly equal; divisions oblong, acute; the two upper ones more erect.

STAM. Filaments four, subulate, inserted into the base of the corolla, shorter by half than the corolla, the two lower ones rather shorter than the others. Anthers cordate.

PIST. Germ conical. Style filiform, longer than the stamens. Stigma cordate, bivalve, equal (bilamellate, G.)

PER. Capsule oblong-conical, compressed at the tip, bilocular, bivalve, with a contrary partition, (which is doubled by the bending in of the edge of the valves.)

SEEDS very many, roundish.

ESSENTIAL CHARACTER.

Cal. five-parted. Cor. bell-form, five-cleft, acute.

Caps. bivalve, bilocular, many-seeded.

SPECIES.

1. *Capraria biflora*. Shrubby Goat-weed, or Sweet-weed.

Lin. spec. 875. Reich. 3. 168. Hort. cliff. 320.

Jacqu. amer. 182. t. 115. pict. 90. t. 174.

Brown. jam. 268. Gärtn. fruct. 1. 250. Swartz obs. 239.

C. curassavica. Herm. par. t. 110.

Gratiolæ affinis, &c. Comm. hort. 1. 79. t. 40.

Lyfimachiæ peruvianæ affinis, &c. Pluk. alm. 237. t. 98. f. 4.

Leaves alternate; flowers in pairs.

2. *Capraria durantifolia*.

Lin. spec. 876. Reich. 3. 169. amœn. 5. 399.

Stemodia durantifolia. Swartz obs. 240.

Phelypæa erecta, &c. Brown. jam. 269.

Veronica caule hexangulati, &c. Sloan. jam. 1. 196. t. 124. f. 2.

Leaves in threes toothed, peduncles solitary, branches alternate.

3. *Capraria crustacea*.

Lin. syst. 567. Reich. 3. 169. mant. 87. Burm. ind. 133.

Caranisi minus. Rumph. amb. 5. 461. t. 170. f. 3. Creeping; leaves opposite ovate subpetioled crenated.

4. *Capraria lanceolata*. Willow-leaved *Capraria*.

Lin. syst. 567. suppl. 284. Ait. hort. kew. 2. 354.

Leaves opposite linear-lanceolate quite entire; racemes terminating compound.

5. *Capraria undulata*. Waved-leaved *Capraria*.

Lin. syst. 567. suppl. 284. L'Herit. fert. angl.

t. 25. Ait. hort. kew. 2. 354.

Leaves opposite, ovate-oblong quite entire waved; the upper subcordate verticillid; racemes spike-form.

6. *Capraria lucida*. Shining *Capraria*.

Ait. hort. kew. 2. 353.

Leaves opposite oblong acute finely serrulate glossy; petioles winged; peduncles three-flowered.

7. *Capraria humilis*. Dwarf *Capraria*.

Ait. hort. kew. 2. 354.

Pubescent; leaves opposite or in threes ovate serrate petioled; peduncles axillary shorter than the petiole.

DESCRIPTIONS, &c.

1. This is a shrub, seldom exceeding four feet in height. Branches long, somewhat woody, erect, roundish, sometimes slightly hirsute. Leaves oblong, acuminate to both ends, serrate above, smooth, sessile, an inch and half long, in the shade near five inches in length; on sandy coasts succulent, thick and brittle, as are also the calyxes. Peduncles one-flowered, slender, axillary, one or two very seldom three, much shorter than the leaves. Flowers without scent; calyx smooth, very deeply five-parted; corolla white, the divisions hirsute at the base; anthers twin; germ ovate, furrowed; stigma headed, acute. Capsule furrowed on both sides, the length of the calyx. Seeds very small.

It is very common in Jamaica: in all the Caribbees, and the neighbouring continent. It is one of the plants which was supposed to be the Tea of the Chinese, and is called in the French islands *Thée du pays*^a. Cultivated 1759, by Mr. Miller^b.

2. Stem about a foot high, obtusely hexangular. Leaves two, three or four together, sessile, lanceolate, serrate, quite entire towards the base, but toothed at the base itself. Branches shorter than the stem, simple. Flowers axillary. Peduncles the length of the flower. Calyx five-parted, leaflets lanceolate, acuminate. Corolla ringent, tube the length of the calyx, upper lip erect, broader, emarginate, lower, three-parted, equal. Stamens twin, the length of the calyx. Stigma obtuse, two-lobed. Capsule ovate, acute, two-celled. Seeds many, roundish^c. Native of Jamaica, in sloughs where mud has been worked up by carriages.

3. It much resembles *Capr. gratioloïdes* (which is now removed into the genus *Lindernia*) but the leaves are more ovate and petioled. It is a native of Amboina and China^d.

4. Shrubby. Found at the Cape of Good Hope, by Thunberg and Masson. Introduced in 1774^e.

5. Shrubby. Leaves scattered, in a sort of whorl, unequally approximating. Flowers in an almost simple terminating raceme^f. Observed at the Cape of Good Hope, by Thunberg and Masson. Introduced in 1774. It flowers from march to july^g.

6. Smooth. Stems quadrangular. Leaves an inch and half long, with petioles one-third of their length. Peduncles axillary, opposite, a little longer than the petioles, quadrangular, three-flowered: the outer pedicels sometimes three-flowered. Bractes subulate, the length of the pedicels. Segments of the calyx subulate, three lines in length. Corolla salverform, tube cylindric, pale purple, a little longer than the calyx, gibbous on the outside at the base, above that a little bent, then erect, a little elongated

^a Jacquin. ^b Hort. kew. ^c Linn. amœn. See *Stemodia*.

^d Linn. mant.

^e L'Herit. fert.

^f Linn. suppl. and Hort. kew.

^g Hort. kew.

on the outside, so that the border is entirely horizontal; segments ovate, obtuse, equal, reddish purple with a dark purple spot near the throat, which is hairy. Anthers oblong, compressed. Germ roundish: style shorter than the stamens: stigma large, convex; oblique. Biennial. Native of the Cape; observed by Maffon. It flowers in april and may; and was introduced in 1774.

7. This is an annual. Found in the East-Indies, by John Gerard Koenig, M. D. Introduced 1781, by Sir Joseph Banks, Bart.^b].

PROPAGATION AND CULTURE.

The first sort is propagated by seeds, which must be sown upon a hot-bed in the spring of the year, and the plants must be brought forward by planting them upon a second hot-bed: about the middle or end of june they may be transplanted either into pots of rich earth, or a warm border, and may then be exposed to the open air, where they will perfect their seeds in autumn.

[The Cape sorts may be increased by cuttings, and are not so tender as the foregoing.

CAPRARIA. See *Lechea*, *Lindernia*, and *Scoparia*.

CAPRIFICUS. See *Ficus*.]

CAPRIFOLIUM. See *Lonicera*.

CAPSIUM. (From *Κάψω*, mordeo, to bite: on account of the biting heat of the seed and pericarp. Some derive it from *Capsa*, a chest.)

Engl. Guinea Pepper.

Fr. *Poivre d'Inde* ou de *Guinée*.

Lin. gen. n. 252. Reich. 269. Schreb. 338.

Tourn. 66. Juss. 126. Gertn. t. 132.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Luridæ*. *Solanææ* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, five-cleft, erect, permanent.

COR. monopetalous, rotated; tube very short. Border half-five-cleft, spreading, plaited; divisions broad, acute.

STAM. Filaments five, subulate, very small. Anthers oblong, converging.

PIST. Germ superior, ovate. Style filiform, longer than the stamens. Stigma obtuse.

PER. Berry without pulp, approaching to an ovate figure, bilocular, hollow, coloured. Receptacles growing to the dissepiment, exsuccous.

SEEDS very many, reniform, compressed.

OBS. The figure of the pericarp is indeterminate; the genus differs from its congeners in having a baccated exsuccous pericarp.

ESSENTIAL CHARACTER.

Corol. rotated. Berry exsuccous.

SPECIES.

1. *Capicum annuum*. Annual *Capicum*, or Guinea Pepper.

Lin. spec. 270. Reich. 521. mat. med. 66. hort. cliff. 59. upf. 47. fl. zeyl. n. 92. Gertn. fruct. 2. 241. Lour. cochinch. 127. Woodv. med. bot. 391. t. 144. Plenck, ic. t. 107.

2. *Piper indicum vulgatissimum*. Bauh. pin. 102. Raii hist. 676. Blackw. t. 129. Besl. eyf. aut. 1. t. 6—13.

Capicum longioribus filiquis. Ger. 392. f. 1. emac. 364. f. 1. Park. theat. 356.

C. filiquis longis propendentibus. Tournef. inst. 152. Long-podded *Capicum*.

3. *C. cordiforme*. Mill. dict. n. 2. Heart-shaped Guinea Pepper.

C. filiqua propendente oblonga & cordiformi. Tourn. inst. 152.

4. *C. tetragonum*. Mill. dict. n. 3. Bell Pepper. See n. 4.

5. *C. angulosum*. Mill. dict. n. 4. Bonnet Pepper. *C. fil. surrectis cordiform. angulatis*. Tourn. inst. 153.

6. *C. cerasiforme*. Mill. dict. n. 5. Cherry Pepper. *C. fil. furr. Cerasi forma*. Tourn. inst. 153.

^b Hort. kew.

7. *C. olivæforme*. Mill. dict. n. 6. Olive Pepper.

C. fil. olivæ forma. Tourn. inst. 153.

Stem herbaceous, peduncles solitary.

2. *Capicum baccatum*. Small-fruited *Capicum*, or Bird-Pepper.

Lin. syst. 226. Reich. 521. mant. 47. Plenck, ic. t. 108. Lour. cochinch. 127.

C. frutescens β. Lin. spec. 271. Mill. dict. n. 9, 10.

C. fructu minimo conico rubro. Brown. jam. 176.

C. rubrum minimum. Rumph. amb. 5. t. 88. f. 2.

C. minus, fr. parvo pyramidalis erecto. Sloan. jam. 1. 240. t. 146. f. 2.

C. brasiliænum. Clus. exot. 340. f. 2.

Piper filiquosum magnitudinis baccarum asparagi. Bauh. hist. 2. 944.

P. brasiliænum. Clus. cur. 55.

Stem shrubby smooth and even, peduncles in pairs.

3. *Capicum sinense*. Chinese *Capicum*.

Lin. syst. 226. Jacqu. hort. 3. t. 67.

Stem shrubby, flowers and fruits pendulous.

4. *Capicum grossum*. Heart-shaped *Capicum*, or Bell Pepper.

Lin. syst. 226. Reich. 522. mant. 47. Thunb. jap. 93.

C. fructu longo, ventre tumido, per summum tetragono. Tourn. inst. 152. *C. tetragonum*. Mill. dict. n. 3.

Piper indicum, filiquis surrectis rotundis, maximum.

Bauh. pin. 103. Raii hist. 677.

P. ind. Besl. eyf. aut. 1. t. 11. f. 1.

β. *C. fructu bifido*. Tourn. inst. 152. mant.

Stem undershrubby, fruits thickened various.

5. *Capicum frutescens*. Shrubby *Capicum*.

Lin. spec. 271. syst. 227. Reich. 522. hort. cliff. 60. Lour. cochinch. 128.

C. indicum. Rumph. amb. 5. 247. t. 88. f. 1, 3, 4.

Capo-molago. Rheed. mal. 2. t. 56.

Stem shrubby roughish, peduncles solitary.

DESCRIPTIONS, &c.

1. [Stem herbaceous, annual, two feet high, upright, branched: branches short, ascending. Leaves ovate-lanceolate, quite entire, smooth, dark green. Flowers white, lateral, solitary*. The fruit is a berry, varying much in size and shape, extremely smooth and shining on the outside, scarlet or yellow, inflated or hollow, two-celled, sometimes three-celled; the partitions at top commonly failing towards the axis. Receptacle at the bottom of the berry solid, ovate-conical, intimately connected with the partitions, so that some of the seeds are sometimes fixed to the partitions themselves. Seeds kidney-shaped or round, beaked, smooth, whitish or pale straw-coloured. Two seems to be the natural number of the cells; for berries which are three-celled, become two-celled towards the top^b.

Capicum varies extremely in its fruit; hence Gerard, Parkinson, Ray, Clusius, Tournefort, and others have many varieties. Parkinson has twenty; Ray has sixteen, besides many from Marcgraaf and Hernandez. Long says that there are fifteen varieties cultivated in Jamaica.

Mr. Miller has ten species, besides varieties, but several of his species are nothing more than varieties; and indeed some of Linneus's species seem to be nothing more.]

α. The common long-podded *Capicum* is frequently cultivated in our gardens. It varies, 1. with oblong fruit growing erect; 2. with a divided fruit; 3. with oblong and short pods growing erect; 4. with a taper fruit a span long. And of all these there is both red and yellow fruit.

β. The *Capicum* with heart-shaped pods has also several varieties: 1. with round hanging pods; 2. with larger and rounder pods; 3. with the largest round pods; 4. with upright heart-shaped pods; 5. with upright round pods. These also have both red and yellow fruit.

γ. [See n. 4. The *Capicum tetragonum* however of Miller seems to be a variety of *Capicum annuum*, although it has this singularity, that the fruit is constantly observed to be three-celled^c.

* Loureiro.

^b Gertner.

^c Retz, obs. 1, 13. n. 21.

d. Bonnet Pepper has broad wrinkled leaves. The fruit is also furrowed and wrinkled, generally growing upright, and of a beautiful scarlet colour. Some of the fruits have their tops compressed like a bonnet, whence the name; others are bell-shaped.

e. Cherry Pepper was sent from the Spanish West Indies. It does not grow so tall as the others, but spreads near the ground. The leaves come out in clusters, are of a shining green, and stand on long foot-stalks. The fruit is round, smooth, of a beautiful red, and the size of a common cherry.

ζ. Olive Pepper came from Barbadoes. This is like the first in stalk and leaves, but the fruit is oval, and about the size of a French Olive. These are all annual with us, whatever they may be in their native countries; their stalks decaying soon after the fruit is ripe.

2. [The *Capficum* commonly called Bird Pepper differs but little from *C. frutescens*. The stem is more tender, more shrubby, and not roughish. The berries are very small, of an ovate form, and of the size of currants. The branches are divaricated, not spreading out at a right angle with the stem. The calyxes have spreading subulate teeth, not obscure as in that ^a.

According to Loureiro, the stem is three feet high, smooth and upright; with longish, scattered, slender branches. Leaves lanceolate, quite entire, smooth, scattered, small, petioled. Peduncles one or two-flowered. Berry roundish very red, the size of a common cherry. The lower leaves are opposite, and the upper alternate.

Clusius informs us, that it was cultivated abundantly in Moravia, in 1585^c; and it was cultivated here in 1731, by Mr. Miller^f.

The Bird Pepper is gathered when ripe, dried in the sun, pounded and mixed with salt. It is then kept stopped in bottles, and is commonly known by the name of *Cayan-butter*.

A mixture of sliced cucumbers, eschalots or onions cut very small, a little lime juice and Madeira wine, with a few pods of this or bonnet pepper well mashed, and mixed with the liquor, seldom fails to provoke the most languid appetite in the West Indies. It is called there *Man-dram*. The pods gathered fresh from the bush are also liberally used in the West Indies, to assist digestion, and correct flatulencies.

Both this and the common Guinea Pepper are given internally to horses and mules, to cure the dry gripes, occasioned by rank and four grafts. They are likewise applied externally in cataplasms^g.

Miller has four sorts with perennial shrubby stalks.] 1. *Capficum pyramidale*, n. 7.—2. *C. conoides*, commonly called *Hen Pepper*, n. 8.—3. *C. frutescens*, commonly called *Barberry Pepper*, n. 9.—4. *C. minimum*, commonly called *Bird Pepper*. They rise four or five feet high, and are not so hardy as the annual sort.

1. I received the seeds of *C. pyramidale* from Egypt. The leaves are much narrower than those of any other; the pods always grow erect, and are produced in great plenty, so that the plants make a good appearance for three months in the winter, and they may be preserved two or three years; but the young plants being most fruitful, few persons preserve the old ones longer than till they have perfected their fruit, when they begin to lose their beauty.

2. *Capficum conoides* came from Antigua with the title of *Hen Pepper*. It rises with a shrubby stalk three or four feet high, sending out many branches toward the top. The fruit is about an inch long, in form of an obtuse cone, of a bright red, and grows erect. This ripens its fruit in winter, when it makes a pretty appearance.

3. *Capficum frutescens* grows about the same height as the foregoing, but differs in the shape and size of

the fruit, which is about the bigness of a Barberry, and nearly of the same form.

4. *Capficum minimum*, commonly known by the title of Bird Pepper in America. This rises with a shrubby stalk four or five feet high. The leaves are broad, and rounder at the ends than those of the others, and of a lucid green. The fruit grows at the divisions of the branches, and stands erect; it is small, oval, of a bright red, and much more sharp and biting than the others. From this sort not only Cayan butter, but Pepper-pot, is made. The latter from the ripe pods, dried in the sun, and then in an oven after bread is baked, in an earthen or stone pot, with flour between the strata of pods. When quite dry they are cleaned from the flour, and beaten or ground to fine powder. To every ounce of this a pound of Wheat flour is added, and it is made into small cakes with leaven; these are baked, cut into small pieces, baked again that they may be as dry and hard as biscuit, and then are beaten into powder and sifted. This powder is used for all the same purposes with common Pepper, and is usually called Cayan Pepper.

[I have kept these four shrubby sorts of *Capficum*, from Miller, together, under the West-Indian sort, to which they seem to belong, rather than to the East Indian shrubby sort, or *Capficum frutescens* of Linneus: but whether that be specifically different from this may be doubted.

3. Trunk perennial, woody, with an ash-coloured bark. The whole plant is smooth. Leaves ovate, acuminate, quite entire, alternate, on long petioles. Peduncles one-flowered, solitary or twin, short. Calyx small, sharp, green. Border of the corolla deeply cut into lanceolate segments, whitish with a tinge of yellow. Anthers dark violet, erect. Fruit shining, ovate, obtuse, obscurely angular, yellow. Seeds pale. It is cultivated in Martinico, and used there for culinary purposes^h.

4. This bears a great resemblance to the annual *Capficum*, and indeed seems to be the connecting link between the herbaceous and shrubby sorts. The stem is perennial, a span in height, and somewhat branching. The fruit, in proportion to the plant is very large, being almost as big as an apple, but differing in shape; it is solitary and erectⁱ:] from an inch and half to two inches long, swelling and wrinkled, flattened and angular at top. [Cultivated in 1759, by Mr. Miller. *C. baccatum* (n. 2.) was cultivated by him in 1731^k.]

Bell Pepper is the sort most proper for pickling, the skin being fleshy and tender, whereas in the others it is thin and tough. The fruit should be gathered before it arrives at the full size, whilst the rind is tender: it should be slit down on one side, to get out the seeds; after which it should be soaked two or three days in salt and water. When drained from this, it must be covered with boiling vinegar, and closely stopped down for two months, and then boiled in vinegar to make it green. It wants no addition of spice.

If the ripe fruit of this or any of the *Capficums* be thrown into the fire, it will raise strong and noisome vapours, which occasion vehement sneezing and coughing, and often vomiting. The powder taken up the nose will occasion violent and dangerous fits of sneezing.

[Thunberg relates, that a pretty little dwarf variety of Bell Pepper is much in favour with the Japanese, who are very fond of any thing strange or minute.

5. Stem three feet high and rugged; branches diffused, frequently scandent. Leaves lanceolate, quite entire, waved, small, smooth, petioled, alternate or scattered. Flowers axillary, small, white, five or six-cleft. Fruit at first green, but when ripe golden or saffron-coloured, crooked and shaped like a horn, an inch long, usually solitary^l.

^a Linn. mant.

^c Exot.

^f Hort. kew.

^g Long's Jamaica, 3. 722.

^h Jacquin.

ⁱ Linn. mant.

^k Hort. kew.

^l Loureiro.

This was cultivated in 1656, by Mr. John Tradescant, jun.^m]

Most of the sorts of *Capficum* are natives of both the Indies, but they have been chiefly brought to Europe from America, where they abound in all the Caribbee islands, and are greatly used in sauces, especially by the negroes, whence the fruit is called Negro and Guinea Pepper.

[The well-known preparation called Cayenne Pepper, made from the pods of the smaller sorts of *Capficum*, when used in moderation is considered as by no means unwholesome; especially to those of cold, lencophlegmatic habits.

In such temperaments, as well as in paralytic cases, it is used medicinally in small quantities as one of the highest stimulants. It has also been exhibited in combination with aloetic medicines and the deobstruent gums in uterine disorders.

A small quantity of the powder of *Capficum* has sometimes given almost immediate relief in the tooth-ach, when arising from a caries: it is to be applied to the part affected, by introducing it into the cavity of the carious tooth.]

PROPAGATION AND CULTURE.

The annual *Capficums* are propagated by seeds, which must be sown upon a hot-bed in the spring; and when the plants have six leaves, they should be transplanted on another hot-bed, at four or five inches distance, shading them in the day time from the sun, until they have taken root, after which, they must have a large share of air admitted to them in warm weather, to prevent their drawing up weak. Toward the end of may, the plants must be hardened by degrees to bear the open air; and in june they should be carefully taken up, preserving as much earth about their roots as possible, and planted into borders of rich earth, observing to water them well, as also to shade them until they have taken root; after which time, they will require no other management, but to keep them clean from weeds, and in very dry seasons to refresh them three or four times a week with water. They will flower the end of june and in july, and their fruit will ripen in autumn. These directions are for the culture of the common sorts of *Capficum*, which are generally planted by way of ornament. But the plants of the fourth sort, which are propagated for pickling, should be planted in a rich spot of ground, in a warm situation, about a foot and a half asunder, and shaded till they have taken root, and afterward duly watered in dry weather; which will greatly promote their growth, and cause them to be more fruitful, as also enlarge the size of the fruit. By this management, there may be at least two crops of fruit for pickling obtained the same year, provided the season proves not too cold; but there should be one plant, whose pods are large and forward, chosen to save seeds; and the first fruits on this should be suffered to remain, that they may have time to perfect their seeds before the frost comes in autumn, for the early frost generally destroys these plants. When the fruit is fully ripe, it should be cut off, and hung up in a dry room till the spring, when the seeds are wanted.

The varieties δ , ϵ , ζ , being tender, the plants should be put into pots, and placed in an old hot-bed under a deep frame, where they may have room to grow; or if they are planted in the full ground, the plants should be each covered with a bell-glass to screen them from cold. These glasses may be set off every day in warm weather, and placed over them in the evening again; and at such times as the weather is not favourable, the glasses should be raised on the contrary side to the wind, to admit the fresh air. With this care, the fruit of these sorts will ripen in England, which without it, rarely come to maturity, but in very warm seasons.

The beauty of these plants is in their ripe fruit, which being of different forms and colours, intermixed with the green leaves, and white flowers at

the same time, make a pretty appearance in the latter part of the summer, when they are properly disposed in the borders of the flower-garden; or if they are planted in pots, for the decoration of courts, &c. being intermixed with other annual plants, which are in beauty at the same season, they will make an agreeable variety; especially, if as many of the different shaped fruits, of both the red and yellow colours as can be procured, are propagated.

The sorts with perennial shrubby stalks, are not so hardy as the other, therefore when the plants have been brought forward in the hot-bed, as was directed for the common sorts, they should be each planted in a pot filled with rich earth, and plunged into a very moderate hot-bed, under a deep frame, where they may have room to advance; and in warm weather, they should have a large share of air admitted to them, but must be covered with glasses every night, or in cold weather, and frequently watered. With this management they will produce plenty of fruit in autumn, which ripen in winter; but they must be removed into the stove, on the first approach of frost, and placed where they may have a temperate warmth, in which they will thrive better than in a greater heat; and the fruit will continue in beauty most part of winter, making a pretty appearance in the stove during that season.

In Spain and Portugal this fruit is much cultivated for the same purpose as in America, but in England chiefly for ornament.

[The annual *Capficum* was cultivated by Gerard in 1597. He says, "the cod doth not come to that bright red colour which naturally it is possessed with, which hath happened by reason of these unkindly years that are past: but we expect better when God shall send us a hot and temperate year."

He recommends it to be "sowne in a bed of hot horse-dung as Musk-Melons are, to be removed into a pot, and toward autumn to be carried into some house." And adds, "that it is very well known in the shops at Billingsgate by the name of Ginnie Pepper, where it is usually to be bought."

[CAPURA.

Lin. gen. Reich. 477. Schreb. 599. Juss. 437.

Class. 6. I. Hexandria Monogynia.

GENERIC CHARACTER.

CAL. none.

COR. monopetalous, tubular. Tube cylindric; border six-parted; divisions rounded; the exterior alternate ones narrower.

STAM. Filaments hardly any. Anthers six, oblong, within the tube; the alternate ones superior.

PIST. Germ superior, triangularly-roundish, truncate. Style cylindrical, very short. Stigma nearly globose.

PER. Berry?

SEED.

ESSENTIAL CHARACTER.

Cal. none. Cor. six-cleft. Stam. within the tube.

Germ superior. Stigma globular. Per. Berry.

SPECIES.

1. *Capura purpurata.*

Lin. syst. 343. Reich. 2. 107. mant. 225.

DESCRIPTION, &c.

A tree with brachiate purplish branches. Leaves opposite, subpetioled, ovate, like those of *Lonicera xylosteum*, quite entire, sharpish, annual. Bunches of flowers axillary, shorter than the leaves, purple. Native of the East-Indiesⁿ.]

CAPUT GALLINACCUM. See *Hedysarum*.

[CAPUT MEDUSÆ. See *Elymus* and *Euphorbia*.

CARA. See *Dioscorea*.

CARACA. See *Dolichos*.

CARACALLA. See *Phaseolus*.]

CARAGANA. See *Robinia*.

[CARAGUATA. See *Bromelia*.

CARAMBOLA. See *Averrhoa*.

CARAMBU. See *Jussieua*.

CARANASI. See *Capraria*.

- CARANDAS. See *Carissa*.
 CARAPICHEA. See *Callicocca*.
 CARARU. See *Amaranthus*.
 CARASCHULLI. See *Barleria*.
 CARAWAY. See *Carus*.
 CARAXERON. See *Gomphrena*.
 CARCAPULI. See *Cambogia*.
 CARDAMINDUM. See *Tropaeolum*.
 GARDAMINE. (So called from its having the taste of *Cardamum*, that is *Nasturtium* or *Cress*.)
 Lin. gen. n. 812. Reich. 876. Schreb. 1088.
 Tourn. 109. Juss. 239. Gertn. t. 143.
 Class. 15. 2. Tetrastymia Siliquosa.
 Nat. order of *Siliquosa* or *Cruciform* flowers.

GENERIC CHARACTER.

- CAL. Perianth four-leaved; leaflets ovate-oblong, obtuse, somewhat spreading, gibbous, small, deciduous.
 COR. four-petalled, cruciform. Petals oblong-obovate, spreading much, ending in erect claws of twice the length of the calyx.
 STAM. Filaments six, subulate; of these the two opposite ones are twice the length of the calyx, but the rest a little longer. Anthers small, cordate-oblong, erect.
 PIST. Germ slender, cylindric, length of the stamens. Style none. Stigma obtuse-headed, entire.
 PER. Silique long, cylindric-compressed, bilocular, bivalve; the valves on opening, rolling spirally backwards.
 SEEDS. Very many, roundish.

OBS. There is a species which is often destitute of the two smaller stamens; and another is destitute of petals. In *Card. petraea* the valves of the silique open from the base, but are not rolled back.

ESSENTIAL CHARACTER.

Silique opening elastically, the valves revolute. Stigma entire. Calyx rather gaping. [Two nectareous glands, one on each side, between the shorter stamens and the calyx. *Huds.*]

SPECIES.

* Leaves simple.

1. *Cardamine bellidifolia*. Daisy-leaved, or alpine *Cress*.
 Lin. spec. 913. syst. 593. Reich. 3. 244. fl. lapp. n. 260. t. 9. f. 2. succ. n. 590. *Huds. angl.* 293. *With.* 685. *Crantz. austr.* 43. cruc. 128. *Jacqu. misc.* 1. 148. t. 17. f. 2. *Hall. belv.* n. 476. *Fl. dan.* t. 20. *Allion. pedem.* n. 949. t. 18. f. 3. *Villars dauph.* 3. 357. *Krock. files.* n. 1048.
Arabis bellidifolia. *Scop. carn.* n. 836.
Card. pumila, *Bellidis fol.*, alpina. *Raii syn.* 300.
Nasturtium alp., *Bell. folio*, minus. *Baub. pin.* 105. *Raii bist.* 817.
Not. Plantula cardamines alterius æmula. *Clus. bist.* 2. 129. 2.
 Leaves simple, ovate, quite entire; petioles long.
2. *Cardamine asarifolia*. *Asarabacca*-leaved *Cress*.
 Lin. spec. 913. syst. 593. Reich. 3. 245. *Allion. pedem.* n. 948. *Crantz. cruc.* 128.
Nasturtium montanum, *asari fol.*. *Bocc. sic.* 5. t. 3. *Herm. par.* t. 203. *Raii bist.* 816.
N. alpinum, palustre rotundifolium, rad. repente. *Mor. bist.* 2. 224.
 Leaves simple subcordate.
3. *Cardamine nudicaulis*. Naked-stem'd *Cress*.
 Lin. spec. 913. Reich. 3. 245. *Gmel. fib.* 3. 273. n. 43. *Crantz. cruc.* 128.
 Leaves simple lanceolate sinuate-toothed; stems naked.]
4. *Cardamine petraea*. Rock *Cress*, or Alpine Ladies Smock.
 Lin. spec. 913. syst. 593. Reich. 3. 245. fl. succ. n. 591. *Huds. angl.* 293. *With.* 685. *Lightf. scot.* 347. t. 15. *Fl. dan.* t. 386. *Dill. elth.* 70. t. 61. f. 71. *Crantz. cruc.* 128. *Krock. files.* n. 1049.
Nasturtium petræum. *Pluk. alm.* 261. t. 101. f. 3. (bad.) *Pet. herb.* t. 50. f. 3. (bad.) *Raii syn.* 300.
 Leaves simple oblong toothed.

** Leaves ternate.

5. *Cardamine refedifolia*. Rocket-leaved *Cress*.
 Lin. spec. 913. syst. 593. Reich. 3. 245. *Hall. belv.* n. 476. β . *Gouan. fl. monsp.* 163. n. 4.

- Jacqu. austr.* 5. app. t. 21. *Allion. pedem.* n. 950. t. 57. f. 2. *Raii bist.* 817. n. 8. *Park.* 827. f. 2. *Crantz. crac.* 129. *Villars dauph.* 3. 358.
Nasturtium alpinum minus, *Refedæ foliis*. *Baub. pin.* 104. *prodr.* 45. f. 2. (good). *Bocc. mus.* 2. 41. t. 46.
 Lower leaves undivided, upper three-lobed and pinnate.]
6. *Cardamine trifolia*. Three-leaved *Cress*.
 Lin. spec. 913. Reich. 3. 246. fl. lapp. n. 259. succ. n. 589. *hort. cliff.* 336. n. 4. *Hall. belv.* n. 475. *Scop. carn.* n. 815. *Jacqu. vind.* 120. *austr.* 1. t. 27. *Crantz. austr.* 43. cruc. 129. *Clus. bist.* 2. 127. *Ger.* 202. f. 2. *emac.* 259. f. 4. *Park.* 827. f. 1. *Raii bist.* 817.
Nasturtium alpinum trifolium. *Baub. pin.* 104. Leaves ternate obtuse, stem almost naked.
 7. *Cardamine africana*. African *Cress*.
 Lin. spec. 914. Reich. 3. 246. *Crantz. cruc.* 129. *Nasturtium afr.* &c. *Herm. par.* t. 202. *Pluk. alm.* 152. t. 101. f. 5. *Raii suppl.* 414. 16.
 Leaves ternate acuminate, stem very branching.]
 *** Leaves pinnate.
 8. *Cardamine chelidonia*. *Celandine*-leaved *Cress*.
 Lin. spec. 914. Reich. 3. 246. *Barr. ic.* 156. *Pall. it.* 3. 34. *Crantz. cruc.* 130. *Lour. cochinch.* 398.
 Leaves pinnate, leaflets in fives gashed.
 9. *Cardamine impatiens*. Impatient Ladies Smock.
 Lin. spec. 914. syst. 594. Reich. 3. 246. *hort. cliff.* 336. n. 3. fl. succ. n. 588. *Huds. angl.* 294. *With.* 685. *Sowerby engl. bot.* t. 80. *Lightf. scot.* 348. *Hall. belv.* n. 471. *Scop. carn.* n. 816. *Crantz. austr.* 44. cruc. 130. *Leers herb.* n. 522. *Pollich pal.* n. 619. *Krock. files.* 1050. *Villars dauph.* 3. 359. *Fl. dan.* t. 735. (a different species. *With.*) *Allion. pedem.* n. 956. *Raii bist.* 815. 4. *syn.* 299. *Ger. emac.* 260. f. 7.
Sisymbrium cardamines species quædam insipida. *Baub. bist.* 2. 886. 1. *Barr. ic.* 155.
Sium minimum, &c. *Park.* 1241. f. 4.
Nasturtium. *Mor. bist.* 2. f. 3. t. 4. f. 1. *Pet. herb.* t. 47. f. 7.
 Leaves pinnate gashed stipuled, flowers without petals. [sometimes with.]
 10. *Cardamine parviflora*. Little-flowered Ladies-Smock.
 Lin. spec. 914. Reich. 3. 247. *With.* 686. *Neck. gallob.* 277. *Leers herb.* n. 523. *Crantz. cruc.* 130. *Krock. files.* n. 1051. *Villars dauph.* 3. 360.
C. hirsuta β . *Huds. angl.* 295.—minor arvensis. *Lwyd in Raii syn.* 300. n. 4.
Nasturtium pratense parvo fl. *Baub. prodr.* 44.
 Leaves pinnate without stipules, leaflets lanceolate obtuse, flowers corolled.
 11. *Cardamine græca*. Greek *Cress* or Ladies-Smock.
 Lin. spec. 915. Reich. 3. 247. *mant.* 427. *hort. ups.* 188. *Gertn. fruct.* 2. 295.
Nasturtium montanum nanum, &c. *Bocc. mus.* 2. 171. t. 116. sic. 84. t. 44. & 45. f. 2.
 Leaves pinnate, leaflets palmate equal petioled.
 12. *Cardamine hirsuta*. Hairy Ladies-Smock.
 Lin. spec. 915. Reich. 3. 248. *hort. cliff.* 336. 2. succ. n. 587. *Huds. angl.* 295. *With.* 688. *Curtis lond.* 4. 48. *Lightf. scot.* 348. *Hall. belv.* n. 472. *Scop. carn.* n. 817. t. 38. *Pollich pal.* n. 620. *Leers herb.* n. 524. *Gron. virg.* 99. 1. *Fl. dan.* t. 148? *Crantz. cruc.* 131. *Villars dauph.* 3. 361. *Krock. files.* n. 1054.
Nasturtium aquaticum minus. *Baub. pin.* 104. *Mor. bist.* f. 3. t. 4. f. 11. *Pet. herb.* t. 47. f. 4.
Card. impatiens altera hirsutior. *Raii syn.* 300.
Sisymbrium Cardamine hirsutum minus, fl. albo. *Baub. bist.* 2. 888.
 Leaves pinnate; flowers four-stamened [and six-stamened.]
 13. *Cardamine pratensis*. Common Ladies-Smock, or Cuckow-flower.
 Lin. spec. 915. Reich. 3. 248. fl. succ. n. 585. *Huds. angl.* 294. *With.* 688. *Curt. lond.* 3. 40. *Lightf.*

Lightf. scot. 349. *Hall. belv.* n. 473. *Scop. carn.* n. 819. *Villars dauph.* 3. 361. *Krock. filef.* n. 1051. *Crantz. austr.* 44. *crucif.* 131. *Neck. gallob.* 278. *Pollich pal.* n. 621. *Blackw. t.* 223. *Woodv. med. bot.* 89. t. 30. *Fl. rust.* t. 95.

Cardamine. *Ger.* 201. *emac.* 259. *Raii syn.* 299. *hist.* 814.

Nasturtium pratense magno flore. *Baub. pin.* 104.

Mor. hist. f. 3. t. 4. f. 7. *Pet. herb. t.* 47. f. 5.

C. altera minor. *Park.* 826. 2. & 1239. 4.

Iberis Fuchsi, (325.) f. *Nast. prat. sylvestre.* *Baub. hist.* 2. 889. 1.

β. *C. fl. pleno.*—*With a double flower.*

Leaves pinnate; the radical leaflets roundish, those on the stem lanceolate.

14. *Cardamine amara.* *Bitter-Cress*, or *Ladies-Smock.*

Lin. spec. 915. *Reich.* 3. 248. *fl. succ. n.* 586.

Huds. angl. 294. *With.* 689. *Curt. lond.* 3. 39.

Lightf. scot. 350. *Hall. belv.* n. 474. *Neck.*

gallob. 278. *Pollich pal.* n. 622. *Crantz.*

cruc. 131. *Allion. pedem.* n. 954. t. 56. f. 1.

Villars dauph. 3. 362. t. 39. *Krock. filef.* n.

1053.

C. fl. majore elatior. *Tourn. inst.* 224. *Raii syn.* 299.

Nasturtium pyrenaicum aquaticum latifolium, purpurascens fl. *Herm. par.* t. 203.

N. aquat. majus & amarum. *Baub. pin.* 104.

prodr. 45. f. 1. *Park.* 1239. 3. *Pet. herb. t.* 47.

f. 1. *Raii hist.* 814. 1.

Sisymbrium Cardamine, f. *Nast. aquat. fl. majore, elatius.* *Baub. hist.* 2. 885.

Leaves pinnate, axillas stoloniferous. (leaflets of the stem angular, sessile. St. in With.)

15. *Cardamine virginica.* *Virginian Cress.*

Lin. spec. 915. *Reich.* 3. 249. *Gron. virg.* 99. 2.

Pet. gaz. t. 105. f. 18.

Nasturtium. *Pluk. alm.* t. 101. f. 4.

Leaves pinnate; leaflets lanceolate, one-toothed at the base.

16. *Cardamine thalictroides.*

Allion. pedem. n. 951. t. 57. f. 1.

C. Plumierii. *Vill. dauph.* 3. 359. t. 38.

C. fol. trifidis acutis, laciniis integris vel incisis, caule erecto. *Gmel. sib.* 3. 272. t. 65.

Nasturtium montanum nanum rotundo thalictri fol. cynæum. *Bocc. mus.* 171. t. 116.

Leaves ternate, pinnate and simple; leaflets obliquely lobed, roundish; petals thrice the length of the calyx.

17. *Cardamine stolonifera.*

Scop. carn. n. 818. t. 39.

Sisymbrium. *Hall. opusc.* 101-103. fig.

Nasturtium 7. *Baub. prodr.* 46.

Stem-leaves oblong, sinuate-toothed: runners from the root, and base of the stem.

18. *Cardamine scutata.*

Thunb. in Linn. transf. 2. 339.

C. trifolia, ejusd. fl. japon. 260.

Leaves ternate scutate curled, stem almost naked.

DESCRIPTIONS, &c.

1. [Root simple, white, very long. Leaves oval, smooth, juicy, acrid, dark green, veined, quite entire, sometimes a little sinuated, on petioles equal to the leaves or longer; often unequal, some being twice as long as others; some reclining, others erect. Stem filiform, striated, flexible, an inch high, with one or two small leaves, oblong-ovate, sometimes semipinnate next the petiole. Flowers white, sometimes purplish, with claws the length of the calyx. Siliques half an inch in length^a.—This is not *N. alpinum*, *Bellidis folio minus*, *C. B.* according to *Allioni*. His figure is not at all like that in the *Flora Danica*, *Flora Lapponica*, and *Jacquin's miscellany*.

Jacquin, who takes it to be distinct from *C. resedifolia*, thus describes it.—It divides from the root into some simple stems, which are erect, round, striated, smooth, from an inch to half a span in height, leafy. Radical leaves copious, bluntish, and rather

firm: stem-leaves scattered, petioled except the upper, which are sessile, oblong-ovate, sometimes repand; all of them flat and smooth. Raceme terminal, few-flowered. Flowers peduncled erect; but the fruits sometimes all look one way. Calycine leaves at first green, next pale violet; and finally yellowish. Petals white, longer than the calyx, entire, deciduous. Stamens not longer than the corolla: Germ, even while the corolla remains, elongated; style hardly any; stigma yellowish. Silique an inch in length, linear, flat, but swelling where the seeds are; the valves when ripe dark purple and shining. Seeds lens-shaped. The plant has no smell. It flowers in July and August.

Linneus says, that it is the size of *Draba vernalis*; but with long filiques after the flower is gone^b.

Scopoli makes it an *Arabis*, because the valves of the filiques do not curl up in opening. It varies very much in the leaves:

On the highest Alps at first it appears with a stem scarcely two inches high, yet with some leaves on it. Radical leaves on long petioles, ovate-acuminate, rather firm; those on the stem like them. Flowers few, terminal; calyx erect, hollow, lanceolate, brown at the end; petals white, gradually dilated, roundish. Stigma emarginate. Silique an inch long, compressed, many-seeded, often cyaneous. Seeds flat. The first leaves of *C. resedifolia* are entire. This plant, when it grows old, has the radical leaves semitrilobate or trilobate, with two or four pinnae: the stem puts out branches, with a broad nerve, on which are distant, confluent, expanding pinnae, the first roundish, the upper ones narrower. The flower seems larger, as might be expected on a stronger plant, but the calyx is tipped with brown, and the filiques are the same; hence I conclude that *C. resedifolia* is not specifically different from this^c.

On the mountains of Lapland, frequent. Norway. Silesia. Alps of Switzerland, Dauphiné, Austria, and Carniola. Highest Alps between Savoy and Piedmont.—Doubtful whether it be a native of Britain. On St. Vincent's rock near Bristol. *Turritis hirsuta*, or *Arabis stricta*, has probably been mistaken for it^d. Denbighshire should be searched for it. Perennial. Biennial, according to *Allioni*: flowering in April and May.

2. Leaves round, like those of *Afarum*, a little sinuated. Corolla white. Siliques long, many, bursting at the least touch when ripe^e.

All the species of *Cardamine* are mild antiscorbutics, as the taste sufficiently indicates, but they are not received in practice. This however has all the qualities of Scurvy-grass, and is substituted for it, where it grows in abundance^f.

It is found at Barga in Tuscany; in the Modenese; at the foot of Mont Cenis; in the Vaudois alps; above Tende, &c.—Introduced in 1779, by Anthony Chamier, Esq.^g

3. Stems about nine inches high. Leaves smooth, firm, about three inches long. Siliques with from one to four cells compressed, between the seeds slender, striated, smooth^h. According to *Linneus*, the filiques are lanceolate like those of *Lunaria*. He says, that he had not seen the flowers. It was observed in Siberia by *Steller*.

4. Root perennial. Stems from three to six inches high, reclining at the base, and increasing by offsets. The radical leaves are sometimes only indented on the edges, but are more frequently deeply sinuated with two pair of oval acute lobes, and an odd one at the extremity: the stem-leaves are less indented, and the uppermost are elliptic and entire: the flowers are either white or a little tinged with purpleⁱ. The valves of the filiques gape at the base, but are not rolled back^k.

Sweden, Denmark, Silesia, Wales, Scotland: on lofty moist rocks; flowering in May and June. Perennial.

^a Fl. succ.

^c Haller.

^d Stokes in Withering.

^e Hocccone.

^f Allioni.

^g Hort. kew.

^h Gmelin.

ⁱ Lightfoot.

^k Mygind. in Linn. syst.

^a Allioni.

5. Lower-leaves ovate; upper ones three-lobed hastate, or subternate with the side-lobes smaller. Stature of *C. bellidifolia*, to which Haller unites it¹.

Root biennial. The root-leaves resemble those of *C. bellidifolia*; the stem-leaves are pinnate, but the lower ones are sometimes pinnatifid. Leaflets of the calyx linear, green with a white edge: corolla white, twice as large as the calyx; petals almost square, slightly emarginate. The stem-leaves being constantly pinnate, it ought not to be confounded with *C. bellidifolia*^m. Native of the South of France, the Swiss Alps and the Pyrenees, Germany, Austria, Piedmont; on the highest rocks; flowering in July.

6. Root creeping. Stem branched cicatrized with the fallen petioles. Radical leaves often continuing to another year, ternate, on long reddish semicylindric petioles; leaflets rounded above the middle, with repand or subcrenated edges: the notches ending in a point. One leaf on the stem. Calyx erect, not gibbous. Petals expanding, ovate, white, waved and wrinkled about the edge. Stigma truncated, flat. Silique an inch long, flat. Seeds in one cell (one to three) ovate, flat^a.

According to Haller, the radical leaves smooth, firm, shining, with two pairs of pinnae, and an odd one larger. Stem a long span in height, unbranched, purple, with a few leaves which are narrower. Corolla pale purple. Six glands, four between the lower stamens and the higher ones, two between the latter and the calyx.

Native of Lapland and Westrogothia, Switzerland, Carniola, and Austria. Cultivated 1629, by Parkinson^o.

7. Leaflets stiff, large, roundish, with sinuated edges, the terminating one very large. Stems a span or more in height, round, somewhat hairy, and striated toward the top. Flowers in spikes, purple. Siliques long. Native of Africa. Perennial; flowering in May^p.

8. Stem herbaceous, eight inches high, with many ascending branches. Leaflets seven, lanceolate, smooth. Flowers white, in simple, terminating spikes. Leaflets of the calyx curved, gaping a little. Corolla bell-shaped, spreading. Silique longish, cylindric, with the valves rolled back; seeds ovate^q. Native of Italy, Siberia, and China.

9. Root annual. Stems from six to twelve or eighteen inches high, angular, hollow, stiff, erect, somewhat flexuose, simple, or but little branched. Radical leaves have five pairs or more of ovate pinnae obtusely lobed. Stem-leaves very numerous, growing without order, shortest toward the bottom of the stem, pinnate; pinnae nine pairs or more, oval-lanceolate or lanceolate, deeply and acutely lobed or indented, especially on the lower edge; smallest toward the stem, and gradually larger; odd leaflet usually three-lobed. Flowers in erect spikes. Siliques numerous, almost parallel to the stem, long, stiff, swelling a little^r.] It has the title of *Impatiens* from the elasticity of these siliques, which, if touched when they are ripe, spring open, and cast out their seeds with violence to a considerable distance.

[Linneus says, that the flowers in Sweden have no petals, in both wild and cultivated plants: that however in 1764 he found one flower with white petals. Leers affirms that they never have petals with them. Pollich and Woodward remarked none in what they examined. Hudson says that the flowers sometimes have no petals; but that at other times they have oblong ones, scarcely longer than the calyx, but extremely fugacious: and his remark is certainly just. Scopoli affirms that his specimens from Gorizio had no petals, but that the plants which he collected about Idria had. Others, as Ray, Crantz, Allioni, Reichard, Krockner, Villars, &c. say that the flowers have petals, though they are very small, and deciduous.

On the Swiss mountains, Sweden, Denmark, Germany, the South of France, Austria, Carniola, Piedmont, the Pyrenees. With us in Derbyshire, Yorkshire, Westmoreland, Worcestershire, Somersetshire. Flowering in May and June.

Johnson, in Gerard, says it was first introduced into our gardens by John Tradescant: and that he found it about Bath, and in other places.

10. Very much resembling *C. impatiens*, but differs as follows: stem shorter, with angles not so sharp; leaves without stipules; leaflets lanceolate, obtuse, scarcely toothed; the lowest not palmate, but ovate and smooth; stamens shorter than the corolla; siliques only half the size, erect on horizontal pedicels^s.

It is an annual plant. The petals are never wanting, as they are sometimes in the *C. impatiens*. The siliques are shorter and thicker^t. Native of many parts of Europe.

Haller looks upon this as a variety of *C. hirsuta*, and in this he is followed by Hudson and Curtis. See n. 12.

11. Root annual. Height less than a span. Stems slender, jointed, branched. Leaflets nine, small, ovate, semipalmate, obtuse, resembling those of *Thalictrum aquilegifolium*, divided about the edge like those of *Fumaria*. Flowers few at the tops of the branches. Calyx erect. Corolla white. Native of Sicily, Corsica, and the Greek islands^u.

12. Root annual, fibrous. Stem a span high or more (in wet ditches eighteen inches) solid, upright, flexuose, grooved or angular, purple near the base and commonly very hairy, above nearly smooth, branched, sometimes very much so. Radical leaves numerous, forming a circle, pinnate; leaflets petioled, round-angular, generally five-lobed, hirsute, roughish with little prominent points; the lobes unequal, blunt or pointed: stem-leaves narrower, and more deeply indented, with fewer lobes. Calyx has a few white hairs: corolla almost twice the length of the calyx, small, white; petals entire, obtuse. Silique about an inch in length, upright: seeds (twelve) flattened, smooth, yellowish-brown. Early in the spring, when the weather is cold, it has only four stamens, but as the summer advances, it has constantly six. In a wet situation and luxuriant soil, it loses in a great degree its hairiness; in exposed places it seldom reaches more than six or eight inches, and is generally much more hairy; when it grows singly, it is much more branched. The leaflets vary much in shape^v.

The specific character given by Mr. Hudson, who unites it with *C. parviflora*, is this: leaves pinnate; radical leaflets roundish-cordate; those on the stem ovate, toothed, petioled. He says that in the *parviflora*, the leaflets of the upper leaves are naked. Dr. Stokes thinks that to be clearly distinct from *C. hirsuta*, and says that it comes into flower as the *hirsuta* is going out. Haller however has no doubt of its being a variety; and Mr. Curtis assures us that repeated observation and culture have convinced him that these are both the same species.

Native of most parts of Europe, in wet shady places. I found it quite smooth on mont Saleve in Savoy, near Geneva, early in April. Hairy it is common in Warwickshire; not so near London, but near Chelsea water-works, Highgate, Hampstead, &c. It flowers in April and May.

The young leaves are a good salad in the spring^w.

13. Root perennial. Stem nine inches or a foot high, upright, at top a little branched, round, scarce perceptibly angular, smooth, stiffish, with a purplish tinge at bottom. Radical leaves on petioles from an inch to two inches in length, having three or four pairs of leaflets; frequently imperfect, after the stem is advanced; the pinnae roundish, running out into three unequal angles or teeth, the outermost largest, and having for the most part five angles. On the

¹ Linn. spec.

^m Allioni.

ⁿ Scopoli.

^o Hort. kew.

^p Herman.

^q Loureiro.

^r Haller, Lightfoot, Woodward Mss.

^s Linn. spec.

^t Villars.

^u Boccone and Linn. mant.

^v Curtis.

^w Lightfoot.

lower stem-leaves there are frequently six or seven pairs of ovate leaflets, placed alternately; higher up they become oblong, and finally linear: they are commonly ciliate round the edge; and the stem-leaflets often terminate in a point. The radical leaflets are on short petiolules; the lower stem-leaflets are subsessile; and the upper ones are quite sessile. A single corymb of about ten flowers terminates the stem. Calyx yellowish green. Corolla large, pale purple; lamina ovate, emarginate, deeply veined; claws yellowish. Nectary of four glands, two surrounding the base of the short filaments, and two on the outside of the base of the long filaments. Shorter filaments hid, the anthers just emerging; the four longer ones stand considerably above the corolla. Silique an inch long. Seeds sixteen in one cell.

Most authors speak of the corolla as being purple, it is singular therefore that our poets should allude to the silvery whiteness of it, when it is generally more or less tinged with purple till it has been bleached by the sun. It is very general in moist meadows, and by the sides of ditches and streams, flowering in april and may. From its early appearance, the name of *Cuckow-flower* has been given to this, among many other spring plants.]

The young leaves of this, and some of the other sorts, are gathered in the spring, and put into salads, instead of Cress, of which they have the flavour, and the antiscorbutic quality. [Kine seldom touch it; but sheep will eat it, at least when they are first turned into a meadow or marsh.

The virtue of the flowers in hysteric and epileptic cases, was first mentioned by Ray and Dale, from Dr. Tancred Robinson; and since by Dr. Baker, (*Med. trans.* 1.) The dose is from twenty to ninety grains twice a day, of the powder of the dried flowers. Do they not act like *Erysimum cheiranthoides* in the epilepsies of children, and cure the disease by destroying the worms in the stomach and intestines? I have accounts of their success in young epileptics, from good authority; but have never been fortunate enough to see them of much use in hysterical cases*.

From the disuse into which this medicine has fallen, it should seem that it had not answered the expectations of practitioners*.

Cases however have sometimes occurred in the practice of very eminent physicians, in which epilepsies, and obstinate headaches, even in old people, after yielding to no other remedies, have been cured by this medicine given in the quantity before mentioned about twice a day or oftener. It commonly operates by inducing a degree of hæmorrhage per anum, and sometimes from the other emunctories.

It seems particularly serviceable in those kinds of epilepsies which are brought on by the recess or want of the menses.

It has also been considered as useful in scorbutic cases, like many other plants of the same natural order.

14. Mr. Curtis has admirably well distinguished this, from the foregoing common sort. The stem-leaflets are large, broad, and very angular, resembling those of Water-Cress. It is in every respect a larger plant than that, its blossoms excepted, which are nearly of the same size. These are always perfectly white: the anthers, which in the *pratensis* are yellow, are in this of a deep purple; the tips of them are also more curled up: the style, which in the *pratensis* is upright, in the *amara* has an unusual obliquity. Towards the bottom of the stalk, this is more disposed to throw out runners: it is also more local, and rather affects the edges of streams, than the open meadow.

Native of Sweden, Switzerland, Germany, France, Piedmont. With us, near London, at Chelsea, Battersea, Lewisham, Uxbridge, Harefield; Dorking in Surry; Braintree in Essex; Middleton in Warwickshire; Aston near Birmingham; above Wor-

cester; and Great Comberton in Worcestershire; near Norwich; Bungay, Suffolk: and in Scotland. Near rivulets, on the banks of rivers, in boggy places, and moist meadows: flowering in april and may. Perennial.

The young leaves are acrid and bitterish, but do not taste amiss in salads^b. They are pungent, bitter and aromatic, in such a degree as to promise very considerable medical uses^c.

15. Radical leaves in a circle, pinnate; leaflets numerous, almost imbricate, sub lanceolate, with one short toothlet from the hinder side near the base. Stem with few leaves, generally linear and entire. Habit of Shepherd's purse. Native of Virginia^d.

16. Stem striated, branching, procumbent, the extreme branches bearing flowers on a short umbel. Leaves tender juicy, not hirsute, pinnate; the radical ones have often two pinnae. Stem-leaves have two pairs of pinnae; pinnules petiolate, the side ones two or three-lobed, the lower one more remote. Leaflets of the calyx linear-elliptic concave. Petals pale yellow, cordate, emarginate, claws greenish, double the length of the calyx and more. Siliques a little flattened, acuminate. Seeds glossy, flat, lemon-coloured, grooved on one side. Native of mont Cenis, St. Bernard, the Grand Chartreuse, &c. Biennial^e.

It seems doubtful whether Villars's plant be the same with Allioni's, the petals being white and not emarginate. His figure however agrees with it; and so does Ambrosini's, *phytogr.* p. 374. Villars adds, that it produces several weak stems, which are only a few inches in height, and lie on the ground; the leaves are slightly villose, tender, rounded but frequently irregular; the siliques slender and few in number.

17. Stem six inches high, erect, branching, moderately hirsute. Radical leaves on long petioles, obtuse, repand, with one pinnule beneath, a line in length. Leaves of the runners small, petioled, sharpish, with acuminate angles behind. Stem-leaves simple, on short petioles, sharpish. Branches with few leaves and flowers. Calyx greenish. Petals white with greenish claws. A gland supporting the shorter stamens, and another between the calyx and the taller stamens. Anthers yellow. The calyx inclining to expand makes it approach to *Sisymbrium*. It is sufficiently distinct from *C. amara*^f. Native of Carniola, Austria, and the borders of Bohemia.

18. Root fibrous, fibres very close, capillary. Scapes naked, a finger's length. Root-leaves very many, petioled, ternate, erect, loose; lower stem-leaves often solitary, sometimes opposite in pairs, ovate, subpetioled, very small; the terminating one round, curled, smooth, dotted. Native of Japan^g.

Forster mentions a species, which he calls *Cardamine sarmentosa*, to be found in the island of Teautea, in the South Seas^h.]

PROPAGATION AND CULTURE.

Few of these plants are admitted into gardens. The double varieties of the common sort (n. 13.) with white and purple flowers, deserve a place in shady moist borders of the flower-garden, where they will thrive, and make a pretty appearance during their continuance in flower. They are propagated by parting their roots in autumn; at which time they should be transplanted annually.

The others are mostly low plants, growing in wet or alpine situations. The perennial sorts may be propagated by parting their roots in the autumn; they require a strong soil and shady situation. [Some of them also (as n. 13, 14, 17.) produce offsets or runners, by which they may be increased.] There is a variety of the Bitter Cress (n. 14.) with double flowers, which may be propagated by parting the roots.

All the sorts will grow from seeds sown in the au-

* Withering.

* Curtis.

^b Lightfoot.

^c Withering.

^d Linn. spec.

^e Allioni.

^f Scopoli.

^g Thunberg.

^h Fl. austral. n. 529.

turn on a shady border, where they require no care but to be kept clean from weeds, and will flower early in the following season. Being very prolific in seeds, and their pods being provided with a particular mode of dispersing them, by means of the twisting of the valves in opening; when once introduced these plants will propagate themselves in plenty; but they will thrive best in the shade.

CARDAMINE. See *Lepidium*, *Ricotia*.

CARDAMOMUM. See *Amomum*.

CARDIACA. See *Galeopsis*, *Leonurus*, *Plomis*, *Stachys*.

CARDINAL FLOWER. See *Lobelia*.

CARDIOSPERMUM. (From καρδιά Heart, and σπέρμα Seed; the seed being marked with a heart-shaped scar or spot.)

Engl. Heart Pea. Amer. Wild Parsley.

Fr. Pois de Merveille.

Lin. gen. 498. Reich. 540. Schreb. 680. Gærtn.

t. 79. Juss. 246. Corindum. Tourn. 246.

Vesicaria. Riv. tetr. 144.

Class. 8. 3. Octandria Trigynia.

Nat. order of Tribilatae. Sapindi Juss.

GENERIC CHARACTER.

CAL. Perianth four-leaved; leaflets obtuse, concave, the alternate interior ones the size of the corolla, permanent.

COR. Petals four, obtuse, alternate with the larger leaflets of the calyx.

Nectary four-petalled, coloured, inclosing the germ; leaflets obtuse, growing upon the petals, two upon the erect lip, callous at the tip, hooked at the side; the rest upon the closed lip; with equal sides.

STAM. Filaments eight, subulate, equal with the nectary. Anthers small.

PIST. Germ three-sided. Styles three, short. Stigmas simple.

PER. Capsule roundish, trilobate, inflated, trilocular, gaping at the tip.

SEEDS solitary, globular, marked at the base with a cordate scar.

ESSENTIAL CHARACTER.

Cal. four-leaved. Pet. four. Nect. four-leaved, unequal. Caps. three, connate, inflated.

SPECIES.

1. *Cardiospermum Halicacabum*. Smooth-leaved Heart Pea or Heart-seed.

Lin. spec. 525. Reich. 2. 220. hort. cliff. 151.

upf. 97. fl. zeyl. n. 142. Gærtn. fruct. 1. 381.

Lour. cochinch. 239. Brown. jam. 213.

Halicacabum. Rumph. amb. 6. 60. t. 24. f. 2.

Ger. 271. f. 2.

H. peregrinus. Dod. pempt. 455.

Pisum vesicarium, fr. nigro, alba macula notato.

Baub. pin. 343. Sloan. jam. 1. 238.

P. cordatum. Besl. eyf. aest. 13. t. 11. f. 1.

β. *Corindum ampliore fol.*, fructu maximo. Tourn. inst. 431.

γ. C. fr. & fol. minori. Tourn. inst. 431. [This synonym Miller gives to his first species, which is the second in Linneus.]

Leaves smooth and even.

2. *Cardiospermum Corindum*. Woolly-leaved Heart Pea, or Parsley-leaved Heart-seed.

Lin. spec. 526. Reich. 2. 220. Lour. cochinch. 239.

Leaves tomentose underneath.

[3. *Cardiospermum grandiflorum*. Great-flowered Heart-seed.

Swartz prodr. 64.

Leaves pubescent, capsules acuminate, very large, smooth and even.

DESCRIPTIONS, &c.

1. Stem herbaceous, twining, striated, unarmed, slender, long, branched. Leaves broad-lanceolate, sinuate-gashed, smooth, biternate. Flowers axillary, solitary, small, white, on long peduncles^a. Calyx five-leaved. Capsules three, inflated, membranaceous, netted-veined, winged with a very nar-

^a Loureiro.

row membranaceous dorsal rim, coadunate, and so connected at the axis as to seem a single three-lobed capsule; they are each one-celled and valveless. The receptacle is a white fungous tubercle, fastened to the middle of the inner angle of the capsules, and the seed is fastened to it by a broad umbilical scar. Seeds solitary, globular, black, marked with a white heart-shaped umbilical scar: cover single, hard; no albumen; embryo globular-beaked, white: cotyledons fleshy, thick, unequal, the larger having a deep sinus for the reception of the smaller; plume two-horned, very small; radicle conical, compressed, beaked, centripetal^b.]

Miller says, that this differs from the second in having taller stalks, and the leaves first divided into five, and again into three parts. The footstalks are shorter; the seeds, and the bladders in which they are contained, are much larger, and the whole plant is smoother.

Native both of the East and West Indies, and the Society isles in the South Seas.

[Gærtner observes, that the seeds from the former are little more than half the size of those from the latter country, and that the cotyledons are flattened into a thick fleshy lamina, and are rolled up spirally. Loureiro remarks, that Rumphius's figure does not agree very well with his plant, either in the stem or the many-flowered peduncles.

This species was cultivated by Gerard, in 1594. It flowers here in July^c.]

2. The second sort rises with a slender, channelled, climbing stalk, to the height of four or five feet, sending out many side branches, with leaves, upon very long foot-stalks, coming out opposite at the lower part of the stalk; but upward the leaves come out on one side, and the peduncle at the opposite; the petioles are divided into three, each of which sustains small leaves, which are again divided into three parts, that are sharply cut on their edges, and end in sharp points. The peduncles are long, naked, and toward the top, divided into three short ones, each sustaining a single flower. Immediately under these divisions, come out tendrils or clasps, like those of the Vine, but smaller; these fasten themselves to whatever plants grow near them, and are thereby supported. The flowers are small, white, and composed of four small concave petals, two of which standing opposite, are larger than the others; when these fall away, the germ becomes a large inflated bladder, having three lobes, in each of which is contained one, two, and sometimes three seeds, which are round, hard, and the size of small Peas, each being marked with a black spot in shape of a heart.

[This resembles the former species, but the capsules and under surface of the leaves are tomentose. The peduncles supporting ten or eleven flowers, among the tendrils, are stiff and remain after the fructification is past. The capsules are narrower^d.

Native of Brasil, and according to Loureiro, of the suburbs of Canton in China. Cultivated in 1759, by Mr. Miller. It flowers in July and August^e.

3. Native of Jamaica.]

PROPAGATION AND CULTURE.

In the Indies these plants climb upon whatever shrubs are near them, and rise to the height of eight or ten feet; but in England they are seldom much above half so high; they send out many side branches, which spread to a considerable distance; and, if permitted, they will fasten themselves to the neighbouring plants by their small tendrils.

They are annual, and perish soon after they have perfected their seeds; and being natives of hot countries, they will not thrive in England but in a stove. They are propagated by seeds, which should be sown upon a hot-bed in the spring; and when the plants are two inches high, they should be each transplanted into a pot filled with light sandy earth, not

^b Gærtner. ^c Hort. kew. ^d Linn. ^e Hort. kew.

too rich, then plunged into a very moderate hot-bed, where they must be carefully shaded until they have taken fresh root; after which they must have a large share of air, to prevent their being drawn up tall and weak; and when their roots have filled the pots, they should be carefully shaken out, preserving all the earth to their roots; and put into pots which are a little larger, filling them up with the same light earth, and placing them either under a deep frame, or behind the plants in the stove, where they may be screened from the sun till they are well settled in the pots; after which they may be removed into a glass-case, where they may have room to grow and be screened from the cold of the nights, but in warm weather they will require much air. With this management they will flower in July, and their seeds will ripen in autumn.

[CARDISPERMUM. See *Calendula*.

CARDOON. See *Cynara*.

CARDUNCCELLUS. See *Carthamus*.

CARDUNCULUS. See *Cynara*.

CARDUO-CIRSIIUM. See *Cnicus* and *Serratula*.]

CARDUUS. (*A carere; quia aptus carendæ lanæ; being fit to tease wool.*)

Engl. Thistle. Fr. Chardon.

Lin. gen. 925. Reich. 1004. Schreb. 1254.

Gært. t. 162. Juss. 173. Vaill. A. G. 1718.

Polyacantha & Silybum. Vaill. A. G. 1718.

Gært. t. 162. Cirsium. Tourn. 255. Vaill.

A. G. 1718. Gært. t. 163. Erioccephalus.

Vaill. A. G. 1718.

Class. 19. 1. Syngenesia Polygamia æqualis.

Nat. order of *Compositæ Capitatæ*. *Cinarocephalæ* Juss.

GENERIC CHARACTER.

CAL. Common ventricose, imbricate, scales very numerous, lanceolate, acuminate, spiny.

COR. Compound, tubular, uniform. Corollules hermaphrodite, subequal, reflected. The proper one monopetalous, infundibuliform; tube very slender; border erect, ovate at the base, quinquefid; divisions linear, equal, one more deeply separated than the rest.

STAM. Filaments five, capillary, very short. Anthers cylindrical, tubular, length of the corollule, five-toothed at the mouth.

PIST. Germ ovate. Style filiform, longer than the stamens. Stigma simple, subulate, naked, emarginate.

PER. none. Calyx converging a little.

SEEDS solitary, obovate, four-cornered, the two opposite corners obliterated; down sessile, very long.

REC. hairy, flat.

ESSENTIAL CHARACTER.

Calyx ovate, imbricate with spiny scales. Receptacle hairy.

SPECIES.

[1. *Carduus leucographus*.

Lin. spec. 1149. Reich. 3. 674. Jacqu. hort. 3. t. 23. Willch. illust. n. 69. Allion. pedem. n. 529. t. 73. Gært. fruct. 2. 377.

Leaves decurrent toothed spiny; peduncles naked very long, one-flowered; calyxes spiny inclined.

2. *Carduus lanceolatus*. Spear Thistle.

Lin. spec. 1149. Reich. 3. 674. hort. cliff. 392. 5. fl. suec. n. 716. Hudf. angl. 350. With. 868. Lightf. scot. 450. Sowerby engl. bot. t. 107. Hall. belv. n. 169. Scop. carn. n. 1007. (Cirsium). Neck. gallob. 337. Pollich pal. n. 762. Leers herborn. n. 625. Villars dauph. 3. 4. Krock. files. n. 1330. Tabern. 699. Ger. 1011. 6. emac. 1174. 6. Raii hist. 310.

C. lanc. latifolius. Baub. pin. 385. Mor. hist. 3. f. 7. t. 31. f. 7. Park. 982. 9. Pet. 21. 7.

C. lanc. f. sylvestris Dodonæi. Baub. hist. 3. 58.

Leaves decurrent pinnatifid hispid; divisions divaricate; calyxes ovate spiny villose; stem hairy.

3. *Carduus arabicus*. Arabian Thistle.

Lin. syst. 724. Jacqu. misc. 3. 56. icon. rar. t. 166. Leaves decurrent pinnatifid, lanuginously villose, divisions divaricate; calyxes oblong spinulose sessile aggregate.

4. *Carduus nutans*. Musk Thistle.

Lin. spec. 1150. Reich. 3. 675. suec. n. 717. hort. cliff. 393. 7. Hudf. angl. 350. With. 869. Lightf. scot. 450. Hall. belv. n. 167. Scop. carn. n. 1011. Neck. gallob. 336. Pollich pal. n. 763. Villars dauph. 3. 5. Krock. files. n. 1331. Fl. dan. t. 675. Baub. hist. 3. 56. 3. Raii syn. 193. hist. 308. Mor. 7. 31. 6. Pet. 21. 1.

C. spinosissimus latifolius sphærocephalus vulgaris. Baub. pin. 385.

Leaves semidecurrent spiny; flowers drooping; scales of the calyx spreading at top.

5. *Carduus acanthoides*. Prickliest Thistle.

Lin. spec. 1150. Reich. 3. 675. suec. n. 718. With. 871. Allion. pedem. n. 531. Krock. files. n. 1332. Villars dauph. 3. 7. Pollich pal. n. 764. Jacqu. austr. 3. t. 249. Baub. hist. 3. 50. Raii syn. 194. 3. hist. 309. 3. Mor. 153. 7. 30. 11. Pet. 21. 3. With.

C. crispus. Hudf. angl. 350. Lightf. scot. 452. Sec n. 39.

C. polyacanthos. Curtis lond. n. 67. Schreb. lips. p. 15.

Conf. C. nigrescens. Villars dauph. 3. 5. t. 20.

Leaves decurrent sinuate, spiny about the edge; calyxes peduncled solitary erect villose.

6. *Carduus crispus*. Curled Thistle.

Lin. spec. 1150. syst. 724. Reich. 3. 676. mant. 461. hort. cliff. 393. suec. n. 719. Hall. n. 165. Pollich pal. n. 765. Leers herborn. n. 627. Villars dauph. 3. 9. Krock. files. n. 1333. Fl. dan. t. 621. Baub. hist. 3. 59. 1.

Leaves decurrent sinuate, spiny about the edge; flowers aggregate terminal; scales of the calyx unarmed subaristated expanded.

7. *Carduus polyanthemus*.

Lin. syst. 724. Reich. 3. 676. mant. 109.

C. pycnocephalus palustris. Triumf. obs. 103. fig. Cirsium palustre lanceolatum, alato caule, polyanthemum. Vaill. art. 1718. p. 159.

Leaves decurrent sinuate ciliate, naked beneath; flowers peduncled heaped.

8. *Carduus palustris*. Marsh Thistle.

Lin. spec. 1151. Reich. 3. 677. suec. n. 720. Hudf. angl. 352. With. 873. Lightf. scot. 453. Relb. cantabr. n. 590. Curtis lond. 62. Neck. gallob. 337. Pollich pal. n. 766. Leers herb. n. 628. Villars dauph. 3. 8. Krock. files. n. 1334. Baub. pin. 377. prodr. 156. (Fl. dan. t. 621? With.) Park. 983. Raii syn. 104. hist. 309.

Cirsium. Hall. belv. n. 170. Scop. carn. n. 1004. Gmel. sib. 2. 57. t. 23. f. 2.

Card. spinosissimus erectus angustifolius palustris. Mor. hist. 3. 153. n. 12. f. 7. t. 32. f. 13. Petiv. 21. 4.

Leaves decurrent toothed, prickly at the edge; flowers in racemes, upright, peduncles unarmed.

9. *Carduus pycnocephalus*. Italian Thistle.

Lin. spec. 1151. syst. 724. Reich. 3. 677. Jacqu. hort. 1. t. 44. Gouan. illust. 62. Barr. obs. 925. t. 417. Triumf. obs. 100. t. 101. Krock. files. n. 1335.

Leaves decurrent pinnatifid-sinuate pubescent spiny, peduncles naked tomentose, calyxes deciduous.

10. *Carduus argentatus*.

Lin. syst. 725. Reich. 3. 678. mant. 280. Jacqu. hort. 2. t. 192.

Leaves decurrent runcinate spiny; peduncles subtomentose one-flowered; calyxes ovate mucronate unarmed.

11. *Carduus australis*.

Lin. syst. 725. suppl. 348. Villars 6.

Leaves decurrent runcinate spiny; calyxes subsessile terminal.

12. *Carduus dissectus*. Meadow Thistle.

Lin. spec. 1151. Reich. 3. 678. hort. cliff. 392. n. 4. Villars dauph. 3. 15. v. n. 40.

Cirsium anglicum. Lob. ic. 583. Dalech. hist. 584.

C. majus, singulari capitulo magno, f. incanum varie dissectum. Baub. pin. 377.

Leaves decurrent lanceolate; toothlets unarmed; calyxes spiny.

13. *Carduus cyanoides*. Blue-bottle-leaved Thistle.
Lin. spec. 1152. *Reich.* 3. 679.
 α. *C. monoclonos*. *Gmel. fib.* 2. 42. t. 15.
 β. *C. polyclonos*. *Gmel. fib.* 2. 44. t. 16.
Leaves decurrent pinnatifid linear quite entire unarmed petioled tomentose beneath.
14. *Carduus canus*. Hoary Thistle.
Lin. syst. 725. *Reich.* 3. 679. *mant.* 108. *Jacqu. austr.* 1. t. 42, 43. *Krock. files.* n. 1337.
Cirsium montanum maximum. *Park.* 960. *Raii hist.* 305.
C. tomentosum rad. bulbosa. *Baub. hist.* 3. 44.
C. max. alphodeli rad. *Ger. emac.* 1181. 1.
Carduus tuberosus. *Jacqu. vind.* 280.
Leaves decurrent lanceolate erose-toothed ciliate-prickled, cobwebbed-subvillose on both sides.
15. *Carduus pectinatus*.
Lin. syst. 725. *Reich.* 3. 679. *mant.* 279.
Leaves decurrent lanceolate pinnatifid-peetinate, peduncles very long; heads when past flowering drooping.
16. *Carduus defloratus*. Various-leaved Thistle.
Lin. spec. 1152. *syst.* 725. *Reich.* 3. 680. *Jacqu. vind.* 277. *austr.* 1. t. 89. *Hall. belv.* n. 164. t. 4. *Krock. files.* n. 1336.
C. cirsioides. *Villars dauph.* 3. 12.
Cirsium defloratum. *Scop. carn.* n. 1003. *ann.* 2. 61.
Cirs. angustifolium. *Baub. pin.* 377. *prodr.* 155.
Cirs. singularibus capitulis parvis. *Baub. pin.* 377.
Cirs. 3. montanum. *Clus. hist.* 2. 149. f. 1.
Leaves decurrent lanceolate ferrate subspinose-ciliate naked, peduncles very long lanuginous one-flowered.
17. *Carduus monspessulanus*. Montpellier Thistle.
Lin. spec. 1152. *Reich.* 3. 680. *Villars dauph.* 3. 18.
Baub. hist. 3. 44. fig. 45. 1.
Cirsium 7. *Baub. pin.* 377?
Cirsion. *Dod. pempt.* 737. 2?
Leaves decurrent lanceolate subrepand smooth unequally ciliate; peduncles alternate, calyxes unarmed.
18. *Carduus pannonicus*.
Lin. syst. 725. *suppl.* 348. *Krock. files.* n. 1348.
Cirsium pannonicum. *Clus. hist.* 2. 148. *Baub. hist.* 3. 1. 46. See n. 32.
Leaves semidecurrent naked undivided ciliate, flower subsolitary.
19. *Carduus tuberosus*. Tuberous Thistle.
Lin. spec. 1154. *Reich.* 3. 681. *mant.* 461.
Pollich pal. n. 768. *Villars dauph.* 3. 16. *Krock. files.* n. 1338.
Cirsium. *Hall. n.* 177.
Card. pratensis, asphodeli radice, latifolius. *Baub. pin.* 377. *Mor. hist.* 3. f. 7. t. 29. f. 27, 28. *Raii hist.* 305. 2.
C. bulbosus monspeliensium. *Lob. ic.* 2. t. 10.
 β. *C. prat. asph. rad., fol. profunde & tenuiter incis.* *Baub. pin.* 377. *Tabern. ic.* 154. *Jacea aculeata, f. tuberosa.*
Leaves subdecurrent petioled subpinnatifid spiny, stem unarmed, flowers solitary.
20. *Carduus chius*.
Lin. syst. 725. *Jacqu. hort.* 3. t. 5.
Leaves stem-clasping, the lower ones semidecurrent semipinnatifid ciliate-spinulose; stem unarmed; peduncles one-flowered.
21. *Carduus parviflorus*. Small-flowered Thistle.
Lin. syst. 725. *Reich.* 3. 681. *mant.* 279.
Leaves adnate at the base lanceolate naked erose ciliate-spinulous unarmed.
22. *Carduus linearis*.
Lin. syst. 726. *Thunb. jap.* 305.
Leaves sessile linear ciliate-spiny smooth; flowers terminal solitary.
23. *Carduus Casabonæ*. Fish-Thistle.
Lin. spec. 1153. *Reich.* 3. 681. *hort. cliff.* 393. 10.
Acarna major, caule non folioso. *Baub. pin.* 30.
A. Theophrasti Anguillaræ. *Lob. ic.* 2. 16. f. 1. *Dalech. hist.* 1484.
Polyacanthus Casabonæ, Acarnæ similis. *Baub. hist.* 3. 92. *Raii hist.* 315. 4.
Leaves sessile lanceolate quite entire, the edge with ternate spines.
24. *Carduus stellatus*. Starry Thistle.
Lin. spec. 1153. *Reich.* 3. 682.

- C. humilis aculeatus, &c.* *Triumph. obs.* t. 96.
C. stellatus leucocii fol. *Dodart. mem.* 4. 261.
C. ptarmicifolius. *Mill. dict.* n. 1.
Leaves sessile entire lanceolate unarmed tomentose beneath; spines branched axillary; flowers sessile lateral.
25. *Carduus marianus*. Milk Thistle, or Ladies Thistle.
Lin. spec. 1153. *Reich.* 3. 682. *hort. cliff.* 393. 9. *mat. med.* 130. *Huds. angl.* 353. *With.* 874. *Curt. lond.* 3. 54. *Light. scot.* 454. *Gouan. monsp.* 422. *Neck. gallob.* 337. *Leers herb.* n. 629. *Allion. pedem.* n. 535. *Krock. files.* n. 1342. *Blackw. t.* 79. *Dalech. hist.* 1475. fig. *Trag. hist.* 850. *Fuchs.* 56. *Ger.* 989. *emac.* 1150. *Dod.* 722. 1. *Lob. obs.* 479. 1. *ic.* 2. 7. 2. *Park.* 976. 1. *Matth.* 676. *Raii hist.* 312. *Baub. hist.* 3. 52. 2.
Silybum nervis fol. albis. *Hall. belv.* n. 181.
Cirsium maculatum. *Scop. carn.* n. 1009.
Leaves stem-clasping hastate-pinnatifid spiny, calyxes leafless; spines channelled doubly spined.
- [26. *Carduus syriacus*. Syrian Thistle.
Lin. spec. 1153. *syst.* 726. *Reich.* 3. 682. *hort. cliff.* 393. 8. *ups.* 250. 3. *Gron. orient.* n. 252. *Baub. pin.* 380. (Acanus.) & 381. (Silybum, 2.)
C. luteus syriacus. *Cam. hort.* 35. t. 10.
Leaves stem-clasping angular-spiny; flowers solitary subsessile fortified with about five leaflets.]
27. *Carduus eriophorus*. Woolly-headed Thistle.
Lin. spec. 1153. *Reich.* 3. 683. *hort. ups.* 249. 1. *Huds. angl.* 354. *With.* 875. *Lightf.* 455. *Gouan. monsp.* 423. *Neck. gallob.* 335. *Pollich. pal.* n. 767. *Jacqu. austr.* 2. t. 171. *Villars dauph.* 3. 2. *Krock. files.* n. 1339. *Mill. fig.* t. 293.
C. eriocephalus. *Dod. pempt.* 723. *Clus. hist.* 2. 154. *Ger. emac.* 1152. *Baub. hist.* 3. 57.
C. tomentosus. *Lob. obs.* 482. 1. *ic.* 2. 9. 2. *Park.* 978. *Raii hist.* 311.
Cirsium. *Hall. belv.* n. 168.—*eriophorum*. *Scop. carn.* n. 1008.
 β. *C. spurium*. *Lin. ups.* 249. *obs.*
Leaves sessile pinnatifid in two rows, divisions alternate erect; calyxes globular villose.
- [28. *Carduus altissimus*. Giant Thistle.
Lin. spec. 1154. *Reich.* 3. 683.
Cirsium altissimum. *Dill. elth.* 8. t. 69. f. 80.
Leaves sessile pinnatifid sinuate, ferrate unarmed, stem very branching, calyxes villose subserrate.
29. *Carduus virginianus*. Virginian Thistle.
Lin. spec. 1154. *Reich.* 3. 683. *Gron. virg.* 117. 1. *Jacqu. obs.* 4. 13. t. 99.
Cirsium minus virginianum, &c. *Mor. hist.* 3. 150. *Raii suppl.* 197.
Leaves lanceolate spinulous, tomentose beneath; stem unarmed leafy one-flowered.
30. *Carduus heterophyllus*.
Lin. spec. 1154. *syst.* 726. *Reich.* 3. 684. *hort. cliff.* 392. 2. *succ.* n. 721. *lapp.* n. 192. *Villars dauph.* 3. 19. *Krock. files.* n. 1343. *Fl. dan.* t. 109.
C. helenioides β. *Huds.* 352. *With.* 876.—*dissectus*. *Huds. edit.* 1.
Cirsium britannicum, caule multifloro, fol. infer. laciniatis. *Scop. ann.* 2. 60. 6.
C. Hall. belv. n. 180. β. *Allion. pedem.* n. 554. t. 34.
Leaves stem-clasping lanceolate ciliate entire and lacinate, stem with one or two flowers, calyx unarmed.
31. *Carduus helenioides*. Melancholy Thistle.
Lin. spec. 1155. *syst.* 726. *Reich.* 3. 684. *hort. cliff.* 392. 3. *ups.* 250. 4. *Huds.* 352. *With.* 876. *Lightf.* 457. *Krock. files.* n. 1344.
Cirsium. *Hall. belv.* n. 180. α. t. 7. *Scop. ann.* 2. 60. α. *Mill. dict.* n. 5. fig. t. 94. *Baub. hist.* 3. 46. 2. *Ger. emac.* 1183. 2. *Park.* 961. 5. *Raii syn.* 193. 2. *hist.* 306. 8. *Allion. pedem.* n. 553. t. 13.
Leaves stem-clasping lanceolate toothed, spinules unequal ciliate, stem unarmed.
32. *Carduus serratuloides*. Saw-wort Thistle.
Lin. spec. 1155. *Reich.* 3. 685. *Jacqu. vind.* 281. *austr.* 2. t. 127. *Gmel. fib.* 2. 52. t. 22. & 23. f. 1. *Krock. files.* n. 1345.
Serratula. *Lin. hort. ups.* 248.
Cirsium. *Scop. carn.* n. 1002. *Baub. pin.* 377. 8. *Clus. hist.* 2. 148. 1. See n. 18.

- Leaves rather stem-clasping lanceolate entire, serratures spiny-setaceous, peduncles one-flowered.
33. *Carduus tataricus*. Tartarian Thistle.
Lin. spec. 1155. Reich. 3. 685. Jacq. austr. 1. t. 90.
Leaves stem-clasping lanceolate, serratures spiny-setaceous, flowers three-leaved.
34. *Carduus ciliatus*. Ciliate Thistle.
Lin. syst. 726. Murr. in comm. gott. vol. 6. 1784. p. 35. t. 5.
Leaves half-stem-clasping pinnatifid lacinate spiny-tomentose beneath, scales of the calyx ciliate reflex at the base.
35. *Carduus flavefcens*.
Lin. spec. 1156. syst. 727. Reich. 3. 686. Cavan. hisp. 35. n. 52. t. 46. Krock. fles. n. 1346.
Leaves lanceolate entire unarmed toothed smooth, flowers leafless weak-spiny.
36. *Carduus rivularis*.
Lin. syst. 727. Jacq. austr. 1. t. 91.
Cirsium carniolicum. Scop. carn. n. 1005. t. 54. Allion. pedem. 543.
Leaves at bottom pinnatifid into oblong divisions, at top entire and serrate weak-spiny sessile, stem unarmed, flowers in heads.
37. *Carduus mollis*.
Lin. spec. 1156. Reich. 3. 686. amæn. 4. 328. Jacq. vind. 276. austr. t. 18. Scop. carn. 1000. (*Cirsium*) Pollich pal. n. 769. Gouan. illustr. 63. Clus. hist. 2. 151.
Leaves pinnatifid linear tomentose beneath, stem one-flowered unarmed.
38. *Carduus acaulis*. Dwarf Carline Thistle.
Lin. spec. 1156. Reich. 3. 686. suec. n. 722. Hudf. 354. With. 877. Lightf. 458. Relb. n. 594. Jacq. ic. vol. 2. Villars dauph. 3. 15. Krock. fles. n. 1347. Pollich pal. n. 770. Leers herb. n. 630. Park. 969. 4.
Cirsium. Hall. belv. n. 178. — *acaulos*. Scop. carn. n. 1010.
Card. acaulos, minore purpureo fl. Baub. pin. 380. Ger. emac. 1158. Raii hist. 310. Mor. f. 7. t. 32. f. 12. Chamæleon exiguus. Baub. hist. 3. 63. 1. Trag. 852. Carlina minor. Clus. hist. 2. 156. 1. Lob. obs. 480. 3. ic. 2. 5. 1.
Stemless; calyx smooth.

Other Species.

39. *Carduus inclinans*. Thistle upon Thistle.
With. bot. arr. 870. Hall. n. 167. γ.
C. crispus. Hudf. 350. Lightf. 452. Raii syn. 194. hist. 309. 2. Dod. 739. 1. Ger. emac. 1173. 3. Mor. hist. 3. 153. n. 11.
Leaves decurrent thorny at the edge, calyxes roundish, lax, scales of the calyx subulate straight, the innermost unarmed coloured.
40. *Carduus pratensis*. English soft or gentle Thistle; single-headed, or Meadow Thistle.
Hudf. 353. With. 877. Jacq. austr. 1. t. 42.
C. heterophyllus. Lightf. 456.
Cirsium. Clus. hist. 2. 148. 1. Baub. pin. 377. 8. Ger. emac. 1183. 3. 5. Park. 961. 4. Mor. 7. 29. 12, 13. Baub. hist. 3. 45. 2. Raii syn. 193. hist. 306. 7. Lob. ic. 583. 1. Pet. 22. 1. Baub. hist. 3. 45. 2.
Leaves sessile half-stem-clasping lanceolate somewhat toothed fringed with small unequal thorns, stem mostly one-flowered.
41. *Carduus carniolicus*.
Cirsium carniolicum. Scop. carn. n. 1005. t. 54.
C. rivularis. n. 36.
Lower leaves pinnatifid on short petioles, upper ones stem-clasping, heads (three or four) terminal, beaped.
42. *Carduus carlinoides*. Pyrenean Thistle.
Allion. pedem. n. 536. Gouan. illustr. 62. t. 23. Ait. hort. kew. 3. 139.
C. pyrenaicus tomentosus, fl. purpureis glomeratis. Tourn. inst. 441.
Leaves decurrent decursively pinnate, pinnules palmate-quadrifid aculeate woolly, stem corymbed many-flowered, flowers glomerate.
43. *Carduus medius*.
Gouan. illustr. 62. t. 24. Conf. fl. aragon. 790.

- Cirsium medium*. Allion. pedem. n. 542. t. 49. f. 2.
Leaves decurrent pinnatifid thorny about the edge, stem one-flowered, peduncle very long, scales of the calyx unarmed spreading bristle-shaped.
44. *Carduus ochroleucus*.
Cirsium ochroleucum. Allion. pedem. n. 546. Hall. belv. n. 174.
Leaves pinnate, pinnas ciliate, scales of the calyx recurved.
45. *Carduus pyrenaicus*.
Jacq. obs. 4. 11. Ger. prov. 179. n. 13.
Cirsium pyrenaicum. Allion. pedem. n. 549. t. 12.
Leaves decurrent oblong-lanceolate ciliate at the edge, spiny and tomentose on both sides, flowers subsessile.
46. *Carduus paniculatus*. Panicked Thistle.
Ait. hort. kew. 3. 143.
Leaves semidecurrent oblong-lanceolate unequal ciliate smooth, the lower lyrate waved; flowers panicked.
47. *Carduus rigens*. Upright Alpine Thistle.
Ait. hort. kew. 3. 144. La Cheval act. belv. 4. 294. t. 16. Hall. belv. n. 176. (*Cirsium*).
Leaves oblong-lanceolate, smooth, thorny at the edge, pinnatifid; segments oblique lobed; calyxes oblong bracted.
48. *Carduus Diacantha*.
Billard. ic. syr. 2. 7. t. 3.
Leaves sessile lanceolate tomentose underneath, spines in pairs, flowers corymbed.
49. *Carduus pinnatifidus*.
Cavan. hisp. 58. n. 91. t. 83.
Leaves pinnatifid tomentose, nerves woolly, stem one-flowered.
50. *Carduus gnaphaloides*.
Cyrill. rar. neap. 1. 27. t. 9.
Leaves sessile in a sort of whorl, lanceolate, quite entire, tomentose beneath.
51. *Carduus tenuiflorus*. Slender-flowered Thistle.
Curtis lond. n. 67.
C. acanthoides. Hudf. angl. 351. Lightf. scot. 451. Hall. belv. n. 166. Baub. hist. 3. 516.
C. spinosissimus capitulis minoribus. Phyt. brit. Raii hist. 309. syn. 194.
C. polyacanthos, capit. longioribus & tenuioribus, fol. albicantibus. Mor. hist. 3. 153.
Leaves decurrent prickly about the edge, branches stiff, calyxes aggregate sessile oblong-conical, scales upright spreading at top and prickly at the end.

DESCRIPTIONS, &c.

Thistles are known by their prickly leaves, in some species however the prickles are soft and harmless: they are sessile, and in many species decurrent. This genus is by some authors divided into two, from the pappus, egret or down of the seed. Such as have a simple or hairy down they call *Carduus*; and such as have a plumose or feathered down, *Cirsium*. Others unite several species of *Cnicus* to this genus. *Carduus marianus* having the scales of the calyx spiny about the edge, is more properly a *Carthamus*; according to Monf. Lamarck. Our common Way-thistle (*Carduus viarum* or *arvensis*) is removed by Linneus into the genus *Serratula*.

1. Root annual. Stem three feet high. Radical leaves scarcely petioled, close to the ground. Stem-leaves smooth, shining green with white spots; beneath paler and hairy, half-stem-clasping. A triple membranous wing runs uninterrupted along the stem. Peduncles woolly, one-flowered, generally naked, or with only a small leaf or two, grooved and tomentose. The leaves are pinnatifid nearly to the middle, sinuate-plaited, having many short lobes ending in harmless spines, with a longer spine at the end of each lobe; the whole form is oblong-ovate: the leaves on the branches are more shining, have the teeth or small lobes more produced, with a longer and firmer spine; and the form is rather lanceolate. Flowers upright. Calyxes ovate-conic, lanuginous; scales erect, green, not hooked or reflex, terminating in a harmless spine. Corolla purple or white. Down simple. Native of the county of Nice, and Campania.

* Allioni.

Retzius

Retzius has a species, which he received under the name of *C. leucographus*, but he takes it to be different, and has given it the name of *Carduus peregrinus*. He says it is well described by Ray, under the name of *C. lacteus peregrinus Camerarii*, in the 312th page of his history. He thus describes it himself (*Obs.* i. 27. n. 92.) Root annual. Stem three feet high, branched, striated, winged, naked, but the terminating branches tomentose. Leaves sinuate-toothed, spiny, sessile, decurrent, above naked spotted with white, beneath tomentose. Peduncles terminating and axillary; the first branched, tomentose, winged, long, with from three to six flowers; the latter very short. Calyxes sessile and pedicelled, oblong, almost cylindric, with soft spines, somewhat tomentose, deciduous. Corollules few, red, scarcely longer than the calyxes. Seeds few, white, gummy, and adhering to the down.

2. Root biennial. Stem upright, three or four feet high, angular, downy, frequently purple. Leaves half-stem-clasping, decurrent to the next, downy and sea-green underneath, hairy and deep green above, pinnae lanceolate, the terminating one long, the side ones mostly divided to the base into two segments, one pointing upwards, the other downwards, terminating as do also the wings of the part running down the stem, in sharp stiff white thorns, which are extensions of the ribs. Calyx with numerous ranges of lanceolate scales, somewhat tomentose, ending in sharp, stiff, white thorns. Corolla purple, sometimes white. Down plumose, almost as long as the blossom^b. The inner scales of the calyx are unarmed, bristle-shaped, and as it were dried up^c.

It is sometimes found of the height of a man, with heads twice the size of the common: as also with smaller heads, in all respects a less plant^d.

Road sides, hedges, and fallows; flowering in July. In Yorkshire it is called Bur-thistle.

This, in common with most of the Thistles, is looked upon merely in the light of a noxious weed; and yet Linneus remarks very judiciously that it preserves annual plants, by protecting them with its spines, and giving them an opportunity of feeding in quiet. If a heap of clay be thrown up, says Dr. Withering, nothing would grow upon it for several years, did not the seeds of this plant, wafted by wind, fix and vegetate thereon. Under the shelter of this, other vegetables appear, and the whole soon becomes fertile. The flowers, like those of the Artichoke, &c. have the property of curdling milk^e. The seeds are eaten by small birds.

3. Root annual, fusiform, white. Stem erect, about a foot high, scarcely branched, lanuginous and hoary. Leaves squarrose, ciliate-spiny, dirty green above, pale beneath; stem-leaves sessile, radical petioled, less cut and more obtuse. Flowers oblong, sessile, erect, aggregate at the end of the stem, and the very short axillary branchlets. Calyxes green and somewhat squarrose; scales lanceolate-acuminate, ending in a yellowish sharp prickle. Corollules purplish. Anthers dark purple. Pappus hairy, sessile, brown. Seeds smooth^f.

4. Stems two to three feet high, overspread, as are also the leaves, peduncles and calyxes with a cottony down. Leaves decurrent, not to the next leaf, but ending midway: pinnae ovate, armed with strong prickles. Peduncles one-flowered. Flower hanging down, smelling very sweet, particularly in the evening. Styles bent back towards the side. Pappus simple, nearly as long as the florets. The scales of the calyx are lanceolate and woolly, commonly of a dull red colour, and end in strong spines; the outer ones standing wide and open, the inner erect, and unarmed^g. Scopoli affirms that the heads are more often erect than pendulous in Carniola. This is certainly not so with us. It is well known to entomologists on account of the moths, which feed copiously on it^h.

^a Woodw. Mss. ^c Linn. spec. ^d Ray, and Bauh. hist. f. 2, 3.
^e Linn. succ. ^f Jacquin.
^g Lin. spec. & succ. Woodw. Mss. Lightf. ^h Linn. succ.

The dried flowers of this species, as well as the former, are sometimes used to curdle milk.

Pastures in a calcareous soil. Road sides in a sandy or gravelly soil. Common on most of the fallows about Cambridge.—Biennial. It flowers in June, the first of the Thistles.

5. Differs from *C. nutans* in having erect calyxes; from *C. crispus* in having the calyxes solitary and villose: the inner scales are spreading. Corollules semiquinquefid, but the lower segment separated nearly to the base, so that it is almost bilabiate, the upper-lip being quadrid, the lower simple, which is not the case in n. 4. 6. Styles double the length of the floscules. Leaves hastate-pinnate, with white upright hairs sprinkled underneath as in *C. crispus*. Stem scored with white, elevated and as it were bony streaks. Peduncles thorny with curled wings, in which it differs from *C. crispus*. The flowers are smaller than in *nutans*, larger than in *crispus*ⁱ.

Radical leaves at first have some resemblance to those of *C. marianus*. Flowers small, pale purple, crowded on the top of the stem, which is as high as in the *crispus*, but more slender, and with fewer, straighter branches, the wings broader, the spines fewer. Heads much smaller. The colour of the whole plant ash or gray^k. Leaves pinnatifid. Root-leaves blunt; pinnae broad, somewhat pentangular, with five obsolete lobes, the nerves terminating in acute yellow spines, tomentose beneath, above smooth, except a few short hairs arising from glands. Stem-leaves acute, pinnae triangular, confluent, with wings running down the stem, armed with numerous rigid yellow spines of various lengths. Scales of the calyx lanceolate, yellowish green; the upper ones spreading, the inner ones chaffy, all tipped with sharp spines. Segments of the corolla somewhat longer than the anthers. Down simple, nearly as long as the corolla^l.

It is called by Gerard (p. 1010.) Thistle upon Thistle; by Parkinson (p. 981. n. 5.) the most prickly Thistle.—On ditch-banks, road sides, waste places, borders of corn fields in most parts of Europe; flowering from June to September.

There is much confusion in this and the following species, and it is very doubtful whether our *acanthoides* be the same with that of many foreign authors. Haller received our plant both from Dillenius and Hudson, and determines it to be the *acanthoides* of John Bauhin, but not of Linneus: the latter he takes to be only a variety of *C. crispus*, with the spines of the leaves stronger; the flowers larger, solitary and erect. Pollich also describes the flowers of the *acanthoides* as being solitary. The late Mr. Lightfoot says positively that *C. acanthoides* of Linneus is a different plant from ours, though he retains the name. Mr. Curtis however, who has taken much pains to ascertain this Thistle, is of opinion, that the *C. crispus* of Hudson and Lightfoot, is the same with the *acanthoides* of Linneus, which he names *polyacanthos*, after Morison, Parkinson (theat. 981. 5.) and Schreber. To the *acanthoides* of John Bauhin, Hudson and Lightfoot, he gives a new name *tenuiflorus*.

He describes this species thus. Root annual, simple, whitish, furnished with numerous fibres. Stalk from two to four feet high or more, upright, very slightly grooved, hirsute, furnished with four or five wings, which are jagged and extremely prickly; branched, often to the bottom: branches very long, spreading, producing flowers at the extremities. Leaves sessile, decurrent, lanceolate, cut into lobes which are opposite, scalloped, toothed, and a little curled, spiny on the edge, above green, beneath whitish and somewhat woolly. Flowers middle-sized, terminating, for the most part clustered, purple, odoriferous, sessile, or standing on short peduncles, upright or somewhat nodding. Common calyx nearly round, loosely imbricate; scales spreading and somewhat reflex, slightly tomentose and harmless. Corolla as long again as the calyx. Seeds ob-

ⁱ Lin. spec. & succ. ^k Ray. ^l Woodw. Mss.

long, smooth, pale brown, slightly striated, blunt at both ends: down simple.

It is sometimes found with white flowers, and in different situations varies from two to five feet in height, is more or less hairy, and has its flowers more or less clustered.

In its general appearance it approaches near to the *palustris*, from which it may be distinguished by growing in dry places; being more branched, and the extreme flowering branches being usually more bowed downwards; these are however sometimes perfectly upright; the most certain mark is, that the calycine scales are loose, as in Burdock, and almost as harmless, whereas in the *palustris*, as in *arvensis*, *acaulis*, &c. they are closely imbricate: the flowers also are more odoriferous.

6. Stem green. Leaves totally decurrent, harmless, but rather pungent on the stem. Pedicels white-cottony. Calyx squarrose, the size of a hazel nut, scales wrinkled above^m.

C. crispus of Linneus does not agree with our plant (n. 39.) either in the character or description. They are nearly allied in habit and structure; but the peduncles and under surface of the leaves in the *crispus* are covered with a white cotton; the calyxes are smallerⁿ. See n. 39.

It grows wild in the same soil and situations with the foregoing; flowers about the same time; and like that is annual.

7. This so much resembles *C. crispus*, as not to be distinguished from it without difficulty; but neither the petioles nor leaves are tomentose underneath. Stem loftier. Leaves deeply runcinate, not rigid, bluntish, ciliate with weak spines, hollow-veined, paler beneath but not white. Upper stem-leaves lanceolate, érose, decurrent without interruption, curled, and a little pungent. Peduncles curled, scarcely cobwebbed. Flowers usually three or four at the top, subsessile. Corollas in the outside purple, in the disk red. Anthers violet. Styles white. Stigmas purple. Native of Rome. Biennial^o.

8. Root biennial. Stem four, five or six feet in height, in woods frequently ten or twelve, upright, branched, multangular, hirsute with numerous long white hairs, winged, prickly, variegated longitudinally with green and purple. Leaves sessile, bent downwards, lanceolate, pointed, jaggedly toothed, segments horizontal, opposite, together with the teeth broad and somewhat blunt, the lowermost tooth of each segment curled and elevated, veiny, hirsute with hairs standing remotely, above of a deep green colour, glaucous on the under side, the midrib pale green, and extremely hairy underneath, the margin of the leaf prickly, the prickles purplish at the base and white at the end; the uppermost stem-leaves elongated and linear at the extremity. Five or six rows of prickly rudiments of leaves run interruptedly down the stem, rendering it winged and prickly. Flowers purple, sessile, in clusters on the top of the stem and branches. Calyx ovate, smooth, a little woolly; scales closely imbricate, ovate, convex, green tipped with deep purple, without any rib, but ending in a short spreading prickle not pungent, beneath which is a glossy linear prominence: the inner scales are pointed only without prickles. Corolla twice as long as the calyx. Seeds whitish and shining. Down shorter than the corolla, having the rays fringed with long hairs.

Being never found but in wet places, it is not likely to be mistaken for any other Thistle; it has usually more purple about it than the rest of its kindred; and formidable as its stems and leaves are from their numerous prickles, the heads of flowers and peduncles are perfectly harmless^p.

It is wild in most parts of Europe in marshes, boggy woods, and moist heaths, commons, and meadows; flowering in July.—It varies with a white flower, as most of the Thistles occasionally do.

In Yorkshire it is called Red Thistle.

The tender stalks of this (and most of the sorts)

are esculent, being first peeled and boiled. They are thus eaten, as Linneus informs us, by the inhabitants of Smoland.

9. This is a sort of intermediate plant between *C. crispus* (n. 6.) and the *Onopordon* (or Cotton-thistle). Stem a foot high or more, white with hairs; the edges of the leaves uninterruptedly decurrent on each side, alternately flexuose and thorny. Radical leaves sub lanceolate; sub sinuate; stem-leaves oblong, semipinnatifid, toothed, pubescent on both sides, whiter underneath, cottony or woollyish. Peduncles short, cottony-white. Pedicels with three or four flowers. Floscules generally three or four. Calyxes the size of a hazel-nut, oblong, imbricate with subulate, erect, spreading, subspinous scales. Corolla purple with an erect border, the size of *Serratula tinctoria*. It differs from the *acanthoides* in having naked not winged peduncles. The calyxes when ripe fall off whole^q.

According to Gouan: The stem-leaves are obliquely semidecurrent, one lobe of the base being continued down longer than the other, but the other next the stem between leaf and leaf being naked. The upper leaves and those of the branches scarcely decurrent, rather stem-clasping; hence the branches and peduncles are naked; only with a loose nap. Flowers glomerate, subsessile, from one to six. Calyx the same size as in *C. crispus*, but shorter; scales ovate, the outer shorter, pubescent towards the end and terminating in a spine, the inner longer, without spines, and more flexible^r.

Native of the southern parts of Europe. Linneus, Gouan, &c. make it perennial: according to Allioni it is annual. It was cultivated in 1739, by Mr. Miller^s.

10. Stem a foot high, flexuose, even, alternately branched. Leaves uninterruptedly decurrent with a flexuose thorny edge, toothed with pungent spines, sprinkled especially towards the sinuses with silvery spots. Peduncles terminal, the length of the whole plant, with hardly any leaves, erect. Calyx the size of a hazel-nut; scales closely imbricate, the tips subulate, unarmed, erect; when ripe it falls entire with the seeds. Corolla very small, purple, mixed with the down, scarcely gaping. Anthers blue. Down ash-coloured. It approaches to the foregoing by its milky-spotted leaves, and one-flowered peduncles. It is remarkable that many Egyptian plants are spotted with white, as this and three other species of Thistle—*marianus*, *syriacus*, and *peregrinus*. *Centaurea galactites*: and *Asperugo aegyptiaca*. This is an annual plant^t.

11. Stem a foot high, round, striated, woolly-villose. Leaves alternate, remote, sessile, decurrent but scarcely to the next, oblong, sub sinuate at the sides, rather cobweb-villose, the veins of the sides running out into white thorns. Calyxes many (the lateral ones solitary) ovate, small, imbricate; scales lanceolate, acuminate with a spine, erect, rather spreading. Corolla consisting of about eight purple floscules. It is like the foregoing, but the flowers are not peduncled. Native of southern Europe^u.

Villars refers to this *C. australis*, with a mark of doubt, under his *C. auroscus*, n. 6. See more under *Carduus defloratus*, n. 16.

12. The leaves are wholly void of prickles; it is different therefore both from *C. heterophyllus* and *belenioides*^x.

Villars has a plant under this name, which he asserts to be that of the environs of Paris, of *Lobel*, *obs.* 314. *ic.* 583. *Bauh. hist.* 3. 45. *Park. theat.* 961. *Raii hist.* 306. &c. *Cirsium anglicum*: but he doubts whether it be the *C. dissectus* of Linneus, because that author says that the stem is winged, and compares it with *C. heterophyllus* and *belenioides*, which have more affinity with *C. monspessulanus* than with this. According to Villars, the root is perennial and creeping; the stem from a foot and a half to two feet in height, straight, grooved, whitish, and terminated by one or two flowers; the leaves oblong, lanceo-

^m Linn. mant.

ⁿ Woodw. & Stokes in With.

^o Linn. mant.

^p Curtis lond.

^q Linn. spec.

^r Gouan.

^s Hort. kew.

^t Linn. mant.

^u Linn. suppl.

^x Linn. spec.

late and sessile, cut about the edge, and white beneath: calyx a little open, but not prickly; the flower red. See n. 40.

13. The leaves have a white cotton underneath without serratures or bristles: in α . they are almost like those of *Sorbus*—in β . they are very narrow and linear. The scales of the calyx are linear, acuminate, subvillose; in α . the size of the Scabious; in β . of *Cyanus*, or Blue-bottle. It has the air of *Jacea moschata*. *Baub. hist.* 3. 34.⁷ According to Pallas (*itin.* 3. 594.) *Centaurea amplexicaulis*. *Gmel. it.* 1. t. 24. is a singular variety of this; which grows wild in Tartary. Introduced 1778, by Mr. William Malcolm².

14. Roots fusiform, aggregate, fleshy, white, like Skirrets. Stem four feet high, green, angular, cobwebbed. Leaves subsinuate-toothed, ciliate with little white spines scarcely pungent, keeled, uninterruptedly decurrent, with wings standing out. Peduncles terminal, elongated, with small, green floral leaves. Flowers solitary, purple. Calyxes unarmed, with a white line on the outside of the scales. Native of Austria and Tende. Perennial².

Cultivated in the gardens of Parkinson, Tuggye and Ray. It flowers in July.—Introduced 1775, by Jos. Nich. de Jacquin, M. D.^b

15. Stem two feet high, erect, even, unarmed, as is the whole plant. Leaves uninterruptedly decurrent, with a pale keel beneath, pinnatifid or very deeply toothed; teeth equal, lanceolate, large, quite entire, subciliate, terminating in a weak spine, marked at the base before with a small tooth bending down. Peduncles terminal, one-flowered, almost without leaves, a little tomentose. Scales of the calyx linear, spreading. Flowers the size of Burdock, purple with a long pistil; filaments white, erect. Biennial. It came up from seeds sent from Pennsylvania^c.

16. Stems many, angular, smooth, leafy, generally simple. Peduncles leafless, somewhat woolly, very few. Flower solitary erect. Scales of the calyx mucronate, soft, green, narrow, smooth, spreading. Seeds pale brown and shining. Pappus simple. The heads, when the flowers are ripe, or when in seed sometimes hang down, and are sometimes erect^d.

Villars observes, that this plant varies remarkably in the form of its leaves, but that the specific characters may easily be established on its creeping, blackish, rape-like roots; on the stem winged at bottom, naked at top, terminated by one or two flowers; on its oblong, prickly leaves, more or less cut and fringed, but always of a dark green; on its lengthened woolly peduncles; on its smooth, green calyx, without prickles; and on its flowers of a fine red colour, and often nodding.

His *C. aureoficus* has an affinity to the most prickly varieties of this, but it is smaller, and still more prickly: the flowers also are very much alike. He has another species, *C. Rosenii*, n. 13. t. 21. which perhaps may be only a variety of *defloratus*.

Linneus says that it resembles *C. ferratuloides* (n. 32.), but the calyxes are narrower, the leaves decurrent, and the heads not nodding.

According to Haller, it is a variable plant, having most usually a naked stem, and many firm, shining, smooth leaves next the ground, either entire or semipinnate. Flower specious, purple, often nodding when advanced. It is frequently found with the whole stem branching, and the flowering branches shorter: and sometimes with the leaves so prickly, as to resemble the Carline Thistle.

Native of Montpellier, Switzerland, Carniola, Gorizia. Perennial. Introduced 1775, by J. N. de Jacquin, M. D.^e

17. This also has the air of *C. ferratuloides*. Leaves smooth on both sides, glaucous, entire; radical ones repand. A few heads at the top of the stem on short peduncles^f. About Montpellier, county of Nice, &c. Perennial. Cultivated 1570, by Mr. Hugh Morgan².

18. Unarmed. Leaves smooth and even, with soft bristles. Heads the size of *Serratula arvensis* (Way-thistle) unarmed; the scales marked with a white line. Corolla pale purple.—Austria. Perennial^h.

19. Leaves unarmed, green on both sides, even. Root-leaves pinnatifid, in other respects like the stem-leaves, which are cordate-lanceolate, toothed, ciliate with inert, unequal little prickles. It has the flower of *C. heterophyllus*, only smaller¹.

According to Pollich, the stem is erect, two feet high and more, grooved-angular, rough, mostly unarmed. Branches long, subtomentose. Calyx roundish, imbricate, unarmed, contracted at the neck; scales lanceolate, a little reflected at the tip, ending in a soft spine. Corolla purple. Down simple.

The leaves, says Haller, above are a little hairy, below subtomentose: in the Montpellier plant hoary all over.

According to Pollich they are pubescent on both sides and roughish.

Villars has a species, (n. 17.) *Carduus pumilus*, which he says resembles this; it is only three or four inches high, and has not tuberous roots: there is only one purple flower, in an oblong calyx, the scales of which are not prickly: the leaves are lanceolate, sinuate, ciliate, and beneath hoary.

Montpellier, Leipzig, Bohemia, the Palatinate, Austria, Geneva, Switzerland, county of Nice: flowering in July and August. Perennial.—Cultivated in 1683, by Mr. James Sutherland^k.

20. Stems the height of a man, branching from top to bottom, angular, villose, erect. Leaves lanceolate-oblong, the upper surface almost smooth and deep green, the lower somewhat villose and paler, but no where woolly; acuminate and pinnatifid; segments lanceolate, ciliate-spiny, almost harmless; radical leaves a foot and half long; lower stem-leaves semidecurrent, upper half-stem-clasping or sessile. The branchlets end in one-flowered peduncles, having one or two small leaves on them, below the flower a little woolly and ash-coloured, always erect. Calyxes ovate, not hirsute; the scales have an oblong glutinous bump on the back, and end in a short, harmless, dark purple spine. Corollules and styles purplish flesh colour. Anthers whitish. Seeds shining. Pappus plumose. Hairs on the receptacle brownish. Jacquin received it from Marfigli of Padua, about the year 1770. It is a native of Chios¹.

21. Stem erect. Leaves repand-toothed, green on both sides. Flowers terminal, peduncled, the size of *Serratula tinctoria*, white, with very long styles. Calyx ovate, imbricate with scales having a white keel, and a weak spine at the tip. Native of the southern subalpine mountains. Perennial^m. Introduced in 1781, by M. Thouin².

22. Stem herbaceous, erect, round, striated, smooth, unarmed, a foot high and upwards. Branches alternate, spreading, like the stem, a little tomentose at the end. Flowers small. Calyxes subtomentose at the base, smooth at the top^o.]

23. This is a biennial plant, which rises with an upright stalk six feet high. The leaves are long, and armed with triple spines at every indenture of the edge. The flowers come out in clusters from the top of the stalk; they are purple, and are succeeded by smooth, oval, black seeds. [The nap on the under surface of the leaves is thick and saffron-coloured; but in some plants it is hardly apparent^p. It has the trivial name from Casabona, herbarist to the Grand Duke of Tuscany, who sent the seed to John Bauhin.—Native of the South of Europe. Cultivated 1714².

24. Stem a foot high, straight, round, cottony. Leaves three inches long, very narrow at the base, and about half an inch wide from the middle to the end. At every axil, except towards the bottom are

^y Linn. spec.

^c Linn. mant.

^z Hort. kew.

^d Jacquin.

² Hort. kew. from Lobel.

^a Linn. mant.

^e Hort. kew.

^b Hort. kew.

^f Linn. spec.

^h Linn. suppl.

^m Linn. mant.

ⁱ Linn. mant.

ⁿ Hort. kew.

^k Hort. kew.

^o Thunberg

² Hort. kew.

¹ Jacquin.

^p Linn. cliff.

four thorns, two on each side. The stem divides at top into several branches, each ending in a spiny head, under which are three leaves. Floscules purple. Annual^r. Native of Sicily and the county of Nice. Introduced 1771, by John Earl of Bute^s. But it must have been cultivated long before by Mr. Miller.

25. Radical leaves spread on the ground, from one to two feet or more in length, with white veins on the upper surface. Stem-leaves partly surrounding the stem, spreading; the uppermost bent back; the base of each pressed close to the stem: which is from three to six feet high, branched, tomentose, grooved; at top naked, striated. Flowers solitary, large, purple. Calycine leaves—the lowermost roundish, edged with spines—middle ones edged with spines towards the bottom, and running out to a point, spreading, rigid, channelled on the upper side, and terminating in a yellowish spine—the upper and innermost lanceolate, without spines, purple at top and notched on the edges. Seeds shining, blackish, crowned with a stiffish, simple, white down, growing obliquely. The beautiful milky veins forming an irregular network on the leaves, would form an obvious character to distinguish this species, if they were not sometimes found wholly green; we must then have recourse to the strong spines of the calyx^t. On banks, by road sides, and in waste places; flowering from may and june to july and august.

All the authors that I have consulted mark our Ladies Thistle as an annual plant, except Mr. Miller and Mr. Relhan, who mark it as biennial. My constant observation agrees with theirs, and I believe most of the Thistles are biennial.

This is eaten, when young, as a salad, and is by some persons blanched, and dressed as a curious dish. The tender leaves stripped of their spines, are boiled and eaten as greens. The young stalks peeled and soaked in water to take out the bitterness, are excellent. The scales of the calyx are as good as those of Artichokes. The root is good to eat early in the spring. The seeds are large, and contain a portion of oil, whence they have sometimes been used in emulsions, to thin the blood, and to cure stitches and pleurifies. With us these are not in use; and Ray says that it is a culinary rather than a medicinal plant, and that it is frequently sown in the English gardens for salads and the use of the kitchen. An emulsion of the seeds is however still prescribed by the German physicians in the pleurify; the dose from one dram to three: and the Italian physicians give the expressed juice in agues. Granivorous small birds feed much on the seeds of this and other Thistles, particularly the Goldfinch; whence that bird has the name of *Carduelis*^u.

This plant occupies a considerable space of ground in Apulia, to the exclusion of grafs, on account of the food which it administers to their cattle^v.

26. Two larger, and two or three smaller spinous leaflets at the base of the calyx; scales ending in a spine. Receptacle villose. Pappus feathered. Flowers white; the Egyptian variety has purple flowers^v. Native of Syria, Crete, and Spain. Annual. Cultivated in 1640^z.

27. Stem four or five feet high, angular, striated, woolly, without thorns, much branched. Root-leaves one to two feet long, with distant pinnae and linear intervals; pinnae two-lobed unequal, alternately erect and spreading, the larger linear, the smaller lanceolate, very entire, but fringed with a few fine prickles; midrib stiff, extending out into a sharp prickle; above green, with numerous short stiff hairs pressed closely; underneath with a thick, woolly, white down. The segments point alternately upwards and downwards. Stem-leaves embracing; but not at all decurrent; similar to the root-leaves, but the lobes not regular, all lanceo-

late, the terminating one long. Peduncles slender, extremely cottony, tomentose. Heads very large, clustered, terminating the stem and branches. Scales of the calyx linear-lanceolate, terminated by a long, softish, yellow prickle, covered and interwoven with a thick woolly down. Floscules purple, sometimes white. Style much longer than the anthers. Stigma slightly bifid, anthers longer than the corolla. Seeds large, whitish, without ridges. Down shorter than the corolla, fringed with long hairs^a.

Native of Britain, France, Switzerland, Germany, Austria, Carniola, Spain, and Portugal. In dry pastures, by road sides, and in waste places: flowering from july to september. Biennial.

The receptacle is pulpy and esculent, like that of the Artichoke^b. It is much the most specious of all our Thistles.

28. Stature ten and twelve feet. Diameter of the stem in the lower part near two inches. It divides from the bottom into many strong branches. Leaves alternate, pendulous, tomentose underneath. Heads large, scales of the calyx ending in a short harmless point and cobwebbed. Corolla pale purple. Down plumose. It flowered in the Eltham garden at the end of august and beginning of september 1726, and the seeds came from Carolina^c.

It had probably been in the Oxford garden before, if it be the *Carduus eriocephalus altissimus*. *Cat.* 1658.

29. Stem slender, a foot or eighteen inches high. Leaves many (26. 28.): the lower three inches long and half an inch wide. Head rather oblong; scales sharp. Corolla purple. Sent by Banister from Virginia^d.

30. Root perennial, creeping. Stem eighteen inches high or shorter. Leaves five to ten, not toothed, ciliate with very soft spines, quite white underneath with a very sharp keel; some entire, others gashed. Very few however of the leaves are gashed, but by culture many of them become laciniate^e.

Stem erect, quite simple, striated, tomentose. Leaves half-stem-clasping, serrate, the serratures spiny, the middle nerve white, alternate; the bottom ones petioled. Flower one, purple, terminal. Calyx ovate, scales acute somewhat spined^f.

According to Hudson, the radical leaves are pinnatifid and toothed: lower stem-leaves pinnatifid; the middle ones toothed; the upper ones entire; all spinous-ciliate, tomentose beneath. Stems a little branching, bearing from one to six flowers. Hudson affirms that he has seen both this and the *belenioides* from the same root. Haller also, Scopoli, Villars, and Withering make this a variety of the *belenioides*. See n. 40.

31. According to Linneus, this is very like the former, but double the height, and even as high as a man. Root scarcely creeping, all the leaves undivided, white underneath, but not, as in that, of a snowy whiteness. Stem grooved, the whole of it leafy, (forty to fifty). Leaves half-stem-clasping (with round, reflex, adnate ears,) toothed, not laciniate, ciliate with weak spines; floral leaves subulate.

Leaves lanceolate, entire and toothed^g; or rather serrate than toothed; stem-leaves cordate at the base^h.

Radical leaves of a long elliptic form, petioled. Stem-leaves seven or eight inches long. Flower large, erect, purple, an inch and half long, and near two inches in diameter, terminating the stalk: one and sometimes two more flowers grow below it on long peduncles from the axillas. Scales of the calyx lanceolate, erect, acute, but not pungent, and of a dull purple colour. Style much longer than the anther. Down plumose. A variety of this sometimes occurs, having leaves near the top pinnatifid, as figured in *flor. dan. t.* 109ⁱ.

Stem seldom above a foot high when wild; in gardens it is generally double that height, and the

^r Dodart.^s Hort. kew.^t Curtis.^u Curtis, Lightfoot, Withering, Miller, Allioni.^v Symonds.^w Linn. cliff. and Forsk. in Linn. syst.^z Hort. kew. from Park.^a Woodw. Mif.^b Ray.^c Dill. elth.^d Mor. hist.^e Linn. spec. syst. and succ.^f Lyons in Relhan.^g Hudson.^h Stokes in Withering.ⁱ Lightfoot.

leaves so much larger, that it seems a different plant. Leaves shining green on the upper side. The roots creep far under the surface. It has been cultivated in the gardens of some quacks, who pretended to cure madness with it. Hence probably the name of Melancholy Thistle^k.

The former species is common in moist meadows and marshy places. This is found in mountainous pastures in Yorkshire, Westmoreland, Cumberland, and Wales. Mulbarton near Norwich. Acton in Gloucestershire. A meadow near Highgate. Hounslow-heath. Near Croydon. In Scotland. They are both perennial, and flower in July.

32. Differs from the foregoing, which it resembles very much, in having a stem less by half, scarcely grooved: leaves narrower, the floral ones lanceolate, not subulate^l.

Stem solitary, from a foot and half to three feet in height, simple, one-flowered or divided into few elongated erect peduncles, striated, frequently flexuose, woolly as if covered with a cobweb, leafy to about half the height, the rest leafless, and of a dusky purple. Stem-leaves long lanceolate, half-stem-clasping, acuminate, erect, the upper surface green hairy and rough, the lower cobwebbed and paler, thickish, obscurely ferrulate and ciliate with harmless spines; the lowest more obtuse and subdecurrent, the higher gradually less, till the uppermost become very small. Root-leaves similar, but narrowed towards the base. Calyx ovate; scales acute, somewhat lanuginous at bottom, glutinous, dark green, with a glandulous purple rising along them. Floscules purple. Seeds pale and shining. Down plumose.

In a garden it acquires many stems, divided at top into five or six long peduncles, which are sometimes subdivided; the leaves also are much larger, more toothed; and the lower ones more decurrent^m.

Native of Siberia, Switzerland, Austria, Carniola, Piedmont, and Montpellier. Introduced 1765, by John Earl of Buteⁿ.

33. Habit and height of the foregoing, of which it might be taken for a variety. But the leaves are twice as broad, more toothed, scarcely tomentose underneath. Heads fortified with three leaflets, seldom two, never one, as that is. Leaves pungent at the base. Calyx cylindric, not globular. Corolla white, not purple. This agrees with the former in having a plumose down, but especially in the radical leaves being pinnatifid. It resembles *Cnicus oleraceus* in these leaves; as also in the white keel to the scales of the calyx, and in having a fastigate, not a convex disk: but the upper leaves are undivided, the flowers solitary and on long peduncles. Floral leaves small, not broad concave or pale^o. Native of Siberia. Perennial.—Introduced 1775, by Jos. Nich. de Jacquin, M. D.^p

34. This is a perennial plant, in habit much resembling the *Carduus lanceolatus*, but the stem is not winged (as in that species.) The stems are many from the same root; and are about a finger's breadth in thickness, or scarce so much; narrow, round, furnished with prominent lines, hirsute with horizontal white hairs. They are about five or six feet high, and branched on the upper part. The branches are composite, alternate, ascending, and about a foot long: dividing at the top into three others or branchlets, which are short, and flexuose, but in other respects resemble those on the stem. The radical leaves of this plant are a foot and a half long, spreading in all directions, and furnished with either alternate or opposite laciniae, of which the last or odd one is sinuate-toothed: the lateral ones gradually decrease in size as they approach the base, and are sinuate-bipartite: the legs or divarications of these leaves are linear and alternating with two small rounded lobes with a purple channel towards the base. The stem-leaves are about a foot long, half-stem-clasping, horizontal, alternate; with divari-

cated linear-bipartite segments, of which the uppermost is the least. They are rough and green above; beneath downy and white; the margins and tips of the segments have straw-coloured subulate spines, formed from the continuations of the straw-coloured veins of the leaves. The flower is terminal, and solitary on the top of each branchlet. Calyx globose, and squarrose; the scales ending in a straight spine; corolla purple-red: seeds scarcely four-cornered, and of a pale purple. The seeds of this plant were received from Siberia by Mr. Murray in the year 1779^q. Introduced in 1787, by Chevalier Murray^r.

35. Stem eighteen inches high, upright, grooved, smooth, sparingly branched. Leaves alternately scattered, attenuated to the base, sometimes a little decurrent, unequally toothed, the teeth ending in a little evanescent bristle, slightly channelled and somewhat rigid. Flowers terminating, solitary. Calyx cylindric, oblong, broader at the base; scales linear, all pressed close, not patulous, yellow, ending in a weak spine. Corolla yellowish white. Seeds turbinate, four-cornered. Down plumose, very abundant^s.

Found in Spain by Loeßling, and in Silesia by Krockner.

36. Root perennial. Stem usually single, two or three feet high, erect, round, hollow, a little villose, angular at bottom, striated at top; generally quite simple, but sometimes it puts forth short one-flowering branches from some, seldom from all the axils: sometimes, especially towards the top, it is covered with a white wool, and ends either in one flower, or a few collected into a head; seldom five, six or more, and in that case the lower are peduncled. Radical leaves lanceolate, the base attenuated into the petiole and toothed; the others sessile or stem-clasping, not decurrent; pinnatifid more or less deeply gashed, divisions lanceolate or oblong, acuminate, ciliate-ferrulate, harmless, the outermost larger: all subvillose, deeper green above, whitish underneath. Instead of leaves, the upper part of the stem has only a few very distant bractes, lanceolate and acuminate. Calyx ovate, somewhat glutinous but not villose; scales lanceolate-acuminate, harmless, the outer dark green, the inner dark purple and gradually longer. Corollules purple. Pappus somewhat feathered.—In moist meadows; beginning to flower the middle of May^t. See n. 41.

37. Stem one, erect, a foot and a half or two feet high, round, a little angular, tomentose, sometimes tinged with red, the size of a pen or rather larger. Radical leaves in a tuft. Stem-leaves alternate, petioled, near nine inches long and five broad, almost cut to the midrib, and subdivided, in the lower leaves, but those on the stem simply pinnatifid. Branches alternate, one-flowered. Scales of the calyx unarmed, spreading, and a little reflected. Floscules deep purple^u. Calyx tomentose. Seeds four-cornered, attenuated to the base, wrinkled. The down consists of little, hairy, unequal, attenuated, white chaffs^v. The whole plant smells strong of musk. It flowers in May and June^w.—About Montpellier; in Germany, Austria, Carniola; flowering in July and August.

38. Stem from one to three inches high. Leaves lying close to the ground, with one purple flower in the midst of them. Down long, plumose. Root-leaves spreading in a circle, on foot-stalks, pinnatifid, pinnae irregularly lobed and waved, angular, with sharp spines at the edge, green on both sides, hairy towards the base. Flowering heads one or more, rarely sessile; peduncles one to two inches high, hairy. Lower scales of the calyx short, oval-lanceolate; upper lanceolate, stiff, without spines. Segments of the corolla and anthers equal. Style longer: stigma deeply bifid. Seed very small, with a simple down^x.

^k Miller fig.

^l Linn.

^m Jacquin.

ⁿ Hort. kew.

^o Linn. spec.

^p Hort. kew.

^q Murray.

^r Hort. kew.

^s Cavanilles.

^t Jacquin.

^u Pollich.

^v Scopoli.

^w Jacquin.

^x Woodward Mss.

Linneus observes very justly, that this dwarf plant occupies a foot in diameter, not suffering any plant to grow beneath it; and that it is therefore injurious to pastures. It affects dry open situations, such as heaths and downs; particularly where the soil is calcareous: is found in most parts of Europe: flowers in July: and is perennial.

39. This is our *C. crispus*: and that being certainly not the *C. crispus* of Linneus, nor described at all by him, Dr. Withering has made a new species of it. See n. 6.

Our plant is thus described by Ray. Stem four or five feet high, not so thick as in the *nutans*, with several (five) wings, lacinate and very spiny. Leaves many, and branches very long. Flowers sessile, or on very short peduncles, the size of common Knapweed. Scales of the calyx spreading, terminating in very long but harmless spines. Corolla purple. Leaves divided like those of the common Way-thistle, dark-green, darker than in *C. palustris*, the spines smaller and shorter, not purple as in that: leaves not so frequent on the stem; branches larger and much longer; heads a little bigger; flowers more sweet-scented. Seeds brown. It is more common than *C. acanthoides*.

It is thus distinguished by Mr. Woodward. Leaves lanceolate, the lower ones toothed, the upper pinnatifid; teeth somewhat ferrate, terminated by spines, beneath tomentose, above with a few hairs arising from glands. Wings of the stem more regular, spines more equal. Scales of the calyx downy, with a dorsal nerve ending in an awn; inner scales chaffy, tipped with purple, ending in an acute point, but not awned. Segments of the corolla a little longer than the anthers, but shorter than the pistil. The rays of the down, when viewed with a glass, appear to be finely toothed, but not hairy.

And by Dr. Stokes. Stem upright, branched, three to five feet high and upwards. Peduncles short, some with a prickly border, others cottony without prickles. Flowers somewhat nodding. Agreeing with *C. nutans* in the habit of the calyx: scales open, prickly at the end, of no great difference in length; the outer hairy at the edge, wrinkled within, with very fine cobweb hairs interwoven from one to another; the inner linear-subulate, smooth, not prickly, brownish purple at the ends. The lower segments of the corolla gradually deeper.

The leafy border of the stem, which is continued all the way, is curled; and hence the name *crispus* of this species, and of n. 6.

On ditch banks and road sides, in hedges, among briars, in waste places, and on the borders of corn fields; flowering in July. It is an annual plant.

40. Mr. Hudson being of opinion that *C. heterophyllus* of Linneus, is nothing more than a variety of the *belenoides*; following Jacquin, has made a new species of our *English soft, or gentle Thistle*, which he thus describes.—Root perennial, fibrous, creeping. Stem solitary, herbaceous, from a foot to two feet in height, erect, leafy, tomentose, simple, sometimes with one branch. Radical leaves few, petioled, lanceolate, a little toothed, the edge unequally aculeate-ciliate, acuminate, a little hispid above, beneath tomentose. Stem-leaves from three to six or seven, alternate, half-stem-clasping, lanceolate, almost quite entire, in other circumstances like the former. Flower terminal, purple. Calyx ovate, tomentose; the scales imbricate, ovate, acuminate, purplish. To this we may add from Mr. Woodward, that the upper stem-leaves are not thorny at the edge, but terminated by a long softish thorn. Scales of the calyx thick and strong, cottony at the edges, terminating in a soft thorn. Segments of the corolla bright purple. Anther with five horny, yellow, lanceolate points. Pistil bright purple, slightly cloven; stigma cylindric, blunt, not notched, projecting much beyond the anther. Seed very short. Down nearly as long as the corolla, plumose with long hairs.—Marshy places, and swampy meadows.

41. Stem two feet high, striated, simple, not winged, the thickness of the little finger. The

leaves approach very much to Haller's figure in t. 3. (*Arctium Perfonata*). They are semipinnate and toothed; a little spiny about the edge. Stem-leaves never decurrent. Heads of flowers sessile. Scales of the calyx sublinear, white and shining at the base, in the other parts green and villose, awned. Floscules pale yellow. Anthers ferruginous, putting out two little bristles behind. Filaments brown. Down plumose^a. Native of Carniola, Austria, Piedmont. See n. 36.

42. Root perennial. Radical leaves petioled, sub-lanceolate, three or four inches long, very woolly; pinnules on each side, twelve to fifteen, imbricate, three or five-cleft, the lobes alternately smaller, each spinulous about the edge, ending in a strong, yellow point, two or three lines long: stem-leaves crowded, very like the former; but as they approach the top of the stem their pinnules are narrower, less palmated, trifid or bifid, with narrower lobules. Stem a cubit high, sometimes panicle-branched, woolly. Branches axillary, alternate, solitary, from half a palm to a foot in length. Flowers four to eight; pedicels woolly, scarcely one-third of an inch long. Calyxes, in flowering-time, very smooth, green, ovate-acuminate; scales loosely imbricate, but not squarrose, subequal, subspiny; the inner sometimes violet-purple, more slender, flexible, and unarmed. Corollas purple. This is a very handsome species, and is a native of the Pyrenees^b, and of the mountains about Tende, &c.

Allioni says it is annual. According to others it is biennial. Introduced 1784, by Casimir Gomez Ortega, M. D.^c

43. Stem a cubit high, very simple, erect. Leaves lanceolate, an inch wide, three inches long, above very smooth and green, underneath shaggy-scabrous, the nerve especially being rough with hairs; the edge ciliate with very frequent spines; pinnules on each side twelve to fifteen, palmate-three-parted, sometimes with a fourth very small at the base above, and also a fifth between the two longer ones. Upper stem-leaves narrower, less cut, pinnules bifid, and at length entire. Peduncle terminal, naked, tomentose. Flower nodding, purple or deep red. Calyx very squarrose, scarcely pubescent; scales very lax, reflex-spreading, nearly equal, ending in a scarcely visible pinnule. It differs abundantly from *C. tuberosus*, in the stem being leafy from the base to the middle, and in the calyx^d. On the Pyrenees, and on the mountains of Piedmont. Biennial.

44. Height two feet; radical-leaves like the stem-leaves, but larger; the upper surface rough but green, the lower whitish with short hairs: pinnated beyond the middle; pinnae lanceolate, toothed, with two teeth on each side, or three larger ones, to which smaller ones are added, ending in a pungent little thorn: the largest leaves have ten pairs of pinnae, or even more, but the number gradually diminishes. The leaves embrace the stem with short ears, ciliate but not hooked. Stems strong, deeply striated, reddish, leafy all over: on the top are four or five flowers, pale yellow, heaped, subsessile; and under the head is a small leaf or two, not pinnate but lanceolate. Calyx viscid roundish-conical: scales lanceolate yellowish-green, ending in a small yellow spine. Head not lanuginous. Down plumose. Perennial^e. Native of Col di Tende, M. Dolaz, M. Generoso.

45. Stem three feet high, or more, striated, green, smooth. Leaves alternately sessile, and decurrent with ears, almost pinnate, being very deeply gashed, with few teeth ending in a longer spine; the whole edge ciliate with short spines. Flowers at the top three or four, with a little leaf under each; peduncles cobwebbed. Top of the stem almost naked. Scales of the calyx unarmed linear, reflected at the end. Corolla purple. Down plumose. Perennial^f.—Native of Provence, Austria, and Piedmont.

47. This is a perennial plant, native of the South

^a Scopoli.

^b Gouan.

^c Hort. kew.

^d Gouan.

^e Allioni.

^f Ibid.

of Europe, flowering in june and july. It was introduced in 1781, by Monf. Thouin^z.

47. This also is perennial, a native of Switzerland, flowering in july and august; and was introduced in 1775, by Doctors Pitcairn and Fothergill^h.

Monf. Villars has described and figured a species under the name of *C. autareticus*, which he thus describes. Root thick, oblique and fibrous. Stem from one to two feet high, thick, hollow, channelled. Leaves long, villose, cut and spiny. The stem is terminated by two three or four flowers, either together or on two naked and very short peduncles, villose like the rest of the plant. Calyx oval, with close scales. Corollules yellowish white. The whole plant has an ill smell. It is biennial or perennial; and is a large, thick, strong plant, but very low in proportion to the thickness of the stem, which is seldom more than a foot in height. Native of Dauphiné, in moist meadows exposed to the north.

48. Stem two feet high, straight, single, striated, tomentose. Leaves somewhat repand, with the edge reflex, smooth on the upper surface, with the nerves white, and white on the under surface; spines at the edge commonly in pairs, seldom ternate or solitary, unequal, diverging, yellow; the end spine single. Flowers few, on single, striated, tomentose peduncles, sometimes naked, sometimes clothed with a leaf or two. Common calyx ovate, scales ovate-lanceolate, pubescent, ending in a subulate, rigid, long, thorny dagger-point; the lower ones reflex. Florets of a violet colour, with the segments subulate, upright, unequally cloven. Stigma jointed, subulate, single, seldom bifid, or else two stigmas so closely united as to have the appearance of being one. Seeds obovate, very smooth, brown; with a whitish plumose-bristly down. It is an annual plant, allied to *C. Casabonæ*, but differing in having the spines in pairs and stouter; the flowers peduncled, corymbed and larger; the nerves of the leaves whitish-tomentose on the upper surface. Native of mount Libanusⁱ.

49. Root short, fibrous, annual. Stem half a foot high, upright, solitary, very tomentose, as is the whole plant. Leaves alternate, pinnatifid, the terminating lobe larger than the rest, in the root-leaves rounded, in the stem-leaves acute; all the lobes toothletted, and the teeth terminated by a very sharp cusp; the nerves covered with a white wool: petioles shorter than the leaf, channelled at the base, and half-stem-clasping. Flowers terminating solitary. The rest as in *C. flavescens*. Native of Spain; flowering at the end of may and in june^k.

50. Root perennial, woolly, adhering to the clefts of rocks, whence the plant hangs. Stems branching very much, from a foot to two feet in height, round, white with a close nap, clothed with leaves from top to bottom. Leaves lanceolate-linear, crowded, at bottom in a sort of whorl, two or three inches long, a little rolled back on the sides, the upper surface green and smooth, except the base, which is hoary even above: upper leaves alternate, shorter, all rolled back. The leaves of the former year continue dried on at the bottom of the stem. The branches, in the wild state, are commonly one-flowered, but in gardens they are bifid or trifid at the end. Flowers terminating, purple, an inch in length. Common calyx ovate, contracted at top, glaucous green; scales simple, stiffish, acute but not prickly. Anther with the style purple, terminating at bottom in ten *cirrhii*: filaments at top very hairy. Seeds ovate, gray with darker spots, and a very long down.

It flowers early in the spring, and continues flowering through the summer to the autumn. The corolla smells sweet. The leaves are dry and insipid to the taste. It has the habit of *Gnaphalium Stoechas*. Small, lanceolate, acute leaves placed immediately under the calyxes supply the place of bractes.

^z Hort. kew.

^h Ibid.

ⁱ Billardiere.

^k Cavanilles.

It is a native of the farther Calabria, where it was gathered in 1783, by Angelo Fusani; before that, it was known to exist only in the herbarium of Ferrantes Imperati, under the name of *Facea*. It grows very luxuriant in a garden; in its native soil, the leaves are only half the width, and much more tomentose^l.

51. Root annual. Stem from two to three feet high, upright, branched at the base; branches few, long, upright, perfectly straight, roundish, slightly grooved, cottony, particularly towards the top, with broad spinous wings. Stem-leaves sessile, decurrent, veiny; above smoothish, green, beset with whitish hairs pressed close, beneath cottony, the midrib whitish, the edge scolloped, toothed and spinous; spines long and yellowish. Root-leaves ovate-oblong, obtuse, divided into lobes, which are broad, obtuse, and closing together. Flowers in clusters on the tops of the branches, sessile, small, of a pale purple or flesh-colour. Scales of the calyx long and linear, spinous, whitish at the base, green in the middle, terminating in yellow spines, the length of the florets. Seeds and down nearly the same as in n. 5.

John Bauhin appears to be the first writer who accurately determined this species; Ray afterwards gave an accurate description of it; and Morison characteristically defined it. Linneus applied Bauhin's name to a very different Thistle (n. 5.), and referred to that the names of Ray and Morison also. Mr. Lightfoot, finding Linneus's description not to accord with our plant, gave a new one, retaining the name *acanthoides*, and Mr. Hudson did the same. It is probable Linneus never saw this Thistle, as it is not a Swedish plant, nor a very general European one. It is very common in the neighbourhood of London, growing in the very suburbs; it affects warm sheltered situations, and is frequently found under paling, walls, hedges and ditch-banks, and near the sea-side; flowering from june to august. It is known by its upright growth, the breadth of the wings on the stalks, the gray appearance of the foliage, and above all by its long clustered heads, producing small flowers, of a pale purple or flesh-colour, little longer than the very sharp spines of the calyx^m.

PROPAGATION AND CULTURE.

We consider Thistles as plants to be eradicated rather than cultivated; as weeds more than as useful or ornamental vegetables. Few of them indeed are found in gardens, and they have respect paid them only as being strangers. The greater part of the species being biennial, must be raised from seeds. The perennial sorts are also easily increased this way, or by the roots.]

23. The seeds of the twenty-third species should be sown where they are to remain, on a warm border in the spring, otherwise they will not live through the winter.

24. The seeds of this should be sown on a bed of light earth in the spring, where the plants are to remain, for they do not bear transplanting, unless it be performed when they are very young; for they send long slender roots deep into the ground, and if these be broken, the plant seldom survives. The only care they require is to keep them clean from weeds, and to thin them where they are too close.

[Some of our English Thistles are not unsightly plants, though they are not pleasant to handle. Of these the twenty-fifth and twenty-seventh sorts may be allowed a place in large gardens.]

25. The seeds of the Milk Thistle should be sown very thin, and when the plants are come up so as to be well distinguished, the ground should be hoed, to cut down all the young weeds, and the plants left a foot and half distant; and the following summer the plants should be kept clean from weeds. In the autumn, if they are intended for salads, the leaves should be tied up, and the earth drawn up

^l Cyrilli.

^m Curtis.

close to blanch them; when they are properly whitened, they will be fit for use.

[This and the Woolly-headed Thistle (n. 27.) will maintain their ground, when once introduced into a garden, and sow themselves.] They do not flower till the second year, and then the whole plant perishes.

[These confine themselves to road sides and waste places; and are not common enough to be considered as noxious weeds.

The next to these in appearance is the *Musk Thistle* (n. 4.), easily known by its nodding bright purple heads, and musky scent. This does not confine itself to the borders, but takes possession of the arable lands, in good soils, and does real injury to the farmer. But the species by far the most common is the *Spear Thistle* (n. 2.), a very large and succulent plant, sufficiently known on all strong lands. I have seen the air perfectly filled with the down of this thistle, for miles together, on a windy day, flying along, till it was intercepted by a hedge, bank, or rising ground. The greatest part of it indeed is down without seed; and for this the husbandman is obliged to the goldfinches and other small birds: they have however generally left enough to stock his grounds. And the misfortune is, that let a farmer be ever so neat himself, if he happens to live near a slovenly neighbour, he will be stocked annually, from the other's neglected banks, headlands, and fallows. Nothing is easier than to destroy these Thistles; for they are biennial plants, and require only to be mowed down before they perfect their seeds. It is better to do this while the plant is yet tender, for as it advances to maturity the stalk grows very hard; but if the operation has been neglected till the seeds are forming, it will be a proper precaution to rake the plants into heaps and burn them. The ashes may be afterwards spread; and as they contain a considerable quantity of salts, will be of some advantage to the land, which while in a living state they impoverished. It is scarcely necessary to mention the other Thistles as weeds, because they are by no means so common on cultivated lands, and where they incommode the husbandman may be destroyed in the same way. I must except the *Dwarf Carlina Thistle* (n. 38.), which occupies so much room in pastures, and is not to be destroyed but by ploughing. This however is common only in very dry light lands, but is the great pest of the sheep downs.

The great *Cotton Thistle* is an *Onopordum*, and the most destructive of all the tribe—the *Way Thistle* is a *Serratula*. See those two genera.

CARDUUS. See *Acanthus*, *Arctium*, *Atractylis*, *Carlina*, *Carthamus*, *Cnicus*, *Cynara*, *Drypis*, *Gorteria*, *Onopordum*, *Serratula*, *Xeranthemum*.]

—benedictus. See *Centaurea*.

—brasiliensis. See *Bromelia*.]

—fullonum. See *Dipsacus*.

—galactites. See *Centaurea*.

—sphærocephalus. See *Echinops*.

—stellatus. See *Centaurea*.]

CARETTI. See *Guilandina*.

[CAREX. (From *Careo*, not *quia viribus careat*, but because from its roughness it is fit *ad carendum*, to card, tease or pull.)

Engl. Sedge.

Lin. gen. n. 1046. *Reich.* 1137. *Schreb.* 1407.

Gertn. t. 2. *Juss.* 26. *Cyperoides. Tourn.* 299.

Scheuch. 10. 11. *Mich.* 32. *Scirpoides.*

Mont. 17. *Carex. Dill. gen.* 13. *Mich.* 33.

Class. 21. 3. *Monoecia Triandria.*

Nat. order of Calamariæ. Cyperoides Juss.

GENERIC CHARACTER.

* Male flowers disposed in a spike.

CAL. Ament oblong, imbricate, constant. Scales one-flowered, lanceolate, acute, concave, permanent.

COR. none.

STAM. Filaments three, bristle-shaped, erect, longer than the calyx. Anthers erect, long, linear.

* Female flowers in the same plant.

CAL. Ament, as in the male.

COR. Petals none. Nectary inflated, ovate-oblong, bidentated at the tip, contracted upwards, gaping at the mouth, permanent.

PIST. Germ three-sided, within the nectary. Style very short. Stigmas three or two, subulate, incurved, long, acuminate, pubescent.

PER. none. The nectary grown larger protects the seed.

SEED single, ovate-acute, three-sided, one angle being generally less than the others.

OBS. *Scirpoides Mont. Carex Rupp. Dill. Mich.* bears the male and female flowers in the same spike.

Cyperoides Mont. Carex Rupp. Dill. Mich. bears male and female flowers on distinct spikes.

ESSENTIAL CHARACTER.

Ament imbricate. Cal. one-leaved. Cor. none.

FEM. Nectary inflated, three-toothed. Stigmas three. Seed three-sided, within the nectary.

SPECIES.

* With one simple spike.

1. *Carex dioica. Small Sedge.*

Lin. spec. 1379. *Reich.* 4. 98. *hort. cliff.* 438. 2.

fl. suec. 833. *Huds. angl.* 401. *With.* 1026.

Lightf. 541. *Relb. n.* 678. *Fl. dan. t.* 369.

(male and female). *Gooden. in Linn. transf.* 2.

139. *Villars dauph.* 2. 193.

Cyperoides. Mich. gen. 56. *t.* 32. *f.* 1. & 2. *Mor.* 8.

12. 22. (male) 36. (female). *Raii syn.* 425. 15. 16.

Spike simple dioecous, margins of the capsules serrulate.

2. *Carex capitata. Round-headed Sedge.*

Lin. spec. 1379. *Reich.* 4. 98. *lapp.* 339.*

Huds. 402. *With.* 1026. *Hall. belv. n.* 1351?

Fl. dan. t. 372?

Spike simple androgynous ovate, upper part male, capsules imbricate-expanding, with entire margins.

3. *Carex pulicaris. Flea Sedge, or Flea-grass.*

Lin. spec. 1380. *Reich.* 4. 99. *hort. cliff.* 438. 1.

fl. suec. 834. *lapp. n.* 339. *Huds.* 402. *With.*

1026. *Lightf.* 543. *Relb. n.* 679. *Hall. belv.*

n. 1350. *Scop. carn. n.* 1147. *Leers herb.*

n. 705. *t.* 14. *f.* 1. *Mich. gen.* 66. *t.* 33. *f.* 1.

Fl. dan. 166. *Gooden. in Linn. transf.* 2. 142.

Gr. cyperoides minimum, &c. Mor. 8. 12. 1. (good)

Pluk. phyt. t. 24. *f.* 10. *Raii hist.* 1298. 12.

syn. 424. 13.

G. cyp. pulicare. Merr. pin. 52.

Spike simple androgynous, upper part male, capsules divaricated bent back acuminate at both ends.

4. *Carex squarrosa.*

Lin. spec. 1380. *Reich.* 4. 99.

Spike simple androgynous, lower part male, capsules imbricated horizontal.

5. *Carex uncinata.*

Lin. syst. 843. *suppl.* 413.

Spike simple androgynous linear, upper part male, awns of the females uncinated, males awnless.

6. *Carex Cyperoides.*

Lin. syst. 843. *Reich.* 4. 99. *suppl.* 413.

C. bohémica. Mich. gen. 70. *t.* 33. *f.* 19. *Schreb.*

gram. t. 28. *f.* 3.

Cyperus minor capitulis inflexis. Buxb. cent. 4. 34.

t. 61.

Scirpus spica multipartita, femin. caudatis. Gmel.

fib. 1. 81.

Head terminal roundish; flowers very simple subulated,

involucre long.

** Spikes androgynous.

7. *Carex baldensis.*

Lin. spec. 1380. *Reich.* 4. 100. *amæn.* 4. 331.

Segu. ver. 1. 125. *n.* 5. *Villars dauph.* 2. 196.

t. 6.

Gr. junceum. Bauh. pin. 6. *n.* 12. *prodr.* 13. *n.* 36.

fig.—e monte Baldo. Bauh. hist. 2. 509.

Spikes tern heaped sessile ovate three-cornered androgynous, involucre two-leaved.

8. *Carex*

8. *Carex arenaria*. Sand or Sea Sedge.
Lin. spec. 1381. *Reich.* 4. 100. *suec.* n. 835.
Huds. 404. *With.* 1029. *Lightf.* 545. *Mich.*
gen. 67. *Hall. belv.* n. 1363? *Gooden. in Linn.*
transf. 2. 153. *Villars dauph.* 2. 198.
Gr. cyp. ex monte Ballon simile, &c. Pluk. alm. 178.
t. 34. *f.* 8. *Loef. pruss.* 116. *t.* 31. *Raii syn.*
423. 5. *hist.* 1297. 6.
Spike leafy oblong sharpish, spikelets several, the ter-
minating ones male; the lower ones female, culm in-
curved.
9. *Carex uliginosa*.
Lin. spec. 1381. *Reich.* 4. 101. *suec.* n. 836.
mant. 494. *Villars dauph.* 2. 198? *Reliqu.*
Rudb. 1. 1. *f.* 2?
Spike compound, spikelets androgynous, the lower ones
more remote furnished with a longer leaflet; culm
round.
10. *Carex leporina*.
Lin. spec. 1381. *Reich.* 4. 101. *suec.* n. 837.
lapp. n. 322. See n. 65.
Spike compound, spikelets ovate sessile approximate al-
ternate androgynous naked.
11. *Carex vulpina*. Great Sedge.
Lin. spec. 1382. *Reich.* 4. 102. *suec.* 838. *Huds.*
404. *With.* 1030. *Lightf.* 547. *Relb.* n. 680.
Hall. belv. n. 1364. *Scop. carn.* n. 1169. *Gmel.*
fib. 1. 146. *t.* 32. *Pollich pal.* n. 876. *Leers*
herb. n. 708. *t.* 14. *f.* 5.—*f.* 3. is a variety.
Fl. dan. 1. 308. *Mich. gen.* 69. *t.* 33. *f.* 13.
Gærtn. fruct. 1. 12. *Gooden. in Linn. transf.* 2.
161. *Villars dauph.* 2. 201.
Gr. cyper. palustre majus. Park. 1266. *Baub. pin.* 6.
theat. 87. *Mor.* 8. 12. 24. *Raii hist.* 1297. 8.
syn. 423. 8.
Spike superdecompound contracted-branched blunt,
spikelets male at top, capsules diverging, angles of
the culm very sharp.
12. *Carex brizoides*. Rough Sedge.
Lin. spec. 1381. *Reich.* 4. 102. *amæn.* 4. 293.
Hall. belv. n. 1358. *Scop. carn.* n. 1170. *Mich.*
gen. 70. *t.* 33. *f.* 17. *Schreb. spicil.* 63. n. 675.
Villars dauph. 2. 199.
Spike compound distich naked, spikelets androgynous ob-
long contiguous, culm naked.
13. *Carex muricata*. Spiked Sedge.
Lin. spec. 1382. *Reich.* 4. 102. *suec.* n. 839.
Gooden. in Linn. transf. 2. 158. *Mich. gen.* 69.
t. 33. *f.* R. & *f.* 14. *Mor. hist.* *f.* 8. *t.* 12.
f. 27. *Scheuch. agr. t.* 11. *f.* 5. *Reliqu. Rudb.*
t. 4. *f.* 2.
C. spicata. Huds. angl. 405. *With.* 1032. *Lightf.*
548. *Relb.* n. 686.
Spike oblong subdecompound, spikelets distinct, capsules
diverging with a cloven mouth, root fibrous.
14. *Carex loliacea*.
Lin. spec. 1382. *Reich.* 4. 103. *suec.* n. 840. *Mich.*
gen. 69. *t.* 33. *f.* 10.
Spikelets subovate sessile remote androgynous, capsules
ovate roundish awnless divaricate.
15. *Carex remota*. Remote Sedge.
Lin. spec. 1383. *synt.* 844. *Reich.* 4. 103. *amæn.*
4. 293. *Huds.* 407. *With.* 1035. *Lightf.* 549.
Relb. cant. n. 683. *Gouan. illust.* 75. *Hall. belv.*
n. 1357. *Scop. carn.* n. 1165. *Pollich pal.*
n. 878. *Leers herb.* n. 710. *t.* 15. *f.* 1. *Fl. dan.*
t. 370. *Mich. gen.* 70. *t.* 33. *f.* 15, 16. *Thunb.*
jap. 37. *Gooden. in Linn. transf.* 2. 150. *Villars*
dauph. 2. 209.
Gr. cyper. Raii hist. 1295. 14. *syn.* 424. 11. *Mor.*
8. 12. 17. *Pluk. alm.* *t.* 34. *f.* 3. *Reliqu. Rudb.*
t. 1. *f.* 1.
β. C. axillaris. Lin. spec. 1382. *Gooden. in Linn.*
transf. 2. 151. *t.* 19. *f.* 1.
Spikelets axillary solitary subsessile remote, leaflets very
long, capsules undivided at the tip.
16. *Carex elongata*.
Lin. spec. 1383. *Reich.* 4. 104. *suec.* n. 841. *Hall.*
belv. n. 1359. *Pollich pal.* n. 879. *Mor.* 8. 12. 8.
Scheuch. t. 11. *f.* 4.
Spikelets oblong sessile remote androgynous, capsules
ovate acute.

17. *Carex canescens*. Gray Sedge.
Lin. spec. 1383. *Reich.* 4. 104. *suec.* n. 842. *Leers*
herb. n. 712. *t.* 14. *f.* 3. *Mich. gen.* 70. n. 5.
t. 33. *f.* 18.
Spikelets roundish remote sessile obtuse androgynous, cap-
sules ovate bluntish.
18. *Carex paniculata*. Panicked Sedge.
Lin. spec. 1383. *Reich.* 4. 105. *amæn.* 4. 294.
Huds. 403. *With.* 1036. *Relb.* n. 685. *Hall.*
belv. n. 1368. *Pollich pal.* n. 882. *Leers herb.*
n. 713. *t.* 14. *f.* 4. *Villars dauph.* 2. 202. *Mich.*
gen. 68. *t.* 33. *f.* 7. *Scheuch. t.* 8. *f.* 2. *Raii*
hist. 1296. 2. *syn.* 422. 1. *Mor.* 8. 12. 23.
Gooden. in Linn. transf. 2. 164.
β. Hall. belv. n. 1368. *β. Pollich,* n. 882. *β. Scheuch.*
501.
Spike superdecompound panicked-branched acute, branches
alternate somewhat remote, capsules spreading, culm
three-sided.
19. *Carex indica*. Indian Sedge.
Lin. syst. 844. *Reich.* 4. 105. *mant.* 574.
Spikes androgynous cylindric panicked pinnate, a few
of the lower floscules female.
20. *Carex brunnea*. Brown Sedge.
Lin. syst. 844. *Thunb. jap.* 38.
Spikes androgynous peduncled linear, in the upper part
male.
*** Male and female flowers on distinct spikes:
females sessile.
21. *Carex flava*. Yellow Sedge.
Lin. spec. 1384. *Reich.* 4. 106. *suec.* n. 843.
Huds. 407. *With.* 1037. *Lightf.* 551. *Relb.*
n. 687. *Hall. belv.* n. 1380. *Scop. carn.* n. 1161.
Pollich pal. n. 883. *Leers herb.* n. 714. *t.* 15.
f. 6. *Mor.* 8. 12. 19. *Fl. dan.* 1047. *Baub.*
hist. 2. 498. 1. *Lob. ic.* 1. 15. 1. *Ger. emac.*
17. 1. *Park.* 1187. 2. *Raii syn.* 421. 18. *hist.*
1296. 15. *Gooden. in Linn. transf.* 2. 173. *Villars*
dauph. 2. 206.
Sheaths short nearly equalling the divaricate leaflet,
male spike linear, females roundish, capsules rostrate-
acuminate.
22. *Carex pedata*.
Lin. spec. 1384. *Reich.* 4. 106. *lapp.* 338.*
Hall. belv. n. 1375. *Baub. pin.* 4. 3. *theatr.* 47.
prodr. n. 22. *Mich. gen.* 1. 32. *f.* 14. *Villars*
dauph. 2. 203.
Females spikes sessile oblong; the lower axillary; leaves
subuliform.
23. *Carex digitata*. Digitated Sedge.
Lin. spec. 1384. *Reich.* 4. 106. *suec.* n. 844.
Huds. 409. *With.* 1041. *Hall. belv.* n. 1376.
Scop. carn. n. 1149. *Pollich pal.* n. 884. *Leers*
herb. n. 715. *t.* 16. *f.* 4. *Mich. gen.* 65. *t.* 32.
f. 9. *Baub. pin.* 4. *prodr.* 9. 2. *Scheuch.* 448.
t. 10. *f.* 14. *Mor.* 8. 12. 15. *Loef. pruss.* 112.
t. 27. *Gooden. in Linn. transf.* 2. 166. *Villars*
dauph. 2. 204.
Spikes linear erect, male shorter, bractes membranaceous
almost leafless, sheathing halved, capsules distant.
24. *Carex montana*. Mountain Sedge.
Lin. spec. 1385. *synt.* 844. *Reich.* 4. 107. *suec.*
n. 845. *With.* 1038. *Hall. belv.* n. 1372?
Pollich pal. n. 885. *Gouan. illustr.* 75. *Mich.*
gen. 64. *t.* 32. *f.* 3. *Scheuch.* 419. *t.* 10.
f. 8, 9. *Villars dauph.* 2. 211. See n. 28, 70,
and 71.
Female spikes sessile, subsolitary ovate approximating to
the male; culm naked; capsules pubescent.
25. *Carex tomentosa*.
Lin. syst. 844. *Reich.* 4. 107. *mant.* 123. *Hall.*
belv. n. 1373? *Schreb. spicil.* 65. *Leers herb.*
n. 717. *t.* 15. *f.* 7. *Villars dauph.* 2. 210.
C. montana. Scop. carn. n. 1151.
Female spikes subpeduncled; capsules subglobular to-
mentose.
26. *Carex globularis*.
Lin. spec. 1385. *Reich.* 4. 108. *suec.* n. 846.
lapp. n. 336. *Hall. belv.* n. 1371. *Scheuch.*
t. 10. *f.* 10. (and *t.* 11. *f.* 12. *Hall.*)
C. ericetorum. Pollich pal. n. 886.

- C. approximata.* Allion. pedem. n. 2313.
Male spike oblong, female sessile ovate, floral leaf shorter approximating.
27. *Carex filiformis.*
Lin. spec. 1385. Reich. 4. 108. succ. n. 847.
Hall. belv. n. 1383. Pollich pal. n. 887. Gouan. illustr. 75. Scheuch. 425. t. 10. f. 11. Gooden. in Linn. transf. 2. 172. t. 20. f. 5.
- C. tomentosa.* Lightf. scot. 553. Wither. arr. 1039.
Sheaths short nearly equalling the peduncle, male spikes commonly two, females ovate remote, capsules downy.
28. *Carex pilulifera.* Round-headed Sedge.
Lin. spec. 1385. Reich. 4. 109. Hudf. 408.
With. 1039. Lightf. 554. Relb. n. 689. Pluk. alm. t. 91. f. 8. Mor. 8. 12. 16. Fl. dan. t. 1048. Gooden. in Linn. transf. 2. 190.
- C. montana.* Linn. succ. n. 845. Leers herb. n. 716. t. 16. f. 6. Villars dauph. 2. 211?
Sheaths none, male spike sublinear, females roundish sessile crowded, culm weak.
29. *Carex saxatilis.* Rock Sedge.
Lin. spec. 1385. Reich. 4. 109. succ. n. 848.
lapp. n. 337. Scop. carn. n. 1154. Fl. dan. t. 159? Hall. belv. n. 1389.
Spikes three ovate sessile alternate; male oblong.
30. *Carex tristachya.*
Lin. syst. 845. Thunb. jap. 38.
Spikes monœous three sessile linear, male longer.
- **** Male and female spikes distinct: females peduncled.
31. *Carex atrata.* Black Sedge.
Lin. spec. 1386. Reich. 4. 109. fl. succ. n. 849.
lapp. n. 324. Hudf. 409. With. 1040. Lightf. 555. Gooden. in Linn. transf. 2. 189. Hall. belv. n. 1369. Scop. carn. n. 1155. Fl. dan. t. 158. Scheuch. 481. t. 11. f. 1, 2. Gouan. illustr. 75. Villars dauph. 2. 216.
β. Gouan. illustr. 75. n. 6. β. Hall. n. 1356. Fl. dan. t. 403. Sch. agr. 499.
Spikes all androgynous terminal peduncled; when in flower erect, when in fruit pendulous, capsule ovate sharpish, sheaths scarcely any.
32. *Carex limosa.*
Lin. spec. 1386. syst. 845. Reich. 4. 110. hort. cliff. 439. 8. succ. n. 850. lapp. n. 325. Hudf. 409. With. 1041. Lightf. 556. Hall. belv. n. 1392. Scop. carn. n. 1156. Pollich pal. n. 888. Fl. dan. t. 646. Leers herb. n. 719. α. Scheuch. 443. t. 10. f. 13. Gooden. in Linn. transf. 2. 187. Villars dauph. 2. 217.
Spikes ovate pendulous (when in fruit); male longer more erect; root creeping.
33. *Carex capillaris.* Capillary Sedge.
Lin. spec. 1386. Reich. 4. 110. succ. n. 851.
lapp. n. 326. With. 1042. Lightf. 557. Gooden. in Linn. transf. 2. 180. Hall. belv. n. 1394. Scop. carn. n. 1152. t. 59. Leers herb. n. 720. α. Villars dauph. 2. 213. Fl. dan. t. 168. Segu. ver. 3. 83. t. 3. f. 1.
Spikes pendulous; male erect, females oblong distich; capsules naked acuminate.
34. *Carex pallescens.* Pale Sedge.
Lin. spec. 1386. syst. 845. Reich. 4. 110. succ. n. 852. lapp. n. 327. Hudf. 410. With. 1043. Lightf. 558. Relb. suppl. 3. n. 1117. Hall. belv. n. 1393. Scop. carn. n. 1153. Pollich pal. n. 889. Leers herb. n. 721. t. 15. f. 4. Fl. dan. t. 1050. Pluk. alm. t. 34. f. 5. Mich. gen. 61. t. 32. f. 13. Reliqu. Rudb. t. 2. f. 2. Raii syn. 419. 8. hist. 1294. 5. Gooden. in Linn. transf. 2. 186. Villars dauph. 2. 210.
Sheaths very much abbreviated, female spikes subcylindric, when fruit-bearing pendulous, capsules oblong blunt.
35. *Carex panicea.* Pink-leaved Sedge.
Lin. spec. 1387. Reich. 4. 111. succ. n. 853. β. lapp. n. 333. Hudf. 410. With. 1044. Lightf. 558. Relb. n. 690. Hall. belv. n. 1405. Pollich pal. n. 890. Leers herb. n. 722. t. 15. f. 5. Fl. dan. t. 261. (bad) Mich. gen. 61. t. 32. f. 11. Pluk. alm. t. 91. f. 7. Reliqu.

- Rudb. t. 2. f. 1. Raii syn. 418. n. 3. Gooden. in Linn. transf. 2. 179. Villars dauph. 2. 216.
Spikes peduncled erect remote; females linear; capsules bluntish inflated somewhat distant.
36. *Carex folliculata.*
Lin. spec. 1387. Reich. 4. 111. Pluk. mant. t. 419. f. 1.
Spikes terminal peduncled, male and female; capsules subulate the length of the spike.
37. *Carex Pseudo-Cyperus.* Bastard Sedge.
Lin. spec. 1387. Reich. 4. 112. fl. succ. n. 854.
Hudf. 410. With. 1045. Lightf. 559. Relb. n. 691. Hall. belv. n. 1397. Pollich pal. n. 891. Mor. 8. 12. 5. Dod. pempt. 339. Lob. ic. 1. 76. 2. Ger. emac. 29. 2. Park. 1266. 4. Bauh. theatr. 85. hist. 2. 496. 3. Raii syn. 419. Gooden. in Linn. transf. 2. 188. Villars dauph. 2. 217.
Sheaths scarcely any, female spikes cylindrical peduncled pendulous, capsules awned and beaked somewhat, divaricate.
38. *Carex cæspitosa.* Turfy Sedge.
Lin. spec. 1388. Reich. 4. 112. succ. n. 855. Hall. belv. n. 1382. β. Gooden. in Linn. transf. 2. 195. t. 21. f. 8.
Styles two, spikes subsessile subcylindric obtuse, leaves erect softish.
39. *Carex distans.* Distant-flowering Sedge.
Lin. spec. 1387. Reich. 4. 112. Hudf. 412. With. 1049. Lightf. 561. Relb. n. 693. Hall. belv. n. 1382. Scop. carn. n. 1150. Pollich pal. n. 892. Villars dauph. 2. 208. Raii hist. 1295. 10. syn. 420. 16. Mor. 8. 12. 18. Gooden. in Linn. transf. 2. 178.
C. panicea α. Linn. succ. n. 853.
Spikes very remote, bracte sheathing the peduncle, capsules angular mucronate.
40. *Carex japonica.*
Lin. syst. 845. Thunb. jap. 38.
Spikes monoœous peduncled erect; females peduncled ovate; male terminal linear.
- ***** Spikes male and female distinct: males several.
41. *Carex acuta.* Sharp Sedge.
Lin. spec. 1388. Reich. 4. 113. succ. n. 857.
α. *C. nigra.* Lin. lapp. n. 330. Raii hist. 1293. 3. See n. 96.
β. *C. ruffa.* Lin. lapp. n. 329. Mich. gen. 62. t. 32. f. 12. Sch. agr. 458. Bauh. pin. 6.
C. stricta. Gooden. in Linn. transf. 2. 196. See n. 83.
Male spikes many, female subsessile; capsules bluntish.
42. *Carex vesicaria.* Bladder Sedge.
Lin. spec. 1388. Reich. 4. 114. succ. n. 856.
lapp. n. 331. With. 1057. Relb. suppl. n. 1011. Hall. belv. n. 1401. Scop. carn. n. 1164. Pollich pal. n. 895. β. Villars dauph. 2. 220. Leers herb. n. 724. t. 16. f. 2. Oeder. dan. t. 647. Mor. 8. 12. 6. Raii syn. 420. 14. Gooden. in Linn. transf. 2. 205.
C. inflata. Hudf. angl. 412. Lightf. scot. 567.
Male spikes linear, female spikes oblong spreading, capsules inflated oblong acuminate-beaked spreading.
43. *Carex hirta.* Hairy Sedge.
Lin. spec. 1389. Reich. 4. 115. succ. n. 858.
lapp. n. 335. Gooden. in Linn. transf. 2. 208. Hudf. 414. With. 1061. Lightf. 568. Relb. n. 700. Hall. belv. n. 1403. Pollich pal. n. 897. Leers herb. n. 725. t. 16. f. 3. Fl. dan. t. 379. Mor. 8. 12. 10. Raii syn. 418. 7. Pluk. alm. t. 34. f. 6. Villars dauph. 2. 220.
Hairy, all the spikes oblong, females remote sheathed, capsules hairy.
44. *Carex pumila.* Dwarf Sedge.
Lin. syst. 846. Thunb. jap. 39.
Male spikes two terminal sessile, females two peduncled oblong erect.

Species from other Authors.

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45. *Carex pauciflora.* Few-flowering Sedge.
Lightf. 543. t. 6. f. 2. (good). With. 1027. Gooden. in Linn. transf. 2. 143.
C. patula. Hudf. 402. & 657.

- Spike simple androgynous, female flowers two or three, remotish, spreading, one male flower, sometimes two in the upper part.*
46. *Carex hamata*. Hooked Sedge.
Swartz prodr. 18.
Spike simple androgynous linear, male at top, females awned, awns hooked at the tip and equal.
47. *Carex rupestris*.
Allion. pedem. n. 2292. t. 92. f. 1.
Spike simple androgynous oblong, with male flowers in the upper part; female glumes awned.
48. *Carex Bellardi*.
Allion. pedem. n. 2293. t. 92. f. 2.
C. myosuroides. Villars dauph. 2. 194. t. 6?
Spike one androgynous strigose, culm round, leaves capillary.
49. *Carex curvula*.
Allion. pedem. n. 2295. t. 92. f. 3. Hall. belv. n. 1353. Villars dauph. 2. 197.
Spike one, glumes awned; culm and leaves hard and a little curved.
50. *Carex foetida*. Stinking Sedge.
Allion. pedem. n. 2297. Hall. belv. n. 1355.
Scheuch. prodr. 18. t. 4. itin. 458. f. 18. Villars dauph. 2. 195.
Spike conglomerate brown; stinking.
51. *Carex Pycnophora*.
Lin. suppl. 413.
C. pulicaris. Linn. syst. ed. 13. 703.
Pycnophora. Ehrh. phytoph. n. 7.
Spike simple androgynous male at top, capsules reflex, seeds cylindric.
52. *Carex Leucoglochin*.
Lin. suppl. 413.
Leucoglochin. Ehrh. phytoph. n. 8.
Spike simple androgynous male at top, capsules reflex, seeds three-sided.
53. *Carex uncinata*.
Lin. suppl. 413.
Spike simple androgynous linear male at top, awns of the females hooked, males awnless.
54. *Carex Cyperoides*.
Lin. suppl. 413.
C. cyperoides. Lin. syst. ed. 13. 703.
C. bohémica. Schreb. gram. t. 28. f. 3. Mich. gen. 70. t. 33. f. 19. Buxb. cent. 4. 34. t. 61. (Cyperus). Gmel. fib. 1. 81. (Scirpus).
Head terminating roundish, flowers quite simple subulate, involucre long.
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55. *Carex disticha*. Soft Sedge.
Huds. 403. With. 1028. Lightf. scot. 546. Hall. belv. 1362. Schreb. spic. 63. Mich. gen. 67. t. 33. f. 3. Pluk. phyt. t. 34. f. 7. Park. 1172. 4. Raii syn. 423. n. 4. bist. 1297. 5. Reliqu. Rudb. t. 3. f. 1.
C. intermedia. Gooden. in Linn. transf. 2. 154.
C. spicata. Pollich pal. n. 875.
C. arenaria. Leers herb. t. 14. f. 2.
β. Pluk. t. 34. f. 4. is cinerea. With. see n. 64.
Spike oblong obtuse, spikelets very many; the lowest and end one females, the middle ones male, culm upright.
56. *Carex divisa*.
Huds. 405. With. 1033. Gooden. in Linn. transf. 2. 157. t. 19. f. 2. Lob. ic. 1. 19. 2. Ger. emac. 21. 6. Park. 1267. 8. Baub. theat. 88. Baub. bist. 2. 497. 2. Raii syn. 423. 3.
Spike ovate subdecompound with an upright leaflet, spikelets rather remote, capsules pressed close, root creeping.
57. *Carex incurva*.
Lightf. 544. t. 24. With. 1027. Gooden. in Linn. transf. 2. 152. fl. dan. t. 432.
C. juncifolia. Allion. pedem. n. 2296. t. 92. f. 4.
Spike conic, spikelets several beaped sessile, involucre none, culm incurved.
58. *Carex divulsa*.
With. 1035. Relb. suppl. alt. n. 1077. Gooden. in Linn. transf. 2. 160. Barr. 20. 2. Mich. t. 33. f. 10. Mor. 8. 12. 26. Raii syn. 424. 10. bist. 1297. 10.
- C. canescens*. Huds. 405. not of Linneus and others.
Spike decompound elongated somewhat branched at the base, the lower spikelets remote, the upper ones contiguous, capsules somewhat erect.
59. *Carex tripartita*.
Allion. pedem. n. 2298. t. 92. f. 5. Hall. belv. n. 1356.
C. lobata. Villars dauph. 2. 197?
Spike terminal three-parted.
60. *Carex bipartita*.
Allion. pedem. n. 2301. t. 89. f. 5.
Spikes two terminal, the upper compound, culm round naked.
61. *Carex nigra*.
Allion. pedem. n. 2310.
Spikes androgynous erect sessile tern terminal black; culm three-cornered leafy.
62. *Carex bicolor*.
Allion. pedem. n. 2311. See Hall. belv. n. 1369.
Spikes androgynous sessile tern terminal, capsules longer than the glumes; culm round naked.
63. *Carex stellulata*.
Gooden. in Linn. transf. 2. 144. Hall. belv. n. 1366.
C. muricata. Huds. angl. 406. With. 1034. Lightf. 549. Fl. dan. t. 284. Leers herborn. n. 709. t. 14. f. 8. (very good). Pollich pal. n. 877.
Gr. cyperoides spicatum minimum, &c. Raii syn. 424. 12. Park. theat. 1272. Mor. bist. 3. 244. f. 8. t. 12. f. 26. Scheuch. agr. 485. t. 11. f. 3.
Spikelets subtern remote, capsules diverging acute, mouth entire.
64. *Carex curta*.
Gooden. in Linn. transf. 2. 145.
C. elongata. Leers herborn. 200. t. 14. f. 7. Hall. belv. n. 1360.
C. canescens. Lightf. scot. 550.
C. brizoides. Huds. angl. 406.
C. cinerea. Wither. arr. 1033.
Gr. cyp. spicis curtis divulsis. Loefel. pruss. 117. t. 32.
Spikelets six or more ovate remotish naked, scales ovate sharpish shorter than the capsule.
65. *Carex ovalis*.
Gooden. in Linn. transf. 2. 148.
C. leporina. Huds. angl. 404. With. 1029. Lightf. 547. Pollich pal. n. 874. (descr. good). Leers herborn. 199. t. 14. f. 6. Hall. belv. n. 1361.
Gr. cyp. majus spica divulsa. Mor. 244. t. 12. f. 29.—
spica e pluribus spicis brevibus mollibus composita. Raii syn. 422. 2. Scheuch. agr. 456. t. 10. f. 15.
Spikelets about six oval approximating alternate, scales lanceolate equalling the capsule.
66. *Carex teretiuscula*.
Gooden. in Linn. transf. 2. 163. t. 19. f. 3.
Spike superdecompound contracted-branched sharpish, spikelets glomerate male at top, capsules spreading, culm roundish.
67. *Carex chordorhiza*.
Lin. suppl. 414.
Chordorhiza. Ehrh. phytoph. n. 77.
Spike compound, spikelets androgynous approximating male at top, capsules compressed, root creeping filiform.
68. *Carex Heleonastes*.
Lin. suppl. 414.
Heleonastes. Ehrh. phytoph. n. 28.
Spike compound, spikelets androgynous approximating female at top, capsules imbricated with the sides quite entire.
- ***
69. *Carex prostrata*.
Allion. pedem. n. 2312. Hall. belv. n. 1370. Mich. gen. t. 32. f. 8. Scheuch. t. 10. f. 1, 2.
C. humilis. Villars dauph. 2. 205. (Hall. n. 1371. & 1379.) Schreb. spicil. 65. n. 1013.
C. clandestina. Gooden. in Linn. transf. 2. 167.
Bractes membranaceous, almost leafless sheathing, female spikes remote scarcely surpassing the sheath, the calyx very large, stem when old prostrate.
70. *Carex conglobata*.
Allion. pedem. n. 2314. Hall. belv. n. 1372. Scheuch. t. 10. f. 8, 9. See n. 24. & 28.

- Spikes sessile approximating few-flowered, capsules ovate hirsute.
71. *Carex mucronata*.
Allion. pedem. n. 2318. Hall. belv. n. 1374. Mich. gen. t. 32. f. 3. See n. 24. & 28.
Spikes sessile approximating very short, glumes lanceolate, mucronate.
72. *Carex alba*.
Scop. carn. n. 1148. Allion. pedem. n. 2322. Hall. belv. n. 1377. Scheuch. t. 10. f. 4, 5. Raii hist. 1295. n. 12. Mich. gen. 65. n. 79, 80. Villars dauph. 2. 206. (argentea).
Spikes peduncled white, sheaths long, obtuse, filaments and styles long white.
73. *Carex fusca*.
Allion. pedem. n. 2324. Hall. belv. n. 1378.
Female spikes three erect, capsules ovate shortly mucronate petioled, sitting on the leaf.
74. *Carex trigona*.
Allion. pedem. n. 2325. t. 89. f. 4.
Male spike peduncled, females sessile remote three-cornered.
75. *Carex foliosa*.
Allion. pedem. n. 2328. Hall. belv. n. 1384.
Female spikes sessile, the lowest peduncled, glumes very narrow.
76. *Carex alpestris*.
Allion. pedem. n. 2329. Hall. belv. n. 1385.
C. gynobasis. Villars dauph. 2. 206.
The lowest female spike radical, capsules three-cornered elongated.
77. *Carex obæsa*.
Allion. pedem. n. 2330. Hall. belv. n. 1387.
Female spikes sessile tern, capsules ovate three-cornered.
78. *Carex ferruginea*.
Allion. pedem. n. 2333. Scop. carn. n. 1159. Hall. belv. n. 1390. Scheuch. t. 10. f. 6.
C. sempervirens. Villars dauph. 2. 214? (Hall. n. 1389.)
Male spike one, acuminate; female spikes (two or three) slender, pedicelled; scales ferruginous; capsules bifid.
79. *Carex frigida*.
Allion. pedem. n. 2344. Hall. belv. n. 1391. Villars dauph. 2. 215.
Female spikes in threes and fours distich; capsules long-pointed.
80. *Carex extensa*.
Gooden. in Linn. transf. 2. 175. t. 21. f. 7.
C. flava β. Hudf. angl. 407.
Sheaths very short equalling the peduncle, the leaflet somewhat reflex; spikes crowded, females roundish; capsules ovate acute.
81. *Carex fulva*.
Gooden. in Linn. transf. 2. 177. t. 20. f. 6.
C. distans. Fl. dan. t. 1049.
Lowest sheath about half the length of the peduncle, upper one nearly equal to it, female spikes two oblong acute, capsules acuminate-beaked.
82. *Carex rigida*. Rigid-leaved Sedge.
Gooden. in Linn. transf. 2. 193. t. 22. f. 10. Mich. gen. 61. t. 32. f. 4.
C. saxatilis. Hudf. angl. 408.
Two-styled, sheaths none, spikes oblong subsessile, leaves somewhat recurved rigid.
83. *Carex stricta*. Stiff-leaved Sedge.
Gooden. in Linn. transf. 2. 196. t. 21. f. 9. Loef. pruss. 116. t. 30.
C. cæspitosa. Hudf. angl. 412. Lightf. scot. 560. β. With. 1051?
Two-styled, sheaths none, spikes subsessile cylindric acute, male one or two, leaves upright stiff.
- ****
84. *Carex præcox*. Vernal Sedge.
Jacqu. austr. t. 46. Allion. pedem. n. 2337. With. 1043. Hall. belv. n. 1381. Mich. gen. 64. n. 70. Segu. veron. 1. 122. n. 9. Scheuch. 433. n. 4. Raii hist. 1294. n. 42. syn. 421. Gooden. in Linn. transf. 2. 170.
C. verna. Villars dauph. 2. 204.

- C. montana*. Hudf. angl. 407. Lightf. scot. 551.
C. globularis. Lyons fascic. 52.
Gr. cyp. spicatum. Ger. emac. 22. 8. — spic. fol. caryophylleis. Park. 1160. — vernum minimum. Raii syn. 421. 17.
Sheaths short, nearly equalling the peduncle, spikes approximating, male subclavate, females ovate, capsules roundish pubescent.
85. *Carex depauperata*.
With. 1049. Mich. gen. 56. t. 32. f. 5. Gooden. in Linn. transf. 2. 181.
C. ventricosa. Curtis lond. n. 64.
Sheaths more than half the length of the peduncles, female spikes remote few-flowered, capsules ovate inflated acuminate-beaked.
86. *Carex elata*.
Allion. pedem. n. 2344. Hall. belv. n. 1400. Raii syn. 418. 4.
Male spikes two, females sessile, capsules ovate with a very short undivided point.
87. *Carex pendula*. Pendulous Sedge.
Hudf. 411. With. 1046. Curt. lond. 3. 63. Lightf. 564. Relb. n. 694. Gooden. in Linn. transf. 2. 168. Hall. belv. n. 1396. Barr. ic. 45. Mor. 8. 12. 4. Scheuch. 445. 2. Raii hist. 1294. syn. 420. 13.
C. Agastachys. Lin. suppl. 414.
C. maxima. Scop. carn. n. 1166. Allion. pedem. n. 2341. Villars dauph. 2. 218.
Spikes cylindric very long pendulous, capsules ovate acute very much crowded, sheaths long, nearly equal to the peduncles.
88. *Carex strigosa*. Loose Sedge.
Hudf. 411. With. 1047. Raii syn. 419. 11. Gooden. in Linn. transf. 2. 169. t. 20. f. 4.
Spikes filiform loose recurved, sheaths long nearly equalling the peduncle, capsules oblong subtriquetrous acute.
89. *Carex sylvatica*. Wood Sedge.
Hudf. 411. With. 1047. Lightf. scot. 562. Relb. n. 695. Hall. belv. n. 1395. Leers, t. 15. f. 2. Fl. dan. t. 404. Mor. 8. 12. 9. Park. 1172. 3. Raii hist. 1295. syn. 419. 10. Scheuch. 418. n. 6. Gooden. in Linn. transf. 2. 183. Schreb. spicil. 62.
C. patula. Scop. carn. n. 1160. t. 59. f. 2. Allion. pedem. n. 2340. Pollich pal. n. 896. Villars dauph. 2. 214.
C. vesicaria β. Lin. spec. 1389. succ. 856. lapp. 328.
C. Drymeia. Lin. suppl. 414.
Sheaths shorter than the peduncles, spikes filiform loose pendulous, capsules ovate, awned and beaked.
90. *Carex recurva*. Heath Sedge.
Hudf. 413. With. 1050. Relb. n. 696. Hall. belv. n. 1408. Fl. dan. t. 1051. Mor. 8. 12. 14. Raii syn. 418. 5. Gooden. in Linn. transf. 2. 184.
C. glauca. Scop. carn. n. 1157. Pollich pal. n. 894.
C. cæspitosa α. Lightf. 560. (With.)
C. limosa β. Leers herborn. t. 15. f. 3. n. 719.
Spikes crowded peduncled cylindric rather pendulous, male terminal, capsules imbricate rather obtuse.
91. *Carex juncea*.
Scop. carn. n. 1163. Mich. gen. 58. n. 19.
Spikes very remote, male longer than the females which are subsessile; capsules bifid three-cornered smooth; seed three-cornered.
92. *Carex Leptostachys*.
Lin. suppl. 414.
Leptostachys. Ehrh. phytoph. n. 48.
Spike sexually distinct, male single, females peduncled remote pendulous filiform, capsules remote entire at the end.
93. *Carex chinensis*.
Retz. obs. 3. 42. n. 92.
Spikes erect, male terminating, females peduncled four, capsules acuminate.
- *****
94. *Carex riparia*. Common Sedge.
Curt. lond. 4. 60. With. 1056. Relb. n. 697. Gooden. in Linn. transf. 2. 200. Mich. gen. t. 32.

t. 32. f. 6, 7. Hall. *helv.* n. 1404. — and 1398, 1399? Baub. *hist.* 2. 494. 3. Raii *hist.* 1293. 1. *syn.* 417. 1. Ger. *emac.* 12. 1. Mor. f. 8. t. 12. f. 1.

C. acuta α. Hudf. 413. *Lightf.* 565.

Spikes oblong acute, scales of the males lanceolate; those of the females acuminate and awned; capsules lanceolate-ovate with two teeth at the point.

95. *Carex paludosa*. Sharp Sedge.

Gooden. in Linn. *transf.* 2. 202.

C. acuta. Curt. *lond.* 4. 61. With. 1054. Relb. n. 698. Leers, t. 16. f. 1. Mich. *gen.* t. 32. f. 12. (Curt.) f. 6. (With.) Ger. *emac.* 12. f. 2. Raii *hist.* 1293. 3.

C. glauca. Scop. *carn.* n. 1157? (Curt.) Villars *dauph.* 2. 220. See n. 90.

C. caespitosa β. *Lightf.* 561? (Curt.) *stricta* (Gooden.) see n. 83.

Spikes oblong bluntish, scales of the males blunt, of the females lanceolate, capsules ovate-lanceolate somewhat toothed at the tip.

96. *Carex gracilis*. Slender-spiked Sedge.

Curt. *lond.* 4. 62. With. 1053. Relb. n. 699.

Mich. *gen.* 60. n. 40. (Curt.) Mor. 8. 12. 3.

Baub. *hist.* 2. 494. 2. Raii *hist.* 1293. 2. *syn.*

417. 2. Hall. *helv.* n. 1406?

C. acuta. Gooden. in Linn. *transf.* 2. 203. Linn. *succ.* n. 857. β.

Spikes filiform; flowers two-styled, mouth of the capsules very entire.

97. *Carex ampullacea*. Bottle Sedge.

Gooden. in Linn. *transf.* 2. 207.

C. vesicaria. Hudf. *angl.* 413. *Lightf. scot.* 556.

Pollich *pal.* n. 895. α. Mor. 242. f. 8. t. 12. f. 8.

Raii *syn.* 419. 9.

C. rostrata. Wither. *arr.* 1059.

Spikes filiform, males more slender, females round upright, capsules inflated globose awn-beaked divaricate.

DESCRIPTIONS, &c.

These plants are very nearly allied to the Grasses, and agree with them in their general appearance, leaves and placentation. They are however of a much harsher texture; and the stem is not hollow, but filled with a spongy substance: it is frequently three-cornered. The difference in the fructification is very considerable, as will appear from a comparison of the generic characters. Most of the species grow in wet swampy grounds, in bogs, fens, marshes, or by the sides of ditches and rivers, or in moist woods; some few however affect hilly pastures and heaths. They are perennial, and flower in may and june, or from april to july and august.

Linneus has divided his genus into five sections, the two first comprising the species with androgynous spikes, and the three last those which have the male or barren and the female or fertile spikes distinct. In the third and fourth sections the distinction turns upon the female spikes being sessile or peduncled, which cultivation, or a casual luxuriant growth, does away. They are also styled sessile or subsessile by Linneus, when in reality they are peduncled, the peduncles being only covered by the sheath. This has induced Dr. Goodenough to substitute the proportion which the sheath of the leafy bracte bears to the peduncle: and this distinction is not liable to any difficulty; for if the peduncle be unusually long or short, in consequence of the luxuriance or barrenness of the soil, the sheath will be affected somewhat in the same proportion.—When Linneus describes the peduncles as sessile, we are to understand that they have that appearance; the peduncles, if there are any, being covered by the sheath.

The Carices or Sedges are classed rather among the noxious plants, than with such as are useful; because they yield a very coarse grass and fodder, to the exclusion of real grass and other profitable plants, which they subdue by their strong creeping roots: but it should be considered that they grow chiefly on poor spongy land, on bogs, to which

they give stability, or on the banks of streams, which they enable to resist the current; that they may be destroyed by draining and manuring, and that after all they are not without their use.

Besides the common use of them for coarse fodder, they are employed for covering hovels and stacks, for lighting fires and heating ovens, for tying the young hop plants to the poles; in Italy for covering wine-flasks, for putting between the staves of casks to make them tight, and for chair bottoms. The Laplander combs and dresses some species of Sedge, as we do flax, and in winter stuffs his shoes and gloves with it, as a defence against the extreme rigour of his climate.

1. Culm slender, upright, smooth, from four to six or even ten inches high, with three sharpish angles. Leaves setaceous, subtriquetrous, channelled within, upright, smooth. Fertile plant taller than the barren one: barren spike linear, from half an inch to an inch in length: fertile compact, imbricate, at first ovate and one quarter of an inch long, but in the seeding state cylindric and often half an inch in length. Capsules not spreading, slightly ferrate towards the upper part^a.

Dr. Goodenough adds, that the root is creeping, that the male or barren spike has a short ovate brown bracte ending in a point: and that the scales are oblong, sharpish and fulvous, with an obscure green dorsal nerve: and that the fertile or female spike has the scales as in the male, shorter than the capsules; which are spreading, ovate, acute. There are two stigmas in this species. The male plant has sometimes a female flower or two at the base of the spike, and the female plant has sometimes several male flowers at the top of the spike. The ferrulation on the edges of the capsules is not always visible.—On boggy grounds: flowering in june.

2. Very similar to *C. dioica*, but the spike exactly ovate, with male flowers in the upper part; not cylindric and dioecous as in that^b.

According to Dr. Goodenough, the spike is round, and somewhat conic, owing to the male flowers at top. The capsules are broader, entire about the edge, and not striated as in the *dioica*. The leaves in both are exactly the same, and the styles have each two stigmas.

The plants hitherto discovered in Great Britain have probably been only fertile individuals of *C. dioica*^c. Such only are represented in Mor. 8. 12. 36. and Mich. 32. 2. referred to by Linneus; and t. 372. in *flora Danica* should seem to be a *Scirpus*^d.

3. Root not creeping, but fibrous. Culm upright, roundish, smooth, naked, from three to twelve (or six to eighteen) inches high. Leaves bristle-shaped, bright green, in tufts, rigid, smooth, upright, shorter than the culm, channelled, somewhat convex on one side, nerved and angular. Spike cylindric, terminating, composed of very many male flowers at top, and about as many female flowers below, loosely imbricate: scales brownish, ovate, sharp, shorter than the capsule, with a green dorsal nerve, and deciduous. Capsules ovate, three-cornered, very smooth, soon divaricate, and at length pendulous with an entire mouth: or, as Linneus expresses it, bent back like a harpoon, so as to give the plant quite a different appearance. It has two stigmas in the female flowers; and the scales in these are not so blunt as in the male flowers.

This species is well described by Lightfoot and Leers; the figure in Morison is extremely characteristic; Leers gives the plant both in a young and mature state; Micheli's figures are in general to be depended on^e.

Frequent in moorish and boggy places. It was first observed by Mr. Goodyer.

4. Spike oblong thick, consisting of horizontal imbricate capsules, with a linear tip as long as the

^a Lyons, *Lightf.* and Woodw. in With.

^b Linn. *spec.*

^c Woodw. in With.

^d Withering.

^e Goodenough.

capsule itself; the bottom of the spike is covered with dry barren chaffs. This is one of the largest species, and is a native of Canada^f.

5. Fertile flowers constituting two-thirds of the spike, below the barren ones. Small spicules sometimes hang down by the side, probably barren. The handsomest of the genus, and a native of New Zealand^g.

6. Culms a foot high, three-cornered. Head consisting of several glomerules in a small umbel: the outer glumes of each barren, the inner fertile. Filaments white. Pistil longer than the nectary, with a bifid style^h. Native of Siberia and Bohemia.

7. One valve of the involucre longer than the spikes, the other shorter. Spikes three or four collected into a head, white, oblong, with lanceolate chaffs separating the male flowers; at the base are the female flowers, which are globular, and have a long three-parted style. Native of Monte Baldoⁱ.

8. Root creeping horizontally about four inches under ground in moveable sand on the sea shore. From each joint a stem, below the surface covered with brown sheaths, sending out many leaves, the outer ones short, the inner narrow and as tall as the culm, which is naked, without knots, supporting a rust-coloured spike, generally nodding. Spicules ovate-subulate, sessile. The lowest spicule sits in the axilla of a sessile but not a sheathing leaf, the length of the whole compound spike; the second, third, and even fourth have similar leaves, only smaller^k. Culms rough, eight or ten inches high. Leaves somewhat rolled in at the edge. Spike from one to two inches long, generally bent. Spicules four to ten; the upper crowded and without floral leaves^l. The lowermost spicules are female, the uppermost generally male, and the middle ones commonly androgynous^m. Scales ovate, acute, commonly long-pointed, equalling the capsules when ripe. Capsules ovate, acuminate, flat and grooved on one side, keeled on the other, winged or having a membranaceous edge towards the tip on each side, with a bifid mouth. Two stigmasⁿ.—In loose sand on the sea shore: as at Yarmouth, Lowestoft, &c. and in Scotland frequent. In the inland parts of Germany, on the same soil. It seldom flowers in a garden.

9. This has nearly the same appearance with the foregoing, but the root is not manifestly creeping. Culm a finger's length, round, glossy, naked. Spike more compressed than in any other species, rust colour, composed of seven or eight spicules: at the base of the spike a leaf of the same length with it, erect, glossy, linear: leaves next the root alternate, convex beneath, channelled above, glossy on both sides, linear, acuminate, shining, the length of the culm.—Turf moors in Sweden^o.

10. The spike is formed of five or six approximating spikelets; with gray chaffs longer than the seeds between the floscules; styles bent in^p.

The *Carex leporina* of our English authors and others is different from this (see *C. ovalis*, n. 65). The original *leporina* now preserved in the Linnean herbarium has only three spikelets, is a much smaller plant than ours, and differs in many respects^q.

11. Culm thick firm. Spike hispid on all sides, thick. Sheath of the leaves terminated internally by a sharp tongue as in the grasses^r. Leaves bright green, in a thick tuft, set with minute teeth pointing upwards. Culms one to two feet high, acutely three-cornered; the sides somewhat concave, the angles near the spike set with minute teeth. Spike, composed of numerous short ovate spikelets; under each a rigid triangular awl-shaped bracte, half-stem-clasping at the base, with membranaceous edges, green but turning brown as the spike ripens, the edges set with minute teeth. Scales ovate, of a similar colour, broad at the base, but tapering into an awn. Capsule somewhat triangular, bifid at the

end. Style deeply divided into two stigmas. The bracte is sometimes wanting^s.

Dr. Goodenough remarks, that of this well-known species no doubt can be entertained. The stoutness of its culm, the closeness and rigid nature of the spike, and its superdecomposition, mark it very strongly. Observe also, that the spike has many bractes, ending in a bristle-shaped leaf; that the culm is more sharply triangular, and the sides hollowed; the capsules divaricate; the culm enlarged below the spike, and seeming suddenly contracted when it meets the rachis of the spike. Hence it is very different from *muricata* to which it is most nearly allied; and also from *teretiuscula*, which has the culm roundish.

Haller observes that this species is much subject to vary. Scopoli gives them three varieties, and remarks that they have all a bifid, two-styled nectary. The first has a yellowish-green compact panicle. 2. Bay-brown, with looser spicules. 3. Reddish-brown, with oblong spicules touching each other.—Dr. Withering's arrangement has also three varieties, the second of which Dr. Stokes thinks to be the same with *C. spicata* of Hudson. He considers them merely as shades of the same colour, distinguishable by their habit from other species, though scarcely separable from each other.—It is common in marshes, and on the banks of rivers and ditches; flowering in may.

12. Stem slender, three-cornered, eighteen inches high. Leaves scarcely a line wide. Spikelets six, seven, and nine, placed alternately in a double row in the same plane, pale-coloured, almost naked, slender, very close. It has the appearance of *Bromus pin-natus*, but with a shorter, closer spike^t. See *Carex curta*, n. 64.

13. Leaves bright green, narrow, rough along the edges and keel, longer than the culm, which is upright, a foot and more in height, three-sided, the angles sharp and rough. Spike androgynous, compound often decompound: spikelets about ten, below remote, above contiguous, ovate, sessile, male at top, with a bracte subovate at the base, ending above in a bristle-shaped hispid leaflet; the lower bractes are much longer than the spikelets. Scales ovate, acute, shorter than the capsule, brown, with a white membranaceous edge, and a green dorsal nerve. Capsules ovate, acute, flat on one side, convex on the other, smooth, a little hispid on the edge at top. Two stigmas.

This is not *C. muricata* of British authors, but it is certainly the plant of the Linnean herbarium. It differs from *vulpina*, in never having its spike superdecompound, or the culm enlarged beneath the spike: from *divisa* of Hudson, in its fibrous root, diverging capsules, and no erect leaf under the spike: from *stellulata*, (n. 63.) in its numerous and contiguous spikelets, and its capsules divided at the summit.

There is a variety rather more slender in its form, with its spike rarely decompound. The culm is not so rough at the angles, and towards the base it is roundish, inasmuch that many have taken it for the *divisa* of Hudson, t. 33. f. 12. of Micheli, and t. 11. f. 5. of Scheuchzer, are rather representations of this variety.

This species is found in woods and meadows that are moist. It flowers in may and june^u.

14. Root creeping. Leaves grassy, tender, smooth and even. Culm smooth and even, the upper part naked. Spikelets four or eight, small, scattered at the top of the culm, whitish. Seeds ovate, obtuse, awnless when the pistil is taken away, rounded beneath. It much resembles the foregoing, but differs in being only half the size, and in having the capsules less divaricate, obtuse, and not sharp at the edge^v. Native of Sweden and Saxony.

15. A very elegant plant. Stems several, one to two feet high, slender, weak, three-cornered, above the lowest floral leaf rough, below smooth. Leaves

^f Linn. spec. ^g Linn. suppl. ^h Schreb. in Linn. syst.

ⁱ Linn. ^k Linn. fuc. ^l Woodw. Mff. ^m Lightf.

ⁿ Goodenough. ^o Linn. fuc. & mant. ^p Linn. spec.

^q Goodenough, 149. ^r Linn. fuc.

^s Woodw. Mff.

^t Haller and Scopoli.

^u Goodenough.

^v Linn. spec.

numerous, long, slender, at the lower part of the stem. Spikes five to eight, lanceolate, sessile, the lowermost in the bosom of a floral leaf longer than the stem, the two or three next also in the bosom of similar leaves, shorter than the lowest; the upper naked. Scales lanceolate, when young with a green keel, and silvery membranaceous edges, when the seeds are ripening yellowish; and then shorter than the capsules. The style is divided at issuing from the capsule into two stigmas. Capsules acutely pointed^r.

There is only one species in the whole family which has any affinity to this, namely *axillaris*; but that is readily distinguished by having three or more spikelets at the base of each bractaceous leaf.

This is found in moist woods and by the sides of ditches, flowering in may and june.

Mr. Curtis found the *axillaris* near Putney, flowering in may and june. It has a strong and rigid culm, whereas *remota* has a soft, thin, weak one; never more than one spikelet at the base of each leaf, and the capsules entire at the apex; in the *axillaris* they are bifid. Hence Dr. Goodenough has made this a distinct species, which he thus characterizes—spikelets axillary subternate remote sessile, leaflets long, capsules divided at the tip. He remarks, that Linneus (spec. pl.) seems to have described it twice over.

Dr. G. mentions another from Scotland, given him by Mr. Lightfoot, nearly related to this, if not the same, p. 209^z.

16. Culms two feet high, rough, three-cornered, almost naked. Leaves revolute, rough, one or two lines in breadth. Spike compound, four inches long; the lower spikelets distinct, the upper ones touching the base of the next above it; broad and obtuse. Glumes brown, sharp. Under the spike a leaf, then an awned glume, and a simple glume which in the uppermost is mucronate. Capsules conic, with a long bent cleft neck. The uppermost spikelet is sometimes partly male^a.

17. This is not the *canescens* of our English authors, for that see *C. curta*. These are much alike in shape, but when they are brought together, they are found to be widely different. The *curta* is smaller in all its parts; then the scales are silvery, and very tender: in the *canescens* they are membranaceous and hard, as in the rest of the genus, and are brown with a white edge, which gives it a real hoary appearance^b. It is a native of Lapland, Up-land, &c.

18. Stems numerous, from one to three, and sometimes four feet high, naked in the upper part, three-cornered with the angles minutely toothed. Radical leaves in a thick tuft, sometimes rising as high as the stems, yellowish green, terminating in a stiff thorn-like point, minutely toothed and cutting at the edge. Panicle two to three inches long, branched below, usually terminating above in a simple spike; the branches from half an inch to an inch in length, with numerous small roundish spikelets, closely crowded. The lower branch has usually a short awl-shaped greenish bracte, but this is sometimes wanting. Scales obtusely ovate, shorter than the capsules, which they closely embrace, deep brown, with shining membranaceous margins. Capsules greenish, tapering to a sharp bifid point. Style on its issuing from the capsule divided into two reflex stigmas^c.

The lax branchy disposition of the spike is a sufficient mark of discrimination in this species. The branches are alternate, and somewhat distant from each other. The capsules are sometimes a little diverging, and of the same length as the scale that guards them. The whole spike is triquetrous oblong, and acute at its opening.

It is a native of bogs and marshes, flowering in june, and is admirably well qualified for planting in

loose boggy ground; its immense tufts making a firm support for the heaviest bodies^d.

β. It varies with a simple spike, the lower spikelets distant, the upper crowded. This is the variety mentioned in Haller, n. 1368. which he refers to Scheuchzer, Agrost. 501. but as a variety, not as the same plant, Scheuchzer's being described with a singly branched panicle, whereas this is strictly spiked. Dr. Goodenough however informs us, that upon being cultivated in a rich wet soil, this formed its spike as branching as the other. The shape and colour of the scales and capsules, the leaves, and the triangular toothed stem prove it to belong to this species beyond a doubt^e.

Floral leaves subulate short greenish, usually one at the base of the lowest branch, and sometimes to one or two of those above. Scales ovate, blunt, deep brown, membranaceous and shining at the edges, closely embracing the capsules, which are greenish, longer than the scales, obtusely triangular, tapering to a sharp cloven point.

There is a variety of this with a simple raceme. It is from one to two feet in height: the lower spikelets distant, the upper crowded. *W. in With.*

19. Culms subtriangular, smooth and even, a foot and half in height, erect. Stem-leaves remote, often longer than the culm, grassy, with a rough edge. Panicle, formed of many alternate strict three-cornered spreading racemes: the spikes are alternate, sessile, in two rows, remote, spreading, imbricate on every side with subulate scales. Fruit ovate three-cornered acute. Native of the East-Indies^f.

20. Leaves linear, attenuated towards the end, entire, smooth, erect, longer than the culm, which is three-cornered, smooth, and a foot in height. Spikes erect, acute, brown, smooth, about twelve in number. Glumes ovate, acute. Observed in Japan by Thunberg^g.

21. Stems two inches to a foot high, numerous, declining, in the smaller plants leafy up to the spike, but in the larger usually naked upwards, triangular, not rough to the touch. Leaves pale yellowish green. Barren spike closely imbricate: scales numerous, yellowish brown, bluntly oval, with one longer and larger, pointed and sometimes awned at the base. Fertile spikes two, three, or four, at first roundish, afterwards oval; scales oval-lanceolate, yellowish brown, with a green keel and membranaceous edges; the lower on peduncles, the upper sessile, in the small plants from the bosom of the upper leaves, and the lowermost sometimes almost at the root. In the larger plants the lowest spike has a long spreading bracteal leaf, those above are shorter, and bent back. Capsules short and thick, tapering to a point, pale greenish yellow. Style divided nearly to the base into three stigmas^h.

The long divaricated foliaceous bracte is a very constant discriminating mark in this species, which, together with its round prickly heads, renders the investigation perfectly easyⁱ.

Mr. Ray calls this *Marsh Hedge-bog* grass, and mentions (*syn.* 421.) that he found a larger variety near Cambridge, a foot and half in height, with rarely more than two sessile sharp grained heads near the top, the lower bearded, with a long leaf. It is *Cyperoides echinatum majus*. *Pet. conc. gram.* 169. —and *Gramen palustre aculeatum italicum majus*. *Bauh. theat.* 110.

Dr. Goodenough has elevated the *flava* β. of Hudson, which is the larger plant, into a species, under the name of *C. extensa*, (n. 80.) which see. His *C. fulva* (n. 81.) has been considered has another variety, and indeed by his confession is scarcely removed from it.

The capsule is a good guide to distinguish this from *C. extensa*, being in *C. flava* oblong with a taper point, and in *C. extensa* ovate and acute. But the capsule is no guide in separating it from *C. fulva*. *C. flava* however has always three female spikes, and

^r Woodward Mss.

^b Goodenough.

^z Goodenough.

^c Woodward Mss.

^a Haller.

^d Goodenough.

^e Thunberg.

^e Woodw. Mss.

^h Woodw. Mss.

^f Linn. mant.

^g Goodenough.

C. fulva.

C. fulva as constantly two: then *C. flava* has its bractes divaricated; *C. fulva* has them upright, particularly the lowest. The division of the apex of the capsule seems to be constant in *C. fulva*, but is by no means so in *C. flava*. Their habit seems to be different; and the female spikes in *C. fulva* are always acute, and never round.

C. flava varies sometimes with two male spikes, and the angles of the culm roughish^k.

This species is common in boggy and wet meadows, marshes, and the boggy parts of barren heaths; flowering in may and june.

22. Leaves a foot long, very narrow, somewhat stiff, smooth and even at bottom. Culm very solid, somewhat even, rounded on one side, longer than the leaves. Spikes three, sessile; male terminal, oblong, ferruginous; females two, alternate, ovate-oblong, brown-ferruginous; upper without any leaf under it; lower from the axilla, the length of the culm. Floscules less closely imbricate. Capsules obscurely pubescent^l. Native of Lapland.

23. Leaves in a thick tuft. Stems obscurely three-cornered, slender, not rough, from six to twelve inches high, entirely naked except some red-rish brown leafy sheaths at the base. Male spike half an inch long, closely imbricate, from the same sheath with the uppermost female spike, and being shorter, overtopped by it. Scales numerous yellowish brown, membranaceous and shining at the ends, and so bluntly rounded as to seem truncate. Female spikes three or four, alternate, distant, about an inch long, peduncled. Florets alternate, distinct. Scales as long as the capsules, which are obscurely triangular, greenish at the base, yellowish brown upwards, and tapering to a blunt point. Style divided half way into three stigmas^m.

Native of many parts of Europe. Found by Mr. Sole, apothecary at Bath, in woods and shady places near that city. It flowers in may and june.

24. Culms filiform, naked, a short span high. Leaves filiform, soft, of a yellower green than in the other species: stem-leaves very short. Male spike terminal, peduncled, subcylindric, brown: female when ripe becomes black. Scales brown. Seeds scarce perceptibly hairy, gibbous, divaricateⁿ.

On mountainous pastures and heaths. For *C. montana* of Hudson and Lightfoot see *C. præcox*.—This is probably not different from n. 28. which see.

25. Appearance of *C. panicea*. It differs from Scheuchzer's plant in having bractes longer than the spikes. Culm three-cornered. Leaves narrow. Male spike terminal, oblong, pale-ferruginous: females two, alternate, oblong, erect. Bractes the length of the upper culm. Capsules scarcely acuminate, muricate as it were with very soft short hairs. Seeds smooth, subglobular, with a slight protuberance of the tip^o.

According to Monf. Villars, the culm is thin and weak, about a foot high, terminated by two or three oval spikes, the uppermost of which is male. Scales pointed, green on the back, and ruflet at the edge. Capsules pear-shaped with a very small point in the middle of the blunt end; they are very villose, whitish and cottony, from fifteen to twenty in a spike. He thinks that this species is most nearly allied to *C. pallescens* in its habit, and the form of the spikes and capsules: and that the synonyms of Haller, Scheuchzer, and Scopoli here cited belong to *C. montana* of Linneus.

26. Leaves in a thick tuft, firm, short, not more than half a line broad. Culm three inches high, almost naked, three-cornered. Male spike short, thick, bay and silver variegated; glumes obtuse, bay with a broad edge of white. Female spikes (one to three) sessile close to the male, small, bay with a white edge. Seeds ovate-three-cornered, with a very short point^p. Monf. Villars has a *C. globularis*, but he says it is different from this.

27. Leaves slender, upright, ending in a very

taper point, roughish on the edges and along the keel, from one to three feet in length. Culm upright, slender, almost equal to the leaves, the angles sharp and hispid. Spikes commonly two male and two female: the upper male spike from an inch and half to two inches, the lower scarcely an inch in length; both linear or filiform, upright, with oblong, sharp, dark ferruginous scales, and a green dorsal nerve: the upper female spike is often sessile, and sometimes there is only one; they are upright and on very short peduncles: at the base of these is a bractee, with a very short sheath in a manner concealing the peduncle, the leaflet itself somewhat shorter than the culm: scales as in the male spike, nearly equalling the capsules, which are woolly-villose, subtriquetrous, somewhat oblong, with a gaping forked mouth. There are three villose thickish stigmas.

It is readily distinguished by its leaves, which are narrow, often a yard in length, and ending in a very taper point, something like the American *Dactylis cynosuroides*. In fructification it is equally distinct, by having generally two male spikes and never more; and capsules downy, almost woolly^q.

Native of several parts of Europe; in woods. Observed by the Rev. E. Williams near Eaton in Shropshire; and at the south end of Air Links, in Scotland, by Dr. Hope. It flowers in june.

It grows promiscuously with *C. montana*, and is not unlike it. It differs in having a long, narrow floral leaf. The seeds also are pubescent and striated, and more mucronated. In many specimens the lower spikelet is on a petiole two or three lines in length. Hence Haller's species n. 1386. 1387. 1388. seem to belong to this or *montana*^r. Of these Allioni refers n. 1387. to his *obesa*, and 1378. to his *strigosa*.

28. Leaves in a thick tuft, bright green, the longest scarcely half as long as the stem, which is three-cornered, slender, not rough, somewhat ascending at the base. Barren spike slender, four or five lines long, closely imbricate, sessile: scales numerous, oval-lanceolate, blunt, brown with a green keel, membranaceous at the edge. Fertile spikes two to four, the lowest somewhat distant, the rest closely crowded: scales obtusely oval, but taper pointed, darker than those of the barren spikes, and, when the capsules are ripe, almost black. Capsules nearly globular, equalling the scales, tapering to a short point each way, with three obsolete angles, smooth on the inner, downy on the outer side; greenish, slightly downy when viewed with a glass, particularly along the lateral angles, less so on the outer side: the lateral ribs strongest, the inner one but just perceptible. Seed filling the cavity of the capsule. Floral leaves subulate; that at the base of the lowest spike nearly as long as the whole compound spike, sometimes longer; the next above shorter. Style divided almost to the base into three stigmas^s. The shortness of the compound spike; the shape and colour of the male spike; and the smallness of the round female ones distinguish this species from the *montana*, according to Lightfoot: but his *montana* is the *C. præcox* of Jacquin, &c. Dr. Goodenough is of opinion that Linneus spoke of one and the same plant under two names. In its more fruitful state, with three female spikes, he called it *pilulifera*; in its more starved appearance, when produced on elevated and dry plains, where it has only two, and not unfrequently only one female spike, he called it *montana*.

The capsules are somewhat downy, as in *C. præcox*, but the linear male spike, the female ones sessile, and the reclining culm mark its distinction in all stages of its growth.

It is common in moist pastures and heaths; flowering in april and may.

29. Terminal spike male, bay or pale ferruginous. Female spikes two, black, with scales the length of

^k Goodenough.

ⁿ Linn. spec. and succ.

^l Linn. spec.

^o Linn. mant.

^m Woodw. Mss.

^p Haller.

^q Goodenough.

^r Woodw. Mss. and Stokes in With.

^s Gouan.

the pistils. Gernis black, three-cornered; styles black, bifid, long. Beneath the lowest spike is a setaceous leaf shorter than the spike¹. Native of the mountains of Lapland and Switzerland.

30. One leaf or two leaves at most, alternate, linear, smooth, reflected, short. Culm three-cornered, capillary, striated, smooth, erect, four inches high. Spikes terminal; females lower than the male, and only half the length. Bracte one-leaved, shorter than the spikes².

31. Stem three-cornered, smooth, with leaves from one inch and half to two inches from the root, naked upwards; the upper often longer than the stem. Floral leaves narrow, the lowest stem-clasping, as long as the spikes; those above shorter and brownish. Lowest peduncles long, those above gradually shorter. Spikes oval-lanceolate, from four lines to half an inch long, when in flower rising nearly to the same height; on peduncles, the lowest long, those above gradually shorter: the upper spike without any floral leaf, unequal, with frequently one or two small spikes at the base, where also are male flowers: the others are mostly composed of female flowers. Scales lanceolate or ovate oblong, apparently black with a brown keel, but viewed in a strong light of a rich reddish brown. Stigmas mostly three, sometimes two. Capsules slightly compressed, acuminate, a little longer than the calyx, brownish black, but at the base and edges straw-coloured³.

It is singular in this species, that it has for the most part only two stamens, and a few hermaphrodite flowers. Its having no sheaths, or at least very minute ones, and black ovate spikes are marks sufficient to distinguish it readily from all others with which it can come in any competition. Native of most parts of Europe, on mountains; with us in Wales and Scotland; flowering from May to July⁴.

32. Similar in appearance to *C. atrata*, the spikes in both being black. Leaves narrow, linear. Bractes brown without a whitish line along the middle. Styles three. Root jointed, creeping. Leaves tufted, long, bright green, rough, the uppermost nearly as long as the stem; which is slender, three-cornered and rough. Male spike has lanceolate scales, the lowest awned, yellowish brown with a green keel. Female spikes loosely imbricated, on longer slender peduncles; when in flower upright, when in fruit nodding: scales oval-lanceolate, acuminate, of a rich shining brown, with a yellowish green keel. Style at its issuing from the capsule divided into three long downy stigmas. Bracte one at the base of the lower spike; if more than one, very slender, about an inch long. Capsules oval, bluntish, bright sea-green⁵: microscopically rough with minute, blunt, very short points, lengthened out at the base into a point, rounded at the top, with a very short, cylindric, yellowish neck, the sides of the brim rising higher than the middle, and giving the appearance of two teeth⁶.

This species has been confounded with *recurva*, from which it is readily distinguishable by its very short sheaths, by its ovate spikes, by the compressed shape of the capsules, and by their colour, which is caesious green when young, and brown when ripe; whereas in *recurva* they are round, ovate and black.

In a garden, it frequently throws up barren leafy stalks, which will readily take root, if planted in pots plunged in water. The name *stolonifera* therefore would be proper. In a wild state it has not more than two female spikes, usually one only. In a garden it rarely flowers⁷.

In boggy ground, common; flowering in June. With us in Yorkshire, Lancashire, Westmorland, &c.

33. Smaller, narrower and more delicate than *C. pallescens*. Culm when in flower shorter than the leaf, scarcely a finger's breadth high, with a single leaf; from the end are produced four erect spikes,

one of which is male: in a short time the culm becomes a span in height, filiform, erect, with one sheathing leaf in the middle of it, but shorter than the culm: from the axilla one spike, and near the top a small sheathing leaf, with another peduncled spike; the very top of the culm, from a sheath scarcely leafy, puts out a male and female spike, both peduncled, and the latter pendulous. Capsules brown, alternate, distant, on a capillary peduncle; the bractes falling off as they ripen⁸.

The diminutive stature, says Dr. Goodenough, of this plant, its capillary peduncles, its female spikes pendulous, lax, with few flowers (from four to eight), and the scales being deciduous, place it in too conspicuous a light to be mistaken. His character of the species is this: sheaths halved, female spikes oblong lax, when fruit-bearing pendulous, peduncles capillary, capsules acuminate.

Native of the highland mountains of Scotland.

Monf. Villars describes another *C. capillaris* probably different from Linneus's, though they both refer to the same figure of Seguer's, which Linneus says is so good, that the plant cannot be mistaken.

34. Twice as thick as the foregoing, and the leaves broader: stem-leaves scarcely sheathing, but extending beyond the end of the stem. All the female spikes peduncled, whitish, oval, imbricate on all sides, not in two rows. Bractes permanent. Capsules by no means acuminate⁹. Stems many, one to two feet high, three-cornered, roughish, leafy below, naked upwards; except that there is generally, a kind of false floral-leaf similar to the stem-leaves, proceeding from a joint, one or two inches below the spikes. Leaves in bundles from the root, yellowish green, the lower short, the upper nearly as long as the stem. The lowest floral-leaves about twice as long as the spikes, those above gradually smaller. Male spike (one, sometimes two) from half to three-quarters of an inch long, slender, closely imbricate; with sometimes a single female flower at its base. Scales oval-lanceolate, yellowish brown. Female spikes one to three, cylindric, the lowermost on a very short slender peduncle: scales oval-pointed, pale yellowish brown with a green keel. Capsules oval, blunt, pale yellowish green, quite smooth, contracted at the end, mouth very entire. Style at issuing from the capsule divided into three short stigmas¹⁰.

None of the figures give a good representation of the female spikes in their mature state; they are then nearly cylindric; whereas the figures give only the ovate form, in which they appear when first in flower.

Woods, meadows, and moist pastures; flowering in May and June¹¹.

35. Stems bluntly three-cornered, smooth, twelve to eighteen inches high. Leaves smooth, sea-green, shorter than the stem. Male spike terminal, more than an inch long, closely imbricate: scales oval, reddish brown, with membranaceous edges, and a whitish green keel. Female spikes mostly two, upright, loosely imbricate; round; tapering towards each end. Peduncles long, slender, each from a joint. Floral-leaves sheathing, one at the base of each peduncle, as long as the spike which belongs to it. Flowers alternate, many abortive: scales ovate, or ovate-lanceolate, brown, with a broad whitish green keel, not above half as long as the capsule. Stigmas three. Capsules oval, bluntly pointed; whitish green, when ripe brown or black; somewhat tapering to a point; when viewed in a microscope rough, with minute points towards the end, contracted at the point, mouth entire¹².

According to the observation of Linneus, they are frequently smutty, and then become globular and larger: this is the case also with some other species.

This in its younger state is very like the young specimens of *C. recurva*, but it is at once distin-

¹ Linn. suec.

² Thunberg.

³ Woodw. Mss. and Stokes in With.

⁴ Goodenough.

⁵ Woodw. Mss.

⁶ Stokes in With.

⁷ Goodenough.

⁸ Linn. suec.

⁹ Ibid.

¹⁰ Woodw. Mss. and Stokes in With.

¹¹ Goodenough.

¹² Woodw. Mss. and Stokes in With.

guished by the sheath. In *panicea* the lowermost sheath is full half the length of the peduncle, in *recurva* about one quarter only. It is distinguishable also by its alternate distant capsules: in *recurva* they are crowded in a thicker spike.—In moist meadows and pastures; flowering in may and june^a.

Mr. Woodward has observed a variety, with a single spike, about six inches long, with barren flowers towards the end, and capsules below resembling those of the other; the lower ones distant; the calyx running out into a subulate expanding floral leaf at the base of each. This variety is mentioned by Leers; and also another, with a third female spike from the base of the culm, on a very long peduncle.

36. Culm three-cornered, two feet high, clothed with very narrow leaves. Male spike oblong, peduncled; a female spike from the same axilla, with seven or eight conic-subulate capsules, the length of the spike itself, with seeds in the bottom, spreading. Observed in Canada, by Kalm¹.

37. Bractes almost setaceous. Stems from eighteen inches to three feet in height, leafy below, naked above, three-cornered, edged with sharp teeth, with a joint near the top. Leaves forming thick tufts, long, broad, finely toothed, edges cutting. Floral leaves similar to the other leaves, the lowermost broad, often more than a foot long, at the joint of the top of the stem, those above narrower and shorter. Fertile spikes (three to five) from the bosom of the floral leaves, at a smaller distance one above the other, sometimes two together, the lowermost on a long slender peduncle, when in flower upright, when in fruit pendant; all rising to nearly the same height; pointing one way, gradually smaller upwards, the lower longer than the peduncles, the upper shorter. Scales green, subulate, longer than the capsules, finely toothed at the edges, and toothed on the back. Capsules pale green, lanceolate, obscurely three-cornered, elegantly ribbed; smooth, the awns at the point nearly upright, and shorter than the capsule. Style divided into three stigmas scarcely longer than the horns of the capsule. Seed pale reddish brown. Barren spike terminating, two inches long, round, tapering each way, somewhat shorter than the fertile ones, nearly upright: scales closely imbricate, yellowish brown, terminated by a long awn, toothed like the stem, and longer than the filaments^k.

The having peduncles in pairs from each joint of the culm is too uncertain a mark to place any dependence upon it. The circumstances of its having no sheaths, or very minute ones, and capsules nearly divaricate, and ending in a long point are better marks. The intermediate peduncles are not unfrequently found doubled.—In moist woods and on the sides of ditches; flowering in june¹.

38. This is easily distinguished from the other species by its long, narrow leaves, of a pleasant green, in fuller tufts than in any of the rest: by two female spikes, erect and blackish; capsules yellowish, sessile, erect, obtuse, ovate, imbricate: culm naked exactly three-cornered; under the lowest spike a small leaf longer than the spike; that under the other is shorter. It fills up bogs by its large tufts or hocks, and that it may accomplish this the better, cattle do not eat it^m.

Dr. Stokes is of opinion that the *C. caespitosa* of Mr. Hudson is the *C. acuta* α of Linneus: and Mr. Woodward thinks that the plant which he has described under *C. caespitosa* of Dr. Withering, is the same with the *gracilis* of Mr. Curtis. See *C. stricta*, n. 83.

In marshes and moist woods, flowering in may.

39. Differs from *C. caespitosa* in having the spikes far distant, each from the sheath of a leaf, on short peduncles, and not nodding. Capsules acuminate; scales of the calyx sharpⁿ.

Stems nine to eighteen inches high, sometimes two feet or even a yard; leafy, very obscurely three-cornered. Male spike terminating, one to one inch and a half long, closely imbricate. Scales oval, blunt, numerous, brown with a yellowish keel. Female spikes (two or three) very upright, pressed close, from half an inch to an inch and a half in length, the lowermost often six inches below the next. Peduncles slender, inclosed by the sheaths of the leaves, often almost up to the spike, whence their upright position. Scales equal to, or shorter than the capsules, oval, blunt, dark brown, with a green keel lengthened out into a projecting point. Stigmas mostly three. Capsules obscurely three-cornered, smooth, yellowish green, terminating in a long slightly cloven point, which is somewhat downy^o.

The remarkable distance at which the female spikes are placed from each other, is a distinction too obvious to admit of any doubt. *C. birta* has them situated in the same manner; but the leaves are hairy, and the capsules villose in that species: in this they are perfectly smooth.—It is found in marshes, especially salt-marshes; and usually flowers in may and june^p.

Mr. Curtis observes that this species is subject to very great variations: and Mr. Relhan mentions a variety with androgynous spikes, and the lower sometimes male.

40. Culm leafy three-cornered erect weak smooth a span high. Leaves alternate sheathing smooth erect, the upper ones overtopping the culm, the lower shorter than the culm. Female spikes two or three bracted. Male longer. It has an affinity to *C. limosa*, but differs in the spikes being erect; the glumes green and more acute^q.

41. This very variable plant, in dry meadows, is an inch high, but in watery situations often rises to the height of three feet. The style is bifid, hispid, white, shrivelling. Bractes or scales ovate, brown, with a longitudinal green line^r.

Dr. Goodenough says, that Linneus has evidently confounded two species under this name *acuta*: α *nigra*, which is β of *fl. suec.* and the same with the *gracilis* of Mr. Curtis—and β *ruffa*, which he takes to be his *stricta*, and the *caespitosa* of Hudson and Lightfoot. See n. 83. and 96.

42. Style scarcely any, but the germ attenuated acuminate, the point but just perceptibly bifid permanent. Bractes lanceolate, acuminate, brownish on the sides^s.

Stem three-cornered, leafy, finely serrate at the edges. Leaves two lines broad, finely serrate, bright green. Male spikes one, two or more, linear, slender, the uppermost an inch long or more, closely imbricate; bay, before flowering lanceolate, finely tapering each way: scales lanceolate, yellowish brown, with membranaceous edges and a paler keel. Female spikes two or three, upright or nearly so, one to one inch and a half long, oval, the lowest distant, the uppermost sessile: when ripe spreading, greenish, when fully ripe yellowish brown; the uppermost with male flowers at the end. Peduncles, the lowermost from one to two inches long, the greatest part inclosed in the sheath of the leaf, the second shorter. Scales lanceolate, pointed, with three ribs, much narrower and somewhat shorter than the capsules; at first purplish brown with a green keel, afterwards dark brown with a pale brown keel, at length the whole pale brown. Style very long within the capsule, at its exit divided into three stigmas. Capsules large, much inflated, obscurely three-cornered, scored with prominent ribs, terminating in an acute cloven point: they are ovate, gradually tapering; the clefts open, nearly as long as the neck; gradually exceeding the calyx as it advances to maturity, when they are more than twice as long^t.

This is the *vesicaria* of the Linnean herbarium: its yellow hue, narrow short scales, and inflated

^a Goodenough.

¹ Linn. spec.

^k Woodw. Mss. and Stokes in With.

^m Linn. suec.

ⁿ Linn. spec.

^o Goodenough.

^p Woodw. Mss.

^q Goodenough.

^r Thunberg.

^s Linn. suec.

^t Ibid.

^u Woodw. Mss. and Stokes in With.

smooth conic capsules, point it out beyond all danger of mistake. Scheuchzer gives a long description of it in p. 470. It is found in bogs and marshes; and flowers in may^a.

For Linneus's second variety of *vesicaria*, see *C. sylvatica* (n. 89.) and for his third see *C. ampullacea*.

43. Leaves on the outside, and their sheaths white-villose. Capsules villose, inflated, two-horned at the end. Male spikes usually three; female very remote, erect, peduncled*. Stem smooth, three-cornered; corners imperfect, but above the upper female spike the corners are sharp, and rough to the hand drawn downwards; sheaths very long. Male spikes four or five, alternate, sessile; the lowermost with a few female flowers at the base, and a subulate floral leaf longer than the spike: scales lanceolate, reddish brown with a green keel, smooth at the base, fringed at the top with soft hairs. Female spikes usually two, distant, alternate, on short peduncles: scales lanceolate, with membranaceous fringed edges, and a green keel, lengthened out into a long subulate awn. Stigmas three. Capsules very hairy, terminated in an acute cloven point[†].

The thick down which covers the leaves, and particularly the sheaths and capsules, keeps this species distinct from all others. It occurs however with smooth sheaths in watery places.—It grows in moist meadows, watery places, and marshes; flowering in may and june[‡].

Monf. Villars (p. 221. n. 43.) describes a *Carex* under the name of *hordeistichos*, which may perhaps be a variety of this. He is however of a contrary opinion: because the *hirta* is more villose, taller and more slender, the leaves narrower, more tender, of a common green inclined to glaucous, the capsules manifestly villose, almost regular, and separate; the scales also of the male spikes are villose and blunt: whereas the *hordeistichos* is a stout low plant, with yellowish, rude but smooth leaves, the spikes are close together, the first often concealed under ground, though shorter they are three times as thick as in the other, with the seeds very close; the capsules are large, oval with a lengthened point, convex beneath, flat and curved up above; the scales of the male spikes are paler, whitish yellow, smooth, ending in a point. He has figured it in t. 6. and refers to Parkinson, theat. 1268. with a doubt.

44. Culm very short, indeed scarcely any. Leaves linear, attenuated, convolute, smooth. Male spikes linear, the lower sessile, the upper twice as long, terminal. Females smooth, with ovate, sharp, turgid, smooth glumes. Scarcely to be distinguished by its characters from *C. vesicaria*, yet plainly different in having no stem, so that the spikes are but just raised above the surface; whereas in that it is very long[§].

45. Stem four inches high, obscurely three-cornered, smooth, striated, with two smooth grass-like leaves, the uppermost longest, but generally shorter than the stem. Spike at first close, one-eighth of an inch long, consisting of only one pale-brown male flower at the top; and sometimes two but more commonly three greenish, long-acute female ones underneath. The male after flowering deciduous, and the capsules become patent and nearly horizontal. Stigmas two, but commonly three^b.

Dr. Goodenough observes (p. 128.) that all the androgynous species except this, have their stigma bifid: and that the rest of the genus, except three or four, have it trifid.

According to Mr. Hudson, the radical leaves are few, ensiform, pointed, naked. Spike terminating, upright, with two or three brown barren flowers, and five or six greenish fertile ones.

Native of Scotland in a boggy soil; also of the coast of Labradore.

46. Native of Jamaica, and New Zealand^c.

47. Culm scarcely four inches high, naked three-cornered, twice as high as the leaves. Spike an inch long. Male glumes subovate not awned; females broad ovate acute bay-coloured with a paler edge, and a broadish nerve ending in an awn.

48. From a brown fibrous root arises a tuft of many culms. Leaves convoluted striated somewhat curved, about equal to the culm, which is less than a short span in height, striated and somewhat curved. Spike an inch long and more, with flowers not pressed close, but generally solitary alternate sessile, so that the spike seems to be interrupted. Scales bay with a whitish edge. Glumes ovate acute awnless, bay with a whitish edge. Capsules roundish^d.

Monf. Villars has figured a species, and described it at length, under the name of *C. myosuroides*, which he suspects may possibly be the same with this. It has a single linear spike, and what is remarkable, the flowers are hermaphrodite; the seed is half naked; the leaves and culms are bristle-shaped.

49. This species forms little tufts composed of hard round leaves, somewhat yellowish, resembling those of rushes, differing little from the culm, and about the same length (from three to six inches). The spikelets are very close, and have two large brown valves at their base, besides the proper scales of the flowers, which are lanceolate, pointed, and tawny or tan-coloured^e—It has its name *curvula*, from the leaves and culms being curved a little to one side. When the spike is old, the spikelets separate and hang loose, so that in this stage of its growth the spike has the appearance of being compound^f.

Native of the Alps of Switzerland, Dauphiné, and Piedmont.

50. This plant is fetid both dry and green. The root is black, hard, creeping and covered with scales. Radical leaves tufted, two or three lines broad, keeled, nerve rough. Culm naked, three-cornered, edges rough. Spike one only, blackish, formed of very many small ones, irregularly conic, obtusely five-cornered, very broad, shortly acuminate. Leaves two, long, tailed, under the spike; sometimes only one, or even none. Glumes shining brown, awned or pointed. Stigmas two only. The spike as it ripens grows longer and stiff, the shining goes off from the glumes and they grow pale. Seeds half-conic, convex on one side and flat on the other, with a sharp neck. Each spike separates into six or seven smaller ones, closely compacted^g. Native of Switzerland, Dauphiné, and Piedmont.

51, 52. Natives of Sweden and Germany.

53. This is the handsomest species of the genus. The spike is narrowed: with the female flowers below constituting two-thirds of the spike, the glumes awned, the awn bent back above the middle and thickened at the joint; the male flowers above, with no awns to the glumes. Small spikelets sometimes hang down at the side, but perhaps they are barren. It is a native of New Zealand.

54. The flowers in this species are absolutely simple, which is a singularity in this genus; they are pedicelled, and grow in a very simple umbel. Native of Bohemia and Siberia^h.

55. Resembles *C. leporina*. Culm usually taller, three-cornered, with the angles sharper: spike longer; spikelets more numerous, (ten to twenty and even thirty) smaller, more lanceolate, sometimes proliferous; the upper much crowded. Floral-leaf usually longer than the spike, not always present; the lowermost spikelets have sometimes in that case broad oval-lanceolate scales, sometimes awned and nearly as long as the spikelets, of a deeper brown than those of *C. leporina*. Style divided absolutely to the base, whereas in the other it is cleft only about one-quarter of its lengthⁱ.

This and *arenaria* are very nearly allied, there is however character enough peculiar to each. The root in this creeps deeply under ground, and in a

* Goodenough.

† Linn. spec. and succ.

‡ Woodw. Mss.

§ Goodenough.

^a Thunberg.

^b Lightfoot.

^c Swartz.

^d Allioni.

^e Villars.

^f Haller.

^g Ibid.

^h Linn. suppl.

ⁱ Woodw. Mss.

very irregular manner; the culm is very erect; the spike is obtuse, and the terminal spikelet female; the capsule has its margin entire; and it does not grow in sand. In *arenaria* the root creeps just below the surface, and while the main shoot runs in a straight line, side-shoots strike off at right angles; the culm is incurved; the spike is acute, and many of the terminal spikelets are almost entirely male; the capsule is marginated on each side towards the apex with a broadish membrane.

Some of the spikelets both in this and *arenaria* are purely male, and others female; and a few of them are truly androgynous. The name *disticha* by no means corresponds with the growth of this species; its leading character being that the intermediate spikelets are almost entirely male. Dr. Goodenough has given it a name which has immediate respect to this uncommon circumstance.—In marshes, flowering in June^k.

56. Leaves narrow, sometimes longer than the culm, which is from eighteen inches to two feet in height and three-cornered. Spikelets roundish, five or six, the lower rather distant, the upper crowded and spreading. Floral-leaf often considerably longer than the spike, and growing in a line with the stem, gives the plant the appearance of a rush: scales oval-lanceolate, dark brown, with a green keel and long green awn while young, but shrivelling and falling off as the spike ripens, the whole becoming dark brown, except the edges, which are yellowish. Styles longer than the capsule, divided one-third of the way into two reflected stigmas. Capsules whitish, oval, pointed at both ends, very indistinctly three-cornered, or rather convex on one side, and flat on the other^l.—In salt marshes, flowering in May and June.

57. Stems three or four inches high, obscurely three-cornered, smooth, and curved in the arc of a circle. Leaves smooth, channelled, (two or three) nearly the same length as the stalk. Spike of a short conical, or triangular form, brown, compounded of several small clustered oval spikelets, each of which has male flowers at the top, and female ones at the base. No involucre or subtending leaf. Stigmas two. It approaches Scheuch. agrost. 495. and prodr. t. 4. and n. 1355. of Haller, but the stalk of that has no curvature, the leaves are plane, and the whole plant is fetid. The root of this creeps under the sand^m.

It ranks next to *C. arenaria*, from which however it is sufficiently distinct, by its conic and compact spike. In its seeding state it loses something of its conic form and becomes obtuseⁿ.

Native of Scotland, in deep loose sea-sand; discovered by Dr. Hope; also of Denmark and Piedmont.

58. Leaves dark green, narrowish, sharp on the keel and along the edge, longer than the culm; which is from a foot to eighteen inches in height, weak, somewhat reclining, three-cornered, the corners acute and roughish. Spike interrupted, androgynous. Lower spikelets very many, ovate, sessile, with bristle-shaped, hispid bractes: the upper with male flowers at the end. Scales membranaceous, white, ovate, mucronate, with a green dorsal nerve ending in a point, longer than the capsules; which are ovate, acute, flat on one side, and a little convex on the other, with a bifid mouth. Style short, with two stigmas.

It is known by its weakish reclining stem, its long interrupted spike, with one or two branches at the base, its remote spikelets, and by the capsules, though standing loose and a little spreading, yet not diverging. This last circumstance keeps it distinct from thin starved specimens of *C. vulpina*, as figured by Leers, t. 14. f. 3.—In moist woods; flowering from May to July^o.

59. Radical leaves shorter than the culm, a line or more in breadth. Culm naked in the upper part,

three-cornered, six inches high. Neither that nor the leaves are rough. Spike composed of three heaped ones, the middle one longer than those on the sides; all androgynous. Glumes ovate, pointed, bay with a line of yellow. Capsules short, swelling, with a longish simple point^p.

Monf. Villars describes his *lobata* as having wide, green leaves, keeled underneath; the stem triangular, somewhat longer than the leaves, and a little recurved, ending in a dark brown or blackish spike composed of ten or twelve spikelets, which on a near view are really distinct. Each spikelet is female at the base, and male in the two upper thirds: a brown dilated bract with a green nerve serves for an involucre, and scarcely surpasses the length of the spike: the scales are brown, acuminate, twice or three times longer than broad. It has been confounded with *C. fetida*.

60. Culms straight, twice as high as the leaves, striated. Leaves smooth, a little convoluted, striated, acute and almost pungent. Spike an inch long, composed of sessile spikelets; and under that another at a little distance, sitting on a sharp bay-coloured leaflet: sometimes there is a third. Glumes ovate, acute, not awned, brown with the edge growing whitish by age^q.

61. Differs from *C. atrata* by its erect sessile spikes, but has the same air. Leaves shorter than the culm, which is from a finger's length to a foot in height and striated. Spikes three or four, ovate, thick, heaped; the lowest subsessile with a longer leaflet. Glumes ovate, acute, black, with a whitish edge. The middle spike is sometimes plainly male at top^r.

62. Scarcely more than a finger's breadth in height. Leaves scarcely half the length of the culm, grooved in the upper part, with a prominent nerve, in the lower part smooth. Spikes ovate, the first subsessile placed on a short leaflet, the other sessile without any leaflet. Glumes ovate obtuse black, with a whitish nerve. Capsules swelling a little, obtuse ovate greenish^s.

This and the foregoing are probably only varieties of *C. atrata*.

63. Leaves pale green, narrow, rough at the edges and keel, especially towards the tip. Culm seldom exceeding eight or ten inches, oftener lower, (three to twelve) triangular, the angles bluntish and scarcely rough to the touch; the lower part of it leafy, the uppermost leaf sometimes exceeding the stem in height. Spikelets seldom more than three or four, ovate, sessile, equidistant, the spaces nearly equal to the length of the spikelets. A floral leaf sometimes, but by no means constantly, subtends the lowest spikelet; it is ovate at the base, ending in a bristle-shaped leaflet shorter than the culm; to the rest it is oblong, membranaceous, brown and leafless. Lower flowers male loosely imbricate, upper female. Scales ovate or ovate-lanceolate, not very acute, brown with white membranaceous edges and a broad green keel, much shorter than the capsule when ripe. Capsules oblong, acuminate, flat on one side, somewhat convex on the other, at first somewhat imbricate, but when ripening much divaricated; they are not bifid at the point, in which they differ from the *muricata* of Linneus. The style is bifid from its quitting the capsule, and the stigmas are reflex.—In marshes; flowering in May and June^t.

64. Leaves of a pale subglaucous colour, rough along the edges and keel, upright, narrow. Culm a foot high or more, a little longer than the leaves, upright, three-sided, the angles acute and roughish. Spikelets erect sessile alternate; the lowest has sometimes, but seldom, a leafy-fetaceous bract, to the rest it is ovate white tender and membranaceous. Scales white, silky-membranaceous, concave, with a green keel. Lower flowers male. Capsule ovate, acute, plane on one side, a little convex on the

^k Goodenough.

^l Woodw. Mss.

^m Lightfoot.

ⁿ Goodenough.

^o Ibid.

^p Haller.

^q Allioni

^r Ibid.

^s Ibid.

^t Goodenough and Woodw. Mss.

other,

other, finely dotted all over when viewed through a glass, the edges entire, the mouth undivided^a.

According to Mr. Woodward, the culms are from one to two feet in height; spikelets from five to ten, the lower ones something remote, the upper crowded, each closely imbricate with florets, as in the *Briza*, whence Hudson's trivial name, oval-lanceolate, pale green or yellowish. Capsule broad at the base, tapering and bifid for the exit of the style, but this is not observable without a glass. Style single deeply divided into two reflex stigmas^x.

"That this *Carex*," says Dr. Goodenough, "should have occasioned some difficulty, is not to be wondered at, when Linneus himself seems to have forgotten his own original determination upon the matter. In Sir Joseph Banks's herbarium there is a *Carex* named *brizoides*, which answers entirely to the Linnean description in *spec. plant.* 1381., to the synonym of Haller (n. 1358), and to Micheli's figure, t. 33. f. 17.

"In the Linnean herbarium the plant I am now speaking of is named *brizoides* by Linneus himself, and it accords with the synonyms of Ray and Morison quoted in *spec. plant.* under *brizoides*. Still however as the figure of Micheli is a more pointed authority than verbal descriptions, I cannot but think that the plant in Sir Joseph Banks's herbarium is what was originally described and intended for *brizoides*: accordingly I shall beg leave to accept it as such (see n. 12.) and name this *curta*, from Loefel. At all events, it cannot answer to the description of Linneus, for the spike is never distich, and the spikelets are never oblong or contiguous."

For the difference between this and *canescens*, see n. 17. Linneus applies Loefel's figure to the latter, but in the opinion of Doctors Goodenough and Smith, without sufficient authority.

The capsules, together with the scales of the *curta* are very early deciduous; nor is there any *Carex*, in which this impoverishment takes place so early, except in *stricta*. The whiteness and tenderness of the scales are striking circumstances. These qualities are not to be found in any other. The root, though it cannot be called directly creeping, has a tendency to increase itself something in that way.

In marshes and watery places, but not very common; flowering in June^y.

65. Leaves dark green, roughish along the edges and keel, narrow, nearly equalling the stem; which is upright, a foot high, triangular with the angles sharp and roughish. At the base of the lower spikelet is a bracte ovate at the base ending in a bristle the length of the spikelet; the bracte to the rest is oblong and leafless. Lower flowers, male and fewer in number, the rest female. Scales sharp. Capsules oblong, acuminate, flat on one side, somewhat convex on the other, upright, with an entire mouth^y.

Mr. Woodward adds, that the root is matted, several stems frequently arising together, clothed below with alternate sheathing leaves, the upper part naked. Spikelets about five, sessile; the bracte of the lowest soon falls: scales of a shining yellowish brown with a green keel and white membranaceous edges, longer than the capsule; the upper ones in each spikelet larger and more acute than the lower. Style extending beyond the capsule with two short stigmas^a.

It is distinguishable in all stages by the number of spikelets, the acuteness of the scales, and the situation of the male and female flowers. Leers however describes it as having the terminating flowers male, and the inferior female.

Linneus seems to have joined the plant he originally named *leporina* with this we are now treating of; and the mistake took place so early as the publication of the *flora lapponica*, as appears from the quotation of Morison's figures.—In marshes and moist meadows; flowering in June^b.

66. Leaves green, upright, stiffish, sheathing near half the culm, at the base convex without, channelled within, rough along the edges and keel, longer than the culm when in flower; the upper leaf longer than the rest. Culm finally from a foot to eighteen inches in height, sharp and rough at the angles. Spike ovate-oblong, with a very short bracte, widening at the base, membranaceous on each side and brown, white on the edge, and ending in a bristle shorter than the spikelet. Spikelets ovate acute sessile. Male flowers many, females below, about six. Scales brown with a white edge and a green nerve, ovate and acute. Capsules ovate, acute, flattish on one side, convex on the other, gibbous, with the edges ferrate and hispid, when ripe one-sixth longer than their respective scales. Stigmas two.

It comes very near *C. paniculata*, but is little more than half the size in all its parts. Its spike is never in the least paniced; its seeds are remarkably gibbous on one side. Its culm is not triangular, but owing to a prominent line running down the planes of the sides, roundish; not but that it always retains somewhat of a triangular form. Its leaves are erect and usually incurved. Nor does it form those large tufts for which *paniculata* is so remarkable.

Found by Mr. Crow, of Norwich, in marshes near that city^c.

67, 68. Natives of Sweden^d.

69. Leaves slender, three or four times as long as the culm, channelled, the edges and keel towards the tip rough. Culm short, upright, roundish, flattish on one side, smooth. Spikes one male, three female, all remote. Male spike terminating oblong acute, half an inch long; scales brown-ferruginous, ovate-oblong, obtuse, with a wide membranaceous white edge and a green keel. Female spikes somewhat oblong, few-flowered, peduncled. To each spike a membranaceous bracte, commonly leafless, usually covering not only the peduncle but the spike itself: sometimes it ends in a very short leaflet: scales as in the male, nearly equalling the capsule; which is ovate, three-cornered, sharpish, with an undivided mouth. Stigmas three, long.

If the very singular mode of growth in this and *digitata* (n. 23.) did not strike the eye, the membranaceous sheath would be a sufficient distinction. In this species the spikes are peduncled, but still, in their flowering state, rarely exceed the length of the sheath. This circumstance, and the flowering culms themselves being hidden among the leaves, induced Dr. Goodenough to call it *clandestina*. The leaves, which overshadow the culms at their first appearance, are those of the preceding year, which usually continue green till their successors are enabled to take their place, and continue the system of protection.

Observed by Mr. Sole, of Bath, on St. Vincent's rocks near Bristol: it flowers in the very beginning of April^e.

70. Leaves in tufts, resembling those of pinks, repand, marked with a line, rough about the edge, a line in breadth and more. Culm three-cornered, almost naked, half a foot high. Male spike ovate, bay; glumes ovate-lanceolate, bay with a yellowish line, glume of the calyx awned. Female spikes one or two, short, obtuse, small, with similar glumes, and a leaflet some lines in length at the base^f.

71. Leaves rush-like. Culm a foot high, naked at the top. Spikes generally three: male longer, round; scales bay, ovate-lanceolate, sharp, pale about the edge, nerve yellow, shining. Females two, five-flowered, of the same colours: the lowest has a leaf, with a long slender point, much longer than the spike^g.

72. Culm round, slender, with three white leafy sheaths. The two upper spikes come from one sheath, the lower is single. Scales of the male spike whitish, subdiaphanous. Anthers terminate in a pellucid point. Scales of the female spikes keeled,

^a Goodenough.

^x Mff.

^y Goodenough.

^z Ibid.

^a Mff.

^b Goodenough.

^c Goodenough.

^d Linn. suppl.

^e Goodenough.

^f Haller.

^g Ibid.

acuminate. Styles long, trifid. Capsules few, turgid, roundish, smooth, striated, growing black in autumn. Seed three-cornered, shining, acuminate.

Linneus either has not the plant, or confounds it with the *digitata*^a. Leaves erect, sometimes a line in breadth, but usually narrower. Culms a long span in height. Peduncles long, erect. No calycine glume but the bracte, in the female spikes, the upper of which stands as high as the male¹.

73. Culm sheathed, six inches high. Leaves long, less than a line wide, nearly as long as the stem, rough. Male spike long, almost black, round, slender, glumes lanceolate, bay. Female spikes (two, three) the lower on a short peduncle, the upper sessile; each has a leaf at the base, which in the former is two inches long, in the latter less than an inch. When there are three, the upper is naked and with the barren spike. Glumes of the females black, obtuse. Capsules pale. The ripe spikes therefore are variegated^k.

74. Culm leafy, a foot high and more, three-cornered, striated, smooth. Leaves linear, striated, dark green, shorter than the culm. Male spike one, oblong; glumes bay, obtuse. Female spikes three, axillary; the leaf of the lowest very long, nearly equal to the male: upper spike frequently androgynous^l.

75. A very distinct species. Radical leaves equal to the stem, a line and half or two lines broad, smooth with rough edges. Culm a foot high, three-cornered. Male spike one, long, cylindric, slender, pale bay and white. Female spikes two, (sometimes four) crowded, each with a long leaf. Capsules slender, with very long points^m.

76. Leaves in tufts, firm, keeled, with a nerve standing out, two lines broad, smooth, except the end of the nerve. Culms naked, from three to nine inches in height. Spikes very small: male not more than four lines in length, bay; glumes ovate, obtuse, with a white edge and yellow nerve. Upper female spike sessile, an inch below the male, bay, few-flowered: glume sheathing, stem-clasping, long, awned; lower with about six flowers, on a peduncle three inches long and more. Sometimes, but rarely, there are three female spikesⁿ.

Monf. Villars refers, with a mark of doubt, to *C. filiformis* of Linneus, n. 27. and says, that n. 1386. of Haller approaches very near to this. He calls it *gynobasis*, because the female spike springs from the base of the stem.

77. Leaves short, not above a line in breadth, rough. Culms four inches high, naked. Male spike obtuse, broadish, half an inch long, dark bay. Female spikes (two, three) distant, shorter than the male, of the same colour, few-flowered. There is an androgynous spike sometimes under the male^o.

78. Culm half a foot high, pale green. The lowest leaf reaches the base of the male spike, which is an inch and four lines in length, with long narrow acuminate scales; under this the first female spike, pedicelled, and supported on a short bracte; the second is longer, and in place of a bracte has a leaflet of the same length; the third is longer than the second, with a leaf longer than the spike; sometimes there is a fourth. The scales of the male spike are ferruginous with a green line along the back; those of the females are green with a ferruginous edge^p.

Radical leaves glossy, more than a line broad, rough. Culm not more than a foot high, leafy. Male spike slender, an inch long, bay; glumes obtuse, bay, with a slender pale nerve. Female spike (two, three) less, more slender, half an inch long, on peduncles of the same length^q.

Scopoli thinks that his plant is the same with Haller's, though it be not alpine in Carniola as it is in the Grisons. Haller is of opinion that it is not different from his n. 1389. which is the *saxatilis* of Linneus.

^a Scopoli.
ⁿ Haller.

¹ Haller.
^o Ibid.

^k Ibid.
^q Ibid.

^l Allioni.
^p Scopoli.

^q Haller.

Monf. Villars has a species which he names *sempervirens*, because the leaves continue through the winter, till the new ones come up; the old leaves are completely bleached, and hence are called by the shepherds *Barbe de pere*. Neither the one nor the other are ever touched by the sheep: and the plant is subject to the smut. He refers to Scopoli and Haller with a mark of doubt. It forms large tufts on high mountains exposed to the north. The leaves are long, hard but flexible. From the centre of the tufts arise two or three hard slender culms from eight to ten inches in length, ending in three blackish spikes, the two lower of which are loose, female, peduncled, and the upper male, more lengthened out: scales blackish brown with a green line on the back, the lower ending in an awn, the upper blunt. Capsule triangular, blackish, smooth, except some lateral asperities near the upper part; seed triangular, gray, elongated. The male spike is blackish variegated with gray.

79. This has some affinity with *C. ruffa* (*C. acuta* β. *Lin.* n. 1404. *Hall.*) but the leaves are smooth, a line broad and more, the edge rough. Culm naked, half a foot high and more. Male spike one, often fertile at the bottom, rather less than an inch in length. Glumes sharply lanceolate, shining bay, with a green or yellowish nerve. Female spikes peduncled; the lower ones are so long as to hang down and have a leaf at the base^r.

Monf. Villars says, that this differs little from his *sempervirens*. The spikes are less brown, and the leaves do not form such large tufts or hallocks. The scales of the flowers are russet-coloured, pointed and distinct.

80. Root-leaves narrowish, shorter than the culm, (except those which embrace the base of it, which often equal and even surpass it) roughish along the edges and keel towards the top. Culm upright, a foot or more in height, three-sided, with bluntish angles, smooth. Male spike one, (seldom two,) linear, half an inch long or more, (when there are two, the second is a fifth shorter), terminating; scales brown with a green dorsal nerve, oblong, bluntish. Female spikes two, often three, commonly male at the base, somewhat crowded, but the lower sometimes remotish, ovate (the upper ones somewhat conic), sharpish; all commonly on short peduncles; scales ovate, brown, with a thickish dorsal nerve ending in a point, finally only half the length of the capsule. At the base of the female spikes a leafy bracte, embracing with its sheath the whole peduncle, which is very short: the lower very long, and far surpassing the culm; the upper ones shorter; sometimes the uppermost shorter than the culm. All at last reflex. Capsules smooth, spreading, subtrigonal, nerved, divided at the tip into two toothlets, with a very short beak, if it may be so named. Three stigmas.

This plant has passed for a variety of *C. flava* (n. 21.), but the fructification proves it to be entirely distinct. In *C. extensa* the leaves are narrower, and the whole plant more tall and slender: the scales of the female spikes are ovate and bluntish, with the nerve ending in a very short projecting point, and are shorter in proportion to the capsule: the capsules are rather acuminate, but by no means beaked, and the summit is slightly bifid: the bractes are usually reflex: the female spikes have their peduncles only the length of the sheath, and not longer: the capsules also are spreading, but very rarely divaricate. The circumstance of the spikes being clustered together is very constant in this, but by no means so in *C. flava*. This plant does not owe its height to being drawn up by the surrounding herbage, for it is always found in open places; as in the marshy ground near Harwich, and on the west side of Braunton Burrows, in the north of Devonshire, but not common. It flowers in June^s.

81. Leaves upright, narrow, rough along the edges and keel, shorter than the culm; which is

^r Haller.

^s Goodenough.

upright, slender, about a foot in height, three-sided, with the angles acute and rough. Male spike one, terminating, sublinear, half an inch long or more sharpish; scales yellowish with a white border, oblong, blunt or bluntish. Female spikes most commonly two, usually remote, ovate-oblong, acute, the lower on a longish peduncle, the upper sessile; scales oblong, sharp or sharpish, almost equalling the capsule. At the base of each female spike a bracte or sheathing leaf; the lower upright, almost equalling the culm, the sheath embracing more than half the peduncle; the upper subdivaricate, usually shorter than the culm, covering the whole or almost the whole of the peduncle, which is very short. Capsules subtrigonal, striated, oblong, acuminate-beaked, nearly equalling the scales, often exceeding them, divided at the tip, spreading but not divaricate or nodding. Three stigmas. It varies, but rarely, with three female spikes.

This plant is scarcely removed from *C. flava*. It differs however in having the angles of the culm sharp and rough; the female spikes remote oblong and acute, not round, the lowermost supported by a long peduncle nearly half of which appears above the sheath; the lowermost bracte erect, not divaricate; the capsules not divaricate but spreading, and slightly divided at top, and scarcely ever more than two female spikes.

Native of America, Newfoundland, &c. Found by the Rev. Mr. Williams, of Eaton near Shrewsbury at that place; flowering in June and July¹.

82. Root thick, creeping very much. Leaves very dark green and glaucous, rough on the edges and keel towards the tip, a little shorter than the culm; which is upright, often incurved, about four inches and a half high, three-sided, the angles rough and very acute, thicker than any of its height, and stiff. Male spike one (seldom two) terminating, oblong, sharpish, about three-quarters of an inch long; scales black, ovate, very blunt, with a membranaceous border and an abbreviated green dorsal nerve. Female spikes two or three, approximating to the male, oblong, sharpish, sessile (the lower somewhat remote and often peduncled), the length of the male, with the flowers closely imbricate, and one or two of them at the end male, especially in the upper spikes; scales black, ovate, very blunt, &c. as in the male, finally shorter by half than the capsule. The female spikes have a sessile leafy bracte, eared on each side at the base; that which subtends the lower spike is longer than the spike and recurved; those which subtend the upper ones are upright, shorter than their respective spikes, and eared at the base. Capsule ovate, flattish on one side, smooth, bluntish; but sometimes produced, sharpish and somewhat recurved. Stigmas two, thickish, white, hairy. The lower flowers are often somewhat remote: the capsules with an undivided mouth: and the ears of the bractes large and roundish.

This plant has often been confounded with the *saxatilis* of Linneus, and the *montana* of Hudson. It differs from the latter in having no sheaths, two stigmas, and smooth capsules: from the former in being a thicker and much smaller plant: from both in the great rigidity of its leaves and incurved stalk. The first of these circumstances, and their being spread abroad or bent back, distinguish this from *caespitosa*, which has upright soft leaves. By the same marks it may be kept separate from *C. stricta*, which also is altogether upright. But the fructification of these three species, especially in the number of stigmas, is very similar.

Observed on the top of Snowdon, and by Mr. Dickson, on the summits of the highest mountains in Scotland².

83. The root creeps very much. Leaves glaucous, upright very straight, shorter than the culm, rough along the edges and keel. Culm from a foot to two feet in height, and upwards, upright, three-sided, with sharp rough angles. Male spikes com-

monly two, three-sided, from one to two inches in length; scales oblong, sharpish, black, with a green dorsal nerve. Female spikes three, of the same length, the lowest on a short peduncle, the others sessile, terminated by male flowers and acute; scales oblong acute, imbricate in eight rows, a little shorter than the capsules: these have a leafy sessile upright bracte, the lower commonly a little shorter than the culm (sometimes longer, and sometimes much shorter), when young, having generally an ear which is quickly elongated and soon after vanishes; the upper ones shorter, and also eared. Capsule compressed, ovate, acute, smooth, undivided at the tip. Stigmas two, white, thickish, villose. The root-leaves, which embrace the base of the culm have a sheath membranaceous on one side; as the culm advances the membrane bursts and is torn into a sort of netted threads.

This plant has many particulars in common with *caespitosa* (n. 38.); its upright culm and leaves, no sheaths, sessile spike, and to appearance digynous flowers: but besides the splitting of the sheath into threads like open net-work, the root-leaves and bractes in *C. stricta* are shorter than the culm at the time of flowering; the bractes, particularly the lowermost, have either no ears or oblong ones, which are presently so elongated as to lose their form; the female spikes are acute, owing to their having male flowers at the top; their scales are all acute; their capsules are set in eight rows; and two male spikes for the most part terminate the culm.

On the contrary, *C. caespitosa* has the root-leaves, which embrace the base of the culm, with the membranous part always entire: the root-leaves equal the culm in length at the time of flowering, the bractes are longer: the bractes always have little round ears on each side of the base, which do not change their shape; the female spikes are obtuse, and have no male flowers at their summit; the scales, though sometimes they may be somewhat acute, are in general bluntish, not unfrequently very much so: the capsules are generally set in six, very rarely in eight rows. It is seldom found with more than one male spike. Besides it is every way a much smaller, weaker and softer plant.

It grows in marshes. Mr. Pitchford observed it near Norwich. It flowers in April³.

84. Leaves dark green, slender, rough along the edges and keel, shorter than the culm; which is upright, from six to twelve inches high, three-sided, with the angles bluntish and smooth. Male spike half an inch long or more, oblong, three-sided, upright; scales membranaceous, somewhat ferruginous, oblong, acute, with a green dorsal nerve. Female spikes male at the base, ovate, on short peduncles, upright, with the flowers rather closely imbricate; scales ovate, acute, nearly equalling the capsules. At the base of the peduncles, especially the lower one, is a bracte or sheathing leaf, short, with a short sheath equalling the peduncle. This leaflet seldom or ever exceeds the culm. Capsule ovate, subtriquetrous, sharpish, with the mouth undivided, tomentose, becoming flat. Stigmas three.

This plant is very easy to be distinguished from the *pilulifera* and *saxatilis* of Hudson, by its having the spikes shortly peduncled, and the peduncles encompassed by a sheath equalling them in length. *Pilulifera* and *saxatilis* of Hudson have no sheaths: if these be attended to, it will soon be discovered that no one of the British species bears any resemblance to this. *C. præcox* has a creeping root and an erect stalk, with angles somewhat sharpish.

It is a very common plant, growing on most of our heaths and in meadows; flowering in April and May⁴.

85. Stem upright, leafy, three-cornered, from a foot to eighteen inches high. Uppermost floral-leaf rising to the height of a terminating spike. Male spike one-half to three-quarters of an inch in length, closely imbricated: scales numerous oval yellowish brown with a green keel and shining membranaceous

¹ Goodenough.

² Ibid.

³ Ibid.

⁴ Ibid.

edges, which are wanting in *C. sylvatica*. Female spikes mostly three axillary, on slender peduncles, the lowermost one inch long, that above it shorter, the uppermost sessile: scales oval pointed pale brown with membranaceous edges, and much shorter than the capsules: which are only two or three on a spike, distant, green, nearly round, much bellying, larger than any of our British species, about the size of Hemp-seed, scored with numerous ribs, much resembling those of *C. sylvatica*, tapering to a cloven point, the segments not pointed, but ending in torn membranaceous margins. Stigmas three.

The paucity of the capsules, the shortness of the peduncle, and other marks clearly distinguish this from *sylvatica*, of which some botanists were inclined to consider it as a variety, but without any other reason than its growing in woods, and the shape of the capsules being similar².

The first of these circumstances induced the late Dr. Solander to name this species *depauperata*, and he was followed by Dr. Withering.

Dr. Goodenough discovered it in Charlton-wood, and Mr. Dickson in dry woods near Godalmin in Surry. It has also been found by Mr. Sole, of Bath.

A plant of this size could scarcely have escaped so long unnoticed, had it not, from the form of the capsules, been taken for a starved variety of *C. vesicaria*². It flowers in may and june.

86. Leaves very long, two or three lines broad, the edges and nerve rough. Culm three-cornered, three feet high. Male spikes two; sometimes a third half male: glumes bay, obtuse, with a green nerve. Female spikes three to five, sitting on leaves; the lowest longest; when young black, but when ripe yellow and black^b.—Mr. Hudson puts the synonyms of Haller and Ray to his *caespitosa*, which is our *striata*, n. 83.

87. Leaves half an inch broad, thick, stiff, very dark green, somewhat glaucous underneath; very rough along the edges and keel, shorter than the culm; which is from two or three to six feet in height, upright, firm, three-sided, the angles sharp at bottom but bluntish at top, altogether smooth, except at top where an internode or two is roughish. Male spike three-sided, with the angles acute, sub-clavate, from two to four inches long, terminating; scales oblong, acute, brown, membranaceous, with a green dorsal line. Female spikes about six, cylindric, peduncled, from four to six inches long, pendulous, much shorter than the bractes, remote, with the lower flowers also remote, but the upper ones more closely imbricate; scales membranaceous, black, oblong, acute, with a broad green dorsal nerve. At the base of each peduncle is a bracte, or long sheathing leaf, with the sheath usually the length of the peduncle. Capsule ovate, three-sided, smooth, acute, with an undivided mouth, and longer than its scale. Stigmas three.

The great size of this *Carex*, and its very long pendulous cylindric spikes, discriminate it at a great distance. It has remarkably small capsules for its size.

In woods and hedges not uncommon; flowering in may and june^c.

88. This differs from *C. sylvatica*, which it resembles very much in having no apparent peduncles or very short ones, and in the whole plant being greener. Leaves broad. Spikes six or seven, very slender and strigose, long and green^d. Male spike an inch or more in length, closely imbricated, with perfect seeds at the end: scales oblong-lanceolate, sharp-pointed, as long again as the capsules, keel beset with minute points towards the end, with a broad streak along the back, scattered with long orange dots; edges broad and membranaceous. Fertile spikes axillary (four, five), very distant; the lower on very short peduncles, the upper sessile, two inches long and upwards: flowers thin, irregu-

larly scattered: scales membranaceous, pale brown with a green keel. Capsules three-cornered, brownish green, acute but not acuminate as they are in *C. sylvatica*—hairless, not shining, half as long again as the calyx, rigid; ribs three to five on each of the sides, whitish. Seed of the same shape and nearly filling the cavity. The structure of the capsule points out its near affinity to *C. panicea*^e.—In woods and hedges, as in Witham and Noke woods, Oxfordshire; flowering from april to june.

Allioni has a *Carex* (n. 2331.) which he names *strigosa*, but it seems to be a species different from this. He gives no description of it, but refers to Haller, n. 1388.

89. Root creeping, and throwing out from the joints. Leaves in tufts, yellowish green, a quarter of an inch wide, rough at the edges. Stems numerous, twelve to eighteen inches high, three-cornered, rough at the edges, leafy: in open ground only eight to ten inches high, bending with a curve, angles sharp. Male spike terminating, about an inch long, slender; closely imbricate; three-cornered; yellowish-brown, shorter than the lower female spikes: scales lanceolate-oblong, bluntish, sometimes with a short sharp point; sometimes lanceolate, whitish and membranaceous on the side, mostly with a tinge of cinnamon colour, and a pale green keel. Female spikes three to six, axillary, distant, when in seed pendulous, one to one inch and a half long, loosely imbricate: flowers alternate: scales oval-lanceolate, yellowish with a green keel. Capsules smooth, three-cornered with obscure angles, and a beak nearly as long as the capsule, cloven. Style divided almost to the base into two, and sometimes into three. Its pendant spikes, the elliptic bend of its stem, and the pale yellow green of its leaves, render it one of the most elegant ornaments of our woods^f. It flowers in may and june.

Retzius is not willing to allow our *sylvatica* to be the *patula* of Scopoli: his description however corresponds, though the figure does not; but that is execrable, as most of his figures are.

None of the figures indeed of this plant, except that of Leers, gives its due character. Those of Parkinson, Morison, and Flora Danica, represent it in its first stage of flowering when the spikes are erect. It does not long continue in this attitude; for the spikes, by reason of their thin and long peduncles, as soon as the impregnation of their flowers has taken place, are too heavy for their weak supporters. It usually produces five or six female spikes, and one male, very rarely two.

Every one must be surprised at Linneus's joining this as a variety to *vesicaria* and *ampullacea*².

90. Culms erect, three-cornered, with obsolete angles, which mark alone constantly distinguishes it from *caespitosa*. Leaves and stem sea-green. Male spike sometimes one, but often two or three: scales similar to those of *C. caespitosa*, but more loosely imbricate. Female spikes, the lower on long filiform peduncles, the upper shorter; but all pendulous when out of flower: scales oval, brown with a green keel, which is sometimes lengthened beyond the capsule into a short awn. Stigmas mostly three. Capsules loosely imbricate, and not so blunt as those of *C. caespitosa*, green, slightly downy^h.

Meadows, woods, and heaths; flowering in may and june.

This species varies much in size and habit: but its cylindric pendulous black spikes, glaucous leaves, short sheaths, roundish capsules, smooth culm, and creeping root, are obvious distinctions.

Though common, it is little noticed by old authors. There is no old figure besides Morison's. Leers's figure is tolerable; he seems to have joined *C. limosa* (his var. α .) with *recurva* (his var. β .)ⁱ.

Dr. Goodenough affirms, that it has invariably three stigmas, which does not agree with Mr. Woodward's observation given above: he adds, that they

² Woodw. Mff.

^a Goodenough.

^b Haller.

^c Goodenough.

^d Ray.

^e Woodw. Mff. and Stokes in With.

^f Ibid.

^g Goodenough.

^h Woodw. Mff.

ⁱ Goodenough.

are thicker, longer, and more villose than in the generality of this family.

91. Culm a foot high. Leaves scarcely two lines broad. It has usually one male spike, and sometimes at the top of the upper female spike there are some male flowers. Under the lowest is a leaf longer than the spike itself^k.

92. Native of Germany.

93. This is a span high. Leaves longer than the culm, rugged about the edge. Culms three-sided, smooth. Female spikes like those of *C. Pseudo-Cyperus*, but upright, remote, solitary, more slender, and under each a slender involucre scarcely attaining the length of the spike.

Native of China, whence it was sent by Bladh^l.

94. Mr. Curtis has distinguished specifically three plants, which are looked upon by many only as varieties; he entitles them *riparia*, *acuta* and *gracilis*, but since his *acuta* is different from the *acuta* of Linneus, I have followed Dr. Goodenough in calling it *paludosa*.

This accurate observer informs us that he was led to the idea of their being really distinct species, from remarking the pointed triangular black heads or male spikes of the first; the bluntness not only of the spikes themselves, but of the scales composing the male spikes of the second; and the narrow leaves, and slender appearance of the spikes in the third, joined to the want of that glaucous hue in the leaves, so conspicuous in those of the two former. He transplanted them into his garden, and found that they still kept up the same appearances. The *riparia* is the largest and most common; when luxuriant, its spikes, especially the lowermost of the female ones, frequently become branched: the capsules are large, somewhat inflated, pointed, and slightly bifid at the extremity.

The *riparia*, or great sharp vernal *Carex*, as he calls it, is thus described by Mr. Lightfoot. Stalk triangular, very sharply edged, varying from a foot to a yard in height. Leaves glaucous, half an inch wide, the edges and keel very sharp and cutting if rubbed downwards: male spikes from three to five, the uppermost near two inches long, the others shorter, and placed a little below, about the base of it; scales narrow and lanceolate, dark brown: female spikes from three to five, commonly four; the upper one sessile, with male flowers often at the top; the lowermost have short peduncles and are two or three inches long, all erect, of a greenish brown colour, nearly cylindrical, or slightly swelling in the middle: the floral leaves are as high as the stalk: the scales are oval-lanceolate, with a long point or awn, brown with a greenish dorsal line: capsules triangular-conic, with a bifid point, smooth, striated, closely set, of a dull greenish brown colour: the style trifid and brown.

It varies a little occasionally as to the robustness of its stature, and is met with sometimes with blunt male spikes^m.

It is common by the sides of ditches, lakes and rivers, flowering in april and may.

In Italy the leaves are used by the glass-makers to bind their wine-flasks; by the chair-makers to bottom-chairs; and by the coopers to place in the junctures in the heads of casks, in the same manner as the leaves of the *Typha* are used in the same country, and the stalks of *Scirpus lacustris* in Englandⁿ.

95. The *paludosa* or acute *Carex* of Mr. Curtis is next in size, at least with respect to the breadth of of its leaves, to the *riparia*. They frequently grow together, and being greatly similar in their foliage, may easily be confounded. When young, the bluntness of the male spikes, and obtuseness of the scales without any awn, invariably distinguish this from the *riparia*; and though there be frequently a tendency in these spikes to be three-cornered, yet the angles are always very obtuse; the colour of them also before the anthers come forth is much brighter,

and sometimes a spike is found perfectly brilliant: the female spikes as well as the males are fewer in number, and smaller; nor have they that tendency to be pendulous, which those of the *riparia* frequently have; the capsules when ripe are also much smaller, more numerous, and no ways inflated, but very similar to those of the *gracilis*. While the scales in the male spikes before the anthers come forth are obtuse, those of the female spikes are pointed. In its weak state, this plant approaches very near the *recurva*.

This plant, which is so common with us, does not appear to have been noticed by Linneus. It is often very variable in its appearance, but the scales of the male spike will afford a constant character; they are always more or less blunt in this species, and very acute in *riparia*. Its capsules are either not at all, or very slightly divided at the summit, but not beaked or forked.

In marshes and by the sides of ditches: flowering in may and june^o.

96. The *gracilis*, though a more slender plant in stalks, leaves, and spikes, is equal in height, when it grows in similar situations, to the other two, but among the herbage it is shorter. The leaves are not only narrower, but have not the glaucous colour of the others. Its slender spikes are so pendulous in a young state, as to give this plant the appearance of *C. pendula*. The female flowers are constantly digynous. The flowers come out a week or two later than the two others^p.

The slenderness of habit in this plant, its filiform spikes, pendulous when in flower (though upright when in fruit,) its having two stigmas, and the capsules flattish, and undivided at the summit, keep it evidently distinct from all others. It varies much in size, from three or four inches (in dry starved land) to a foot, two feet and upwards^q.

Mr. Curtis, Dr. Stokes, Mr. Woodward, and others, long ago suspected this to be the *C. acuta* of Linneus. It is now ascertained beyond a doubt from the Linnean herbarium, that this is one of the varieties, being so named by Linneus himself. Dr. Goodenough therefore retains the Linnean name of *acuta* to this species; and thinks that the other variety may be his *striata*.

97. Root creeping very much. Leaves glaucous, upright, narrow, longer than the culm, rough on a great part of the edges and keel. Culm from a foot to two feet in height, upright, three-sided, the angles acute, rough towards the top, but commonly smooth beneath the lower spike. Spikes two or three male, and as many female. Males linear-filiform; the upper one commonly moderately bent, an inch and sometimes two inches in length; the others shorter: scales oblong, sharpish (but sometimes blunt), yellowish with a green dorsal nerve and a tender white edge. Females cylindric, from an inch to two inches in length, upright, peduncled, the peduncles all short, the lowermost longest: scales lanceolate, acute, yellowish with a green dorsal nerve and a pale edge, little more than half the length of the capsule, (sometimes however equal to it, perhaps from disease). To every spike there is a leafy narrow upright bract: the upper ones are shorter than the culm, one or two of the lower ones are much longer, and all are sessile. Capsules closely imbricate in eight rows, yellowish, nerved, with the mouth two-toothed. Stigmas three. The root-leaves which invest the base of the culm with a sheath membranaceous on one side, burst into a sort of network, as in *C. striata*.

It grows in fens; flowering in may. Near London it is not common, it is to be met with however plentifully at Virginia water^r.

Probably several of the new species here enumerated may prove on farther examination to be either varieties or repetitions of old ones. Where I could not ascertain this, I have left the species as I found them, on the credit of those respectable

^k Scopoli.

^l Retz.

^m Goodenough.

ⁿ Lightfoot.

^o Goodenough.

^p Curtis.

^q Goodenough.

^r Ibid.

C A R

authors who have established them. When the truly learned Dr. Goodenough shall have settled the essential differences of the foreign, as well as he has done those of our domestic species, and shall have disentangled all the intricacies of the synonyms in both, we may hope for something more satisfactory than we possess at present; on this very extensive and difficult genus.

PROPAGATION; CULTURE; AND EXTIRPATION.

These plants are never cultivated, except in botanic gardens, for the determination of the species. They may readily be propagated by the roots. Some few of them require a dry soil, and others a shady situation; but the greater part must be placed with water and bog plants, either by the side of ponds, or in pots or tubs filled with marsh or bog earth, and standing in water. With these advantages some of them will scarcely flower in a garden.

The Carexes or Sedges cannot be considered as useful plants, except in such situations as will not produce better fodder and herbage; or where they contribute to fill up marshes, and lay a foundation for their becoming hereafter dry land and useful meadows.

Wherever a meadow is capable of being drained, the Sedge may be destroyed; wet being necessary to the existence of those forts which over-run pasture grounds. I speak from experience: for a meadow came into my hands, which had a bottom inclining to be peaty; it was entirely overgrown with great Sedge, and Flags (*Iris pseudacorus*). I dug deep ditches and cut drains, which I kept carefully open, and dressed it well with coal-ashes: the weeds entirely disappeared, and it has now for many years been a good meadow. This general principle may be applied to many particular cases, by such as attend to the nature of soils, and the plants which they produce.

CAREX LITHOSPERMA. See *Scleria*.]

CARICA. (From *Caria*, a kingdom of Asia.)

Lin. gen. n. 1127. Reich. 1232. Schreb. 1536.

Papaya. Tourn. 441. Juss. 399.

Class. 22. 9. Dioecia Decandria: or rather Polygamia.

Nat. order of *Tricocceæ*. *Cucurbitaceæ* Juss.

GENERIC CHARACTER.

* Male.

CAL. scarce manifest: it has however five very short sharp teeth.

COR. monopetalous, funnel-form. Tube slender, very long, gradually slenderer downwards. Border five-parted, divisions lanceolate-linear; obtuse, obliquely and spirally revolute.

STAM. Filaments ten, in the top of the tube of the corolla; the five alternate ones inferior. Anthers oblong, fixed to the filaments on the inner side.

* Female, or rather *Hermaphrodite*.

CAL. Perianth very small, five-toothed, permanent: teeth ovate acute spreading.

COR. five-parted; parts lanceolate sharp erect below the middle, but reflected and twisted above.

STAM. Filaments ten; five alternate shorter subulate, all united by a membrane at the base. Anthers ovate, erect, two-valved, fertile.

GERM ovate. Style none. Stigmas three or five, broad, flat-expanding, multifid: segments very short, blunt.

PER. Berry very large, angulated with three or five furrows, unilocular, fleshy.

SEEDS numerous, ovate, green, very smooth, tunicated, nestling in the middle of the berry.

ESSENTIAL CHARACTER.

MALE. Cal. very small, five-toothed. Cor. five-parted, funnel-form. Filaments in the tube of the corolla, alternately shorter.

HERM. Cal. five-toothed. Cor. five-parted. Stigmas five. Berry one-celled, many-seeded.

SPECIES.

1. *Carica Papaya*. Common Papaw Tree.

Lin. spec. 1466. Syst. 891. Retz. 4. 267. hort. cliff. 461. Swartz obs. 378. Lour. cochinch. 628.

Rumph. amb. 1. t. 50, 51. Burm. zeyl. 184.

C A R

Trew. ebret. t. 7. Hugh. barb. 181. t. 14, 15. Brown. jam. 360. Mer. surin. t. 40. & t. 62. 64. Bont. jav. l. 6. c. 6. p. 96. Pluk. alm. t. 278. f. 1. Raii hist. 1370. 2. Ger. emac. 1609. f. 2.

Papaya-maram. Rheed. mal. 1. 23. t. 15. f. 2. 2.

3. Ambapaya. Rheed. t. 15. f. 1. Raii hist. 1370. 1. Park. 1649. Ger. emac. 1609. 1.

Papaya. Ebret. t. 3. f. 1.

Lobes of the leaves sinuated.

2. *Carica Posoposa*. Dwarf Papaw Tree.

Lin. spec. 1466. Reich. 4. 268. hort. cliff. 462.

Brown. jam. 360. Feui. peruv. 2. 52. t. 39.

f. 1. Pluk. alm. t. 278. f. 2? Pet. gaz. t. 43.

f. 2?

Lobes of the leaves entire.

DESCRIPTIONS, &c.

1. The Papaw-tree rises with a thick, soft, herbaceous stem, to the height of eighteen or twenty feet, naked till within two or three feet of the top, and having marks of the fallen leaves great part of its length; the leaves come out on every side the stem upon very long foot-stalks; those which are situated undermost are almost horizontal, but those on the top are erect: these leaves (in full grown plants) are very large, and divided into many parts (or lobes) which are deeply sinuated, or cut into irregular divisions. The whole plant abounds with a milky acrid juice, which is esteemed good for the ringworm: the stem of the plant, and also the foot-stalks of the leaves, are hollow in the middle. The flowers of the male are produced from between the leaves on the upper part of the plant, on every side; they have peduncles near two feet long, at the ends of which the flowers stand in loose clusters, each having a separate short pedicel; these are of a pure white, and have an agreeable odour. Sometimes these are succeeded by small fruit, about the size and shape of a Catherine Pear, which has occasioned some to suppose it was a distinct species; but I have frequently raised this, and the female or fruitful sort, from the same seeds, and in general the male flowers fall away, without any fruit succeeding them. The flowers of the female Papaw also come out between the leaves, toward the upper part of the plant, upon very short peduncles, singly, sitting close to the stem; they are large and bell-shaped, composed of six petals, which are commonly yellow, but those of the pyramidal sort are purple: when these fall away, the germ swells to a large fleshy fruit, the size of a small Melon, but of different forms; some are angular, and compressed at both ends, others are oval and globular, and some pyramidal; the fruit also abounds with the same acrid milky juice as the plants. This fruit, when ripe, is by the inhabitants of the Caribbee Islands eaten with pepper and sugar as Melons, but is much inferior to our most common Melon in flavour, in its native country; those which have ripened in England were detestable: the only use I have known made of this fruit, was, when they were about half grown, to soak them in salt water, to get out the milky juice, and pickle them for Mangos, for which they have been a good substitute.

[Long (802) informs us, that the flowers, buds, and tender foot-stalks of the female tree are preserved as a sweetmeat, and the long Mango Papaw or fruit as a pickle, which is little inferior to the East-India Mango. The rounder fruit when ripe is boiled, and eaten with any kind of flesh meat, and is looked upon as perfectly wholesome; but eaten raw, it contains an acrid juice, very injurious to the intestines. The negroes suppose that Papaw-trees conduce to render the air healthy, and therefore plant them near their houses. The blossoms are extremely odoriferous, and the trunks so succulent, and their growth so quick, that they may possibly assist to drain the soil, where they are planted, of superfluous moisture.]

These plants are supposed to be natives of America, from whence they were carried to the Philippine Islands, and to several parts of India, where they

they are now pretty common. Though they have been supposed to have male flowers only in some plants, and female on the other, yet I have often seen small fruit on the male, and have frequently had fruit on the female, whose seeds have grown as well as any I ever sowed, though no male plants were in in the same stove with them.

[Ray conjectured this tree to be sometimes androgynous, in order to account for what Marcgraaf affirmed, namely that the male trees occasionally bore fruit, and that the female trees bore fruit without having any male tree in the vicinity. The experience of the industrious Miller, and the observations of modern botanists, confirm the conjecture of the sagacious Ray.

This tree is a native of both Indies; and was cultivated in 1690 in the royal garden at Hampton Court^a.]

There are several varieties of this sort, which differ in the size and shape of their fruit. Plumier mentions three of the female or fruitful Papaw, beside the male, one of which he titles Melon-shaped, and the other shaped like the fruit of the Gourd; and I have seen another variety in England, with a large, smooth, pyramidal fruit; but these are supposed to be accidental varieties, which arise from the same seeds.

2. The second sort was found growing in a garden at Lima, by father Feuillée, and it was the only plant he saw of that sort in his travels.

[Browne says, that it is frequent in some parts of Jamaica, and that it seldom rises above four or five feet in height.]

This differs from the other, in having a branching stalk, the lobes or divisions of the leaves being entire, and the fruit being shaped like a Pear. Feuillée says that the fruits were of different sizes; that which he designed was about eight inches long, and three and a half thick, yellow within and without, and of a sweet flavour; the flower of a Rose-colour, and divided but into five parts.

PROPAGATION AND CULTURE.

These plants being natives of hot countries, will not thrive in England, unless they are preserved in a warm stove; where there are such conveniencies, of a proper height to contain the plants, they deserve a place as well as almost any of the plants which are cultivated for ornament; for when they are grown to a large size, they make a noble appearance with their strong upright stems, which are garnished on every side near the top with large shining leaves, spreading out near three feet all round the stems: the flowers of the male sort come out in clusters on every side; and the fruit of the female growing round the stalks between the leaves, being so different from any thing of European production, may intitle them to the care of the curious.

They are easily propagated by seeds, which are annually brought in plenty from the West-Indies. These should be sown in a hot-bed early in the spring, that the plants may obtain strength before the autumn: when the plants are near two inches high, they should be each transplanted into a separate small pot filled with a light, gentle, loamy soil, and plunged into a hot-bed of tanners bark, carefully shading them from the sun till they have taken root; after which they must be treated in the same manner as other tender plants from the same country; but as these plants have soft herbaceous stalks, and abound with a milky juice, they must not have too much water, for they are frequently killed with moisture. There should also be great care taken when these plants are shifted from small pots into larger, to preserve the whole ball of earth to their roots; for whenever they are left bare, they rarely survive it. As the plants advance in their growth, they will require larger pots, and when they are too tall to remain under frames, they must be placed in the tan-bed of the bark-stove, where they should constantly remain, being careful not to give them

^a Hort. kew.

much water, especially during the winter season; and in summer their waterings should be often repeated, but given in small quantities. With this management I have raised plants near twenty feet high in three years, which have produced their flowers and fruit in great perfection.

[In the West-Indies this tree is propagated with great facility by layers as well as seeds.

CARICA. See *Ficus*.

CARIM-CURINI. See *Justicia*.

CARIMGOLA. See *Pontederia*.

CARIMPANA. See *Borassus*.

CARIM-TUMBA. See *Nepeta*.

CARIOPHYLLASTER. See *Dodonaea*.]

[CARISSA.

Lin. gen. Reich. n. 318. Schreb. 413. Juss. 149.

Class. 5. 1. Pentandria Monogynia.

Nat. order of Contortæ. Apocineæ Juss.

GENERIC CHARACTER.

CAL. *Perianth* very small, five-parted, acute, permanent.

COR. monopetalous, funnel-form. *Tube* cylindrical, bellying at the mouth, longer than the border.

Border five-parted, flat, divisions oblong.

STAM. *Filaments* five, very short, in the top of the tube. *Anthers* oblong, within the mouth.

PIST. *Germ* roundish. *Style* filiform, length of the stamens; *stigma* rather simple.

PER. *Berries* two, oblong, bilocular—according to Rumphius.

SEEDS seven, or eight, oval, compressed.

ESSENTIAL CHARACTER.

Cor. contorted. *Berries* two, many-seeded.

SPECIES.

1. Carissa Carandas.

Lin. syst. 251. Reich. 589. mant. 52. Lour.

cocinch. 124. Burm. ind. 69. (Echites). Rumph.

amb. 7. 58. t. 25. Pluk. alm. t. 305. f. 4. (but

the corolla not quadrifid.)

Leaves elliptic obtuse.

2. Carissa spinarum.

Lin. syst. 251. Reich. 590. mant. 559. Thunb.

jap. 108. Rumph. amb. 7. 39. t. 19. Kæmpf.

amen. 5. 784.

Stigmarota Jangomas. Lour. cocinch. 634.

Leaves ovate acute.

DESCRIPTIONS, &c.

1. A tree with dichotomous branches. Leaves opposite, petioled, obtuse, glossy, quite entire. Spines axillary, but not from all the axillas, opposite, shorter than the leaves, spreading. Peduncles subterminal, twin, three-flowered on equal pedicels. Flowers like those of Jasmine. Native of the East-Indies^a.

Loureiro thus describes it as he found it wild upon the eastern coast of Africa. It is a small tree about six feet in height, with twisted dichotomous spreading branches, armed with large straight opposite prickles, branched and dichotomous at the tip. Leaves ovate, sharp at the end, quite entire, smooth, opposite, subpetioled. Flowers white, of the same shape and size with *Jasminum grandiflorum*. Calyx inferior, five-parted; the parts subulate and upright. Corolla salver-shaped, the tube long straight and equal; the border five-parted with ovate segments. Filaments very short, placed on the middle of the tube: anthers linear. Germ ovate: style filiform short: stigma oblong, emarginate, upright. Berry simple, ovate, smooth, one-celled, containing many suborbiculate, imbricate seeds. The flowers are terminating, on few-flowered peduncles. The berry when ripe is black; it is eatable and of a sweet acid flavour.

Linneus's description is probably not very accurate, and therefore the East Indian and African plants may probably be the same; although the latter has only a single berry, a salver-shaped corolla not contorted, an emarginate stigma, prickles branched not simply dichotomous, and the leaves acute.

2. A tree, with branches first trichotomous, then dichotomous, horizontal. Spines two at each rami-

^b Linn. mant.

fication, opposite, one above and the other below the branch, very spreading, an inch in length, stout, round, red and shining at the end, as in the first species. Leaves opposite, subsessile, coriaceous, quite entire, glossy; one pair at each dichotomy, and another intermediate pair. Peduncles terminal, very short; with five or six small flowers. Calyx semiquinquefid, with the teeth subulate. Corolla salver-form; tube swelling a little in the middle; divisions of the border linear, emarginate, a little shorter than the tube. Stamens in the middle of the tube; filaments scarcely any; anthers linear, short. Germ superior; style short, clubbed; stigma narrower, pubescent. Native of the East-Indies, and Japon^e.

This being a dioecous plant, and differing totally in the generic character, Loureiro has constituted a new genus for this and another species, under the name of *STIGMAROTA*, from the shape of the stigma, radiated like a wheel.

GENERIC CHARACTER.

* Male.

CAL. Perianth bell-shaped spreading, four or five-parted: segments acute.

COR. none.

STAM. Filaments about thirty, longer than the calyx. Anthers roundish.

* Female.

CAL. Perianth wheel-shaped, five or six-parted: segments acute.

COR. none. Nectary lens-shaped, five or six-lobed.

PIST. Germ superior, roundish. Style cylindric, short. Stigma orbiculate, large, six-parted.

PER. Berry subglobular, fleshy, one-celled, six-seeded. SEEDS ovate, compressed, minute.

ESSENTIAL CHARACTER.

MALE. Cal. four or five-parted. Cor. none. Stam. thirty.

FEM. Cal. five or six-parted. Cor. none. Stigma wheel-shaped, six-cleft. Berry fleshy, six-seeded.

SPECIES.

1. *Stigmarota Jangomas*.

Jangomas. *Garc. aromat.* l. 2. c. 5. *Bont. jav.* l. 6. c. 25. f. 111.

Spina spinarum. *Rumph. amb.* t. 19. f. 1, 2.

Stem arboreous prickly; peduncles many-flowered scattered.

2. *Stigmarota africana*.

Lour. *cochin.* 634. 2.

Stem shrubby prickly: flowers solitary terminating.

DESCRIPTIONS.

1. A middle-sized tree, with spreading branches. The prickles on the stem of the male are long and branched; on the female tree, short simple scattered and few. Leaves ovate, acuminate, serrate, incurved, shining, small, scattered, petioled. The flowers on both on many-flowered scattered peduncles. Berry brown-purple, eight lines in diameter, esculent, sapid, sweet with a slight astringency.—Native of Cochinchina, and cultivated there.—Linneus's description given above does not agree with Rumphius's.

2. Stem shrubby, in tufts, spreading, woody, six feet high. Leaves ovate, crenate, smooth, alternate, petioled. Prickles simple, long, straight. Flowers terminating solitary. The female flowers have six or seven bifid, sessile stigmas, placed in a ring.]

CARLINA. (From Carolus. Charlemagne's army being said to be cured of the plague by the use of the root.)

Engl. *Carline Thistle*. Fr. *Carline*.

Lin. *gen.* n. 929. *Reich.* 1008. *Schreb.* 1258. *Gertn.* t. 163. *Tourn.* 285. *Vaill. A.G.* 1718.

• *Juss.* 172.

Class. 19. 1. Syngenesia Polygamia Æqualis.

Nat. order of Compound Flowers: division of Capitatae. *Cinarocephalæ* Juss.

GENERIC CHARACTER.

CAL. Common ventricose, radiated, imbricated; scales numerous, loose, acute, of which the interior ones

are disposed in a circle, very long, expanding, glossy, coloured, radiating the compound flower.

COR. Compound, uniform, tubular. Corollets hermaphrodite, equal; the proper one monopetalous, funnel-form; tube slender; border five-cleft.

STAM. Filaments five, capillary, very short. Anthers cylindric, tubular.

PIST. Germ short. Style filiform, length of the stamens. Stigma oblong, bifid or entire.

PER. none. Calyx remaining unchanged.

SEEDS solitary, somewhat rounded. Down plumose, branched, sessile.

REC. flat; chaffs ternate, cleft.

ESSENTIAL CHARACTER.

Cal. radiated with long, coloured, marginal scales.

SPECIES.

1. *Carlina acaulis*. Low *Carline Thistle*.

Lin. *spec.* 1160. *Reich.* 3. 693. *ups.* 252. *mat. med.* 181. *Sauv. monsp.* 293. *Gouan. hort. monsp.* 426. *Hall. helv.* n. 183. *Scop. carn.* n. 1014. *Allion. pedem.* n. 567. *Krock. files.* n. 1352. *Blackw. t.* 532. *Baub. pin.* 380. 1. *Raii hist.* 288. 1. *Ger. emac.* 1157. f. 2. *Park.* 968. 2. & 1685. *Baub. hist.* 3. 64.

C. *Chamæleon*. *Villars dauph.* 3. 31.

Chamæleon albus. *Clus. hist.* 2. 155. *Camer. epit.* 428.

β. C. *prior*. *Dod. purg.* 439. *Hall. β. caulifera*.

C. *caulescens*. *Baub. pin.* 380 *Chamæleon niger*.

Matth. 492. *Camer. epit.* 430.

Stem one-flowered, shorter than the flower.

2. *Carlina lanata*. Woolly *Carline-Thistle*.

Lin. *spec.* 1160. *syft.* 728. *Reich.* 3. 693. *Ger. prov.* 183. 2. *Gouan. hort. monsp.* 426. *illustr.* 64. *Garid. aix.* 82. t. 21. *Barr. ic.* 483. *Col. ecphr.* 1. 29. t. 27. f. 2.

Stem bifid, calyxes blood-red terminal, the first axillary sessile.

3. *Carlina corymbosa*. Corymbed *Carline-Thistle*.

Lin. *spec.* 1160. *Reich.* 3. 694. *mant.* 462. *Villars dauph.* 3. 33. *Gouan. illustr.* 64. *Col. ecphr.* 1. 20. t. 27. f. 1.

Stem many-flowered subdivided, flowers sessile, ray of the calyxes yellow.

4. *Carlina vulgaris*. Common *Carline-Thistle*.

Lin. *spec.* 1161. *Reich.* 3. 694. *hort. cliff.* 395. 2. *fl. suec.* n. 725. *Gerin. fruct.* 2. 384. *Huds. angl.* 355. *With.* 880. *Hall. helv.* n. 182. *Pollich pal.* n. 773. *Leers herb.* n. 622. *Krock. files.* n. 1353. *Villars dauph.* 3. 33. *Gouan. illustr.* 64. *Best. eyf. æst.* 11. t. 8. f. 3. *Clus. hist.* 2. 156. f. 2. *Fuchs. hist.* 121. *Matth.* 669. *Dod.* 739. 2. *Lob. ic.* 2. 20. 2. *Trag.* 859. *Ger.* 997. 1. *emac.* 1159. 1. *Park.* 981. *Baub. hist.* 3. 81. 2. *Raii hist.* 288. 2. *syn.* 175. *Mor. hist.* 3. 162. n. 5.

C. *corymbosa*. *Scop. carn.* n. 1015.

Stem many-flowered corymbed, flowers terminal, ray of the calyxes white [or, yellowish.]

5. *Carlina racemosa*. Racemed *Carline Thistle*.

Lin. *spec.* 1161. *Reich.* 3. 695. *Gouan. hort. monsp.* 426. *illustr.* 64. *Clus. hist.* 2. 157. f. 1.

Flowers sessile lateral very few.

[6. *Carlina pyrenaica*. Pyrenean *Carline Thistle*.

Lin. *spec.* 1161. *syft.* 729. *Reich.* 3. 695.

Stem many-flowered, leaves decurrent runcinated.

7. *Carlina xeranthemoides*.

Lin. *syft.* 729. *suppl.* 349.

Shrubby, branching, tomentose, leaves linear-subulate, serratures spinescent, panicle terminal, ray yellow.

8. *Carlina atractyloides*.

Lin. *spec.* 1161. *syft.* 729. *Reich.* 3. 695. *amæn.* 6. *afr.* n. 46. *Pluk. alm.* t. 273. f. 4. (bad).

Stem branching, calyxes with ciliate spines.

9. *Carlina acanthifolia*.

Allion. pedem. n. 571. t. 51. *Villars dauph.* 3. 30.

Chamæleon albus. *Matth. Lugd.* 1453. (not the figure). *Baub. hist.* 2. 67?

Stemless, leaves sinuate-pinnatifid tomentose; divisions half-two-lobed pungent.

DESCRIP-

1. Root an inch thick, black, woody, having an acrid penetrating smell, and a bitter aromatic taste. Close to the ground is a circle of pinnated smooth leaves; the pinnae angular, lobed, plaited; the angles ending in strong spines. Stem (or rather peduncle) leafy, though scarcely exceeding an inch and half in height. Flower usually one, but sometimes more, three inches in diameter when expanded, for it closes during the night and in rainy weather: rays white shining; floscules greenish yellow, with purple toothlets^a. Scopoli observes that the bristles which proceed from the receptacle, are club-shaped at the end like the antenna of a butterfly.

Native of Switzerland, Germany, Carniola, Italy, South of France. Perennial. Cultivated here in 1640.

3. It is sometimes found with a stem twelve or even eighteen inches in height. This, Linneus says, is the case only when kept in a pot; but in open situations it has little or no stem^b. Thus, however, neither of the specific characters are constant.

The receptacle, and upper part of the root when tender, are eaten: but the root of the adult plant becomes acrimonious, and is recommended as an alexipharmic. It contains an acrid resinous principle, by which it stimulates the solids, dissolves the humours, and promotes perspiration. The dose of the root when dry, is from one to two drams; when fresh, from two drams to half an ounce, but it is more frequently given in a decoction than in substance^c.

2. This is three times as large as *C. vulgaris*. Simple branches sometimes come out from the axillas. When out of flower it puts off the wool. The juice is blood-red. The true scales of the calyx are all terminated by a very simple spine; but in the rest the spines are compound^d. Calyxes twice as large as in the others. Ray purple on both sides^e.

South of France and Italy. Annual. Cultivated in 1683, by Mr. James Sutherland.

3. Stem purplish at top, scarcely pubescent; the leaves even next the flowers subpinnatifid. Calyxes but half the size of the former. Ray yellow; on the outside and at the base only purplish^f.

It much resembles the common sort (n. 4.), but the root, which is perennial, produces several stems; the flowers are smaller but more numerous; the ray is yellow, and each calyx contains fewer florets^g.

Native of the South of France and Italy.

Monf. Villars is of opinion, that the *corymbosa* of Scopoli is the common sort.

4. Root long fusiform, with a few stiff fibres. Stem twelve to fifteen inches high, swelling just above the root, round, ribbed, purple, slightly downy, subumbellated at top. Leaves very numerous, cloathing the whole stem and decreasing in size upwards, the lower sessile, the upper half-stem-clasping, deeply toothed, the teeth armed with numerous yellow spines. At the base of the branches are leaves much broader than the rest. Scales of the calyx purplish, edged and terminated with branching yellow spines; the undermost linear, pointed, dry, shining, fringed with long hairs towards the base, straw-coloured within; without reddish brown towards the base, but straw-coloured at the point. Corolla, segments lanceolate, purple, straw-coloured below. Down of the seed sessile, rays nine to twelve, generally eleven, either single or with two or three clefts, fringed with long hairs. According to Dr. Stokes, they are pale brown, thrice as long as the seed, rays nearly equal, subulate at the base, a little above it generally dividing into three and sometimes four bristle-shaped branches. The chaffs of the receptacle are longer than the florets^h. The flowers expand in dry, and close in moist weather. They retain this property a long time. The plant is said to be an excellent remedy in hysterical casesⁱ. It indicates a very barren soil; is found all over Europe in dry pastures; and is biennial; flowering from June to September.

^a Haller.

^b Hort. upf.

^c Allioni.

^d Linn.

^e Gouan.

^f Ibid.

^g Villars.

^h Woodw. Mss.

ⁱ Linn. amoen.

Linneus exhorts the botanists of the south of Europe to observe how this, together with the second and third species, may be distinguished, without having regard to the colour.

5. In appearance and habit this approaches nearest to the third and fourth species, in its whitish stem. The calycine leaflets of the ray underneath are dark purple, but the upper part is rather yellow. It is allied to the second species, by its sessile flowers, which however are much smaller than in the third and fourth.

There are no limits between this and the three foregoing species, except in their size and the colour of the ray in the flower; though their habit be different. The nap on all is the same, and they lose it when they grow old. The leaves have three nerves; the two side ones run distinctly from the base to the middle, and then unite with the other: in each, small nerves run parallel across from the principal to the side nerves. The upper part of the stem is branching; branches alternate, one-flowered, corymbed, with some primordial flowers sessile in the division of the stem and branches^k.

6. Leaves tomentose on both sides: the pinnae sessile hastate toothed, with a yellowish spine at each apex. Calyxes scarcely larger than in *Card. pycnocephalus*; the scales loose spiny erect scarioso narrow-lanceolate, scarcely the length of the calyx. Flowers purplish.

Native of the Pyrenees towards Spain^l. Introduced in 1788, by John Sibthorp, M. D.^m.

7. A handsome shrub. Stem round, covered with wool pressed close. Leaves scattered, not decurrent, terminating in a spine; upper surface green, smooth; lower white with wool. Branches simple, only branching at the end and divided into leafy peduncles. Calyxes surrounded with a few leaves, like those on the stem, but not longer than the calyx, unarmed, tomentose: the inner scales longer recurved subulate-spiny: ray shining yellow, scales subserrate. Flowers the size of the ray.—In Barancas about Chafna; observed by Massonⁿ.

8. Stature of *Atractylis*. Stem not much branching, white-villose. Leaves of thistle, narrow, thorny. Calyxes on very short peduncles, imbricate, echinate. Corolla yellow. Seeds crowned at the edge. Receptacle chaffy^o.—Perhaps a species of *Gorteria* or *Atractylis*. It requires farther observation.

A native of the Cape^p.

9. Leaves like those of *Onopordum* or Cotton Thistle; pinnae lobed or simple, all the pinnules toothed, and all the teeth putting out a strong spine. Flower large sessile, with white coloured scales; bractes lanceolate having ternate diverging spines placed in a pinnate order, the middle one longer and stronger before the flower opens; these bractes represent a beautifully netted hemisphere, and when this is opened they are reflected. The true scales of the calyx are imbricated in several rows, they are lanceolate, purplish at the end, and not spiny; the inner scales are coloured white, linear-lanceolate acute, with one nerve underneath running to the tip. Tube of the corollules pale, border sulphureous, shorter than the anther.

This differs from *Carlina acaulis*, in the duration of the root, which commonly dies as soon as the plant has perfected its seeds; in having larger leaves, less hard, less cut and cottony; in having the flower sessile, and the receptacle succulent, fleshy and sweetish. This therefore is the sort whose receptacle is eaten, either as the Artichoke, or preserved with honey and sugar^q.

The first sort and this resembling each other, and Linneus's specific character of that being faulty; Monf. Villars proposes the following characters: for the first.

1. Caulescent, leaves sinuate-curved almost smooth, the segments of the chaffs club-shaped, root perennial.

^k Gouan.

^l Linn. syst.

^m Hort. kew.

ⁿ Linn. suppl.

^o Linn. amoen.

^p Linn. syst.

^q Villars.

C A R

For the ninth.

9. Stemless, leaves thickly tomentose sinuate-pinnatifid, segments of the chaffs subulate-thickened.

Native of mountains of the Vaudois, and other high alps: also of Dauphiné, &c.]

PROPAGATION AND CULTURE.

They may all be propagated by sowing their seeds in the spring on a bed of fresh undunged earth, where they are designed to remain; for, as they send forth tap roots, they will not bear transplanting so well as most other plants. When the plants appear above ground, they should be carefully weeded; and, as they grow in size, they should be thinned, where they are too close, leaving them about ten inches or a foot asunder. The second year most of these plants will flower; but, unless the summer proves dry, they rarely produce good seeds in England, and most of them decay soon after they have flowered, therefore it is pretty difficult to maintain these plants in this country.

[CARLINA. See *Arnica*, *Atractylis*, *Carduus*, *Cnicus*, *Gorteria*.

CARNA. See *Laurus*.]

CARNATION. See *Dianthus*.

[CAROB TREE. See *Ceratonia*.

CAROLINEA. (So named in memory of her Serene Highness Sophia Carolina Louisa Marchioness of Baden.) Fr. *Cacao sauvage*.

Lin. suppl. 51. n. 1415. Schreb. 1125. Pachira. Aublet. guian. Juss. 279.

Class. 16. 7. Monadelphia Polyandria.

Nat. order of *Columniferae*. *Malvaceae* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, bell-form, truncate, quite entire, very short, deciduous.

COR. Petals five, ensiform, very long, somewhat erect.

STAM. monadelphous. Filaments very numerous, connate at the base, filiform, very long. Anthers oblongish, erect.

PIST. Germ inferior, oblong, cylindric. Style filiform, the length of the stamens. Stigma simple.

PER. Pome ovate, five-grooved, two-celled.

SEEDS, twin, one above the other, ovate, gibbous, flat-tish within.

ESSENTIAL CHARACTER.

Monogynous. Cal. simple, tubular, truncate. Pet. ensiform. Pome five-grooved, two-celled.

SPECIES:

1. *Carolinea Princeps*.

Lin. syst. 620. suppl. 314.

Pachira aquatica. Aubl. guian. 725. t. 291, 292.

Leaflets about five ovate-lanceolate.

2. *Carolinea insignis*.

Swartz prodr. 101.

Bombax grandiflorum. Cavan. diff. 5. t. 154.

Xiloxochitl flore capillaceo. Hern. mex. 68. fig.

Leaflets about seven obovate-oblong.

DESCRIPTIONS, &c.

1. It is a large thornless tree. Leaves alternate, petioled, digitate: leaflets three or five, broad-lanceolate, subpetioled, quite entire. Stipules two, short, caducous. Flowers solitary, axillary, sessile, very large and beautiful: petals yellow, filaments red, anthers purple. The fruit has the appearance of that of the Chocolate, or of Cucumber; torulose and obovate: with seeds like Almonds, the cotyledons plaited. These are eatable, but very flatulent when taken raw in any quantity.—Native of Guiana, in parts by the banks of rivers. Introduced in 1787, by Mr. Alexander Anderson.

2. Native of Tobago and Vera Cruz.

PROPAGATION AND CULTURE.

They may be propagated by seeds, or by cuttings in a light loamy soil, plunged in the bark-stove, and watered moderately in summer, but sparingly in winter.

CARO-MOELLI. See *Sideroxylon*.

CAROTA. See *Daucus*.]

* Allioni.

* Linn. suppl.

* Hort. kew.

* Swartz.

C A R

[CAROXYLON. (From *καρος*, *sopor*; and *ξύλον*, *lignum*.)

Thunb. nov. gen. 37. Juss. 85.

Class. 5. 1. Pentandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth two-leaved, suborbiculate, rude, concave within, keeled on the outside, very thin at the edge, erect, shorter than the corolla.

COR. one-petalled, five-parted: tube none: border segments obtuse, broad, roundish, concave-curved, membranous, expanding, yellowish or dusky purplish.

Nectary scales five, inserted into the middle of the corolla, somewhat narrower and shorter, and connate with it at bottom; they are placed on the converging fruit, are ovate, sharpish, concave, membranous, yellowish with a greenish base.

STAM. Filaments five, inserted into the side of the germ, shorter than the corolla, white, capillary. Anthers very small.

PIST. Germ superior, conic, smooth. Style simple, shorter than the corolla, erect, white. Stigmas two, revolute, whitish: seldom simple.

PER. none.

SEED one depressed, round, green, spiral, cloathed with a very thin membrane, covered with the permanent filaments and nectary.

ESSENTIAL CHARACTER.

Cor. five-petalled. Nect. five-leaved, converging, inserted into the corolla. Seed cloathed.

SPECIES.

1. *Caroxylon Salsola*.

Thunb. gen. 38.

Canna bosch, *afric*.

DESCRIPTION, &c.

Root perennial. Stem arborescent, erect, very branching, naked. Branches scattered stiff, flexuose, spreading, subdivided. The extreme branchlets scattered, round, flexile, tomentose-white, leafy, flowering. Leaves on the branchlets very frequent, imbricate, sessile, subglobular-ovate, rather concave within and smooth; without gibbous, ash-tomentose, obtuse, very minute, pressed close. Axils loaded with other leaves. It differs from *Salsola* in having manifestly one style, a fruit in a vessel, or rather the seed coated with the calycine appendices or nectary converging, a two-leaved calyx, and a nectary:—from *Anabasis*, to which it approaches very near, in the nectary, and a two-leaved calyx.

In Africa they use the ashes, with mutton suet, to make soap.

The corolla of Thunberg is called by Jussieu the calyx, and is described by him to be five-parted, and two-scaled on the outside (calyx, Thunb.), with five appendices within (nectary, Thunb.). He speaks of it as a doubtful genus, and recommends the insertion of the stamens and structure of the seed to be examined.]

CARPESIUM. (*Καρπύσιον* of Galen.)

Lin. gen n. 948. Reich. 1028. Schreb. 1284.

Juss. 184. Conyzoides. Tourn. art. 1706.

Class. 19. 2. Syngenesia Polygamia Superflua.

Natural order of Compound flowers: division of *Discoideae*. *Corymbiferae* Juss.

GENERIC CHARACTER.

CAL. Common imbricate; the exterior leaflets larger, spreading, reflex, the interior ones equal, close, shorter.

COR. Compound equal. Corollets hermaphrodite in the disk; female in the circumference—the proper one in the hermaphrodites funnel-form; border quinquefid, spreading. In the females tubular, quinquefid, converging.

STAM. In the hermaphrodites five, short. Anthers cylindric.

PIST. In the hermaphrodites germ oblong; style simple; stigma bifid. In the females very similar to the hermaphrodites.

PER. none. Calyx unchanged.

SEEDS. In the hermaphrodites obovate, naked. In the females very similar to the hermaphrodites.

REC. naked.

C A R

ESSENTIAL CHARACTER.

Cal. imbricate; the outer scales reflex. *Down* none.
Recept. naked.

SPECIES.

1. *Carpesium cernuum*. *Drooping Carpesium*.
Lin. spec. 1203. *Reich.* 3. 767. *hort. ups.* 257.
Hall. helv. n. 134. *Scop. carn. n.* 1030. *Jacqu. austr.* 3. t. 204. *Villars dauph.* 3. 184. *Barr. ic.* 1142. *Col. ecphr.* 1. 251. t. 252. *Mor. hist.* 3. 18. f. 6. t. 5. f. 27.
Flowers terminal.
2. *Carpesium abrotanoides*.
Lin. spec. 1204. *Reich.* 3. 767. *Off. it. t.* 10.
Flowers lateral.

DESCRIPTIONS, &c.

[1. Root perennial. Stem leafy, erect, from a foot to two feet in height, round, striated, hirsute, branched at top. Leaves oblong-lanceolate, alternate, acute, thinly and obscurely ferrulate, villose on both sides, tapering towards the base, especially the lower and root-leaves. The branches end in peduncles thickening beneath the flower and bending downwards. The outer leaflets of the calyx resemble the stem-leaves, expand much, and are very unequal: the inner are erect, equal, oblong, obtuse, green, but at the edge white and membranous. Disk flat, equal. Corollets yellowish green, accompanied more or less at the border on the outside with pellucid colourless capitate glandulous corpuscles, which surround the tapered summit of the germ in greater abundance. The border shortly five-cleft and acute, expands in the florets of the disk, but converges in those of the ray. Receptacle flat, dotted, ample. Seeds brown, striated, oval-linear, odorous, glandular and unctuous at top^a.]

According to Miller it is a biennial plant, flowering in July, and ripening the seeds in September.

[Native of the South of France, Italy, Carniola, Austria, Switzerland, and Japan. Introduced 1768, by Mr. Miller^b.

2. Stems branching, hardish. Leaves alternate, broad-lanceolate, attenuated into the petioles, obscurely crenated, the length of a finger. Flowers scattered, often solitary at the axillas, sessile or on very short peduncles coming out singly along the branches, the size of a hazle-nut, nodding. Calyxes umbilicate, surrounded with spreading leaflets. Floscules numerous. Seeds oblong, naked, smooth, smeared with a kind of balsam^c.

Native of China and Japan.]

PROPAGATION AND CULTURE.

These plants may be propagated by seeds. The first must be sown on a bed of light earth in the spring, and when the plants come up, if they are thinned and kept clean from weeds, they will require no other culture. The second year they will flower and produce seeds, soon after which the plants decay.

2. The second sort should be sown on a hot-bed in the spring, and when the plants are fit to remove, they should be each planted in a single pot, and when the weather becomes warm, they may be exposed, but in autumn they must be housed.

CARPINUS. (*From carpere, to crop.*)

Engl. *Hornbeam*, or *Hardbeam tree*.

Fr. *Charme*, *Charmille*.

Lin. gen. n. 1073. *Reich.* 1171. *Schreb.* 1449.
Tournef. 348. *Fuss.* 409. *Raii. meth.* 140.
Ostrya. Mich. 104.

Class. 21. 8. Monoecia Polyandria.

Nat. order of *Amentaceæ*.

GENERIC CHARACTER.

* *Male flowers* disposed in a cylindric ament.

CAL. Ament common on all sides loosely imbricate, consisting of scales, ovate, concave, acute, ciliate, uniflorous.

COR. none.

STAM. Filaments generally ten, very small. *Anthers* didymous, compressed, villose at the tip, bivalve.

^a Jacquin.

^b Hort. kew.

^c Linn. spec.

C A R

* *Female flowers* disposed in a long ament, upon the same plant.

CAL. Ament common loosely imbricate, consisting of lanceolate scales, which are villose, reflected at the tip, uniflorous.

COR. Calyciform, monophyllous, six-cleft; two of the divisions larger than the rest.

PIST. Germs two, very short, two styles on each, capillary, coloured, long. *Stigmas* simple.

PER. none. Ament becoming very large, concealing the seed at the base of each scale.

SEED. Nut ovate, angular.

Obs. The *Carpinus* of *Tournefort* bears the seed within the base of the concave calycine scale.

Ostrya. Mich. has the seed within the inflated calycine scale.

ESSENTIAL CHARACTER.

Cal. one-leaved, with a ciliate scale. *Cor.* none.

MALE. Stam. twenty.

FEM. Germs two, with two styles on each. Nut ovate.

SPECIES.

1. *Carpinus Betulus*. *Horn-beam*, *Hard-beam*, *Horse-beech*, *Horn-beech*, *Wych-basel*.

Lin. spec. 1416. *Reich.* 4. 168. *fl. suec. n.* 872.
Huds. angl. 422. *With.* 1089. *Hall. helv. n.* 1627. *Scop. carn. n.* 1189. *Pollich pal. n.* 911. *Neck. gallob.* 390. *Pallas, ross.* 2. 6.
Hunt. Evel. 138. *Duham. arb.* 1. 127. t. 49.
Matth. 145. *Clus. hist.* 1. 55. 2. *Dod.* 841.
Lob. ic. 2. 190. 1. *Camer. epit.* 71. *Ger.* 1296.
emac. 1479. *Park.* 1406. *Baub. hist.* 1. 146.
Raii hist. 1428.

β. *C. orientalis*. *Mill. dict. n.* 3.—fol. minori, fructu brevi. *Tourn. cor.* 40.

[γ. *C. incisa*. *Cut-leaved Horn-beam*. Leaves oblong gash-ferrate.]

Scales of the strobiles flat.

2. *Carpinus Ostrya*. *Hop Horn-beam*.

Lin. spec. 1417. *Reich.* 4. 168. *mant.* 496. *Gron. virg.* 151. *Scop. carn. n.* 1191. *Mich. gen.* 223.
t. 104. f. 1, 2. *Fouss. dendr.* 5. 212. t. 64.
(*Ostrya*.)

Scales of the strobiles inflated.

3. *Carpinus virginiana*. *Flowering Horn-beam*.

Mill. dict. n. 4. *Du Roi barbecc.* 1. 130. *Ait. hort. kew.* 3. 363. *Pluk. phyt. t.* 156. f. 1.
Leaves lanceolate acuminate; strobiles very long.

- [4. *Carpinus duinensis*.

Scop. carn. n. 1190. t. 60.

Scales subcordate, doubly toothed; female ament ovate.

DESCRIPTIONS, &c.

1. Leaves ovate, acuminate, sharply ferrate, strongly nerved, bright green, smooth, three inches or more in length, and near two in breadth, on round petioles, which are slightly pubescent, half an inch in length, and having ovate red glandules at their base. Male aments solitary at the side of the twigs, sessile, nodding from a bud, but without any leaves at their base, cylindric, blunt, an inch and half long; scales shining, smooth, yellow with brown tips. Stamens from seven or eight to fifteen or sixteen at the base of the scale. On the same twig, not far from the male arises the female ament, from a leafy bud, it is solitary, nodding, and eight or nine lines in length; the styles and stigmas are purple^d.

The leaves begin to open about the end of March, and are usually quite out by the middle of April. The flowers are in full blow towards the end of the same month.]

The *Hornbeam* is very common in many parts of England, but is rarely suffered to grow as a timber-tree, being generally reduced to pollards by the country people; yet where the young trees have been properly treated, they have grown to a large size. I have seen some of them in woods, upon a cold stiff clay, which have been near seventy feet high, with large, noble, fine stems, perfectly straight and sound. Of late years, this has been only considered as a shrub, and never cultivated but for under-wood in the country, and in the nurseries to

^d Pollich.

form hedges, after the French taste; for in most of their great gardens, their cabinets, &c. are formed of these trees, as are their trellisses and hedges which surround their plantations. But since these sort of ornaments have been almost banished from the English gardens, there has been little demand for these trees in the nurseries.

1. β . The Eastern Hornbeam is a tree of humble growth, rarely rising above ten or twelve feet high in this country, shooting out many horizontal irregular branches, so that it cannot easily be trained up to a stem. The leaves of this sort are much smaller than those of the common Hornbeam, and the branches grow closer together, therefore may be very proper for low hedges, where they are wanted in gardens; being a very tensile plant, it may be kept in less compass than almost any deciduous tree.

[2. The female fruits resemble Hops, but are made of inflated scales, closed on every side, villous at the base, including a bilocular seed. It differs from the first species in having branched filaments; emarginated anthers; the female ament composed of little compressed bags instead of scales, and a bilocular nut. Leaves elliptic, acuminate, doubly-toothed, nerved, the nerves ferruginous. Male aments terminal, the length of a finger; females white*. Cultivated in 1730^f.]

The Hop Hornbeam sheds its leaves in winter, with the Elm, and other deciduous trees. This tree was first observed in Italy, and is very common in Germany, growing promiscuously with the common sort. It is also said to grow plentifully in many parts of North America, but it is doubtful whether that is not a different sort from this. The Hop Hornbeam is of quicker growth than the common sort, but what the wood of that will be I do not know; for there are but few of the trees in England growing upon their own roots, most of them having been grafted upon the common Hornbeam, which is the usual method of propagating them in the nurseries; but the trees so raised are of short duration, for the graft generally grows much faster than the stock, so that in a few years there is a great disproportion in their size; and where they happen to stand exposed to strong winds, the graft is frequently broken from the stock, after many years growth; for which reason I would caution every person not to purchase any of these trees which have been so propagated.

3. The Virginian flowering Hornbeam will grow to the height of thirty feet, or more, and is of quicker growth than either of the former sorts: it sheds its leaves in autumn, about the same time with the Elm; and during the time of its verdure, this tree makes a good appearance, being well clothed with leaves, which are of a deep, strong, green colour, resembling more the long-leaved Elm than the Hornbeam.

[4. Two fathoms high. Trunk short and soon dividing into branches. Leaves ovate acuminate, doubly serrate, smooth, hardish, on short petioles, and having two deciduous stipules at the base. Female aments a little longer than the leaves, formed of hard imbricate ovate or semicordate scales, inflected on one side to the base, and under this flexure covering the germ which is not striated, obtusangular, as in the first species, glossy, crowned with a five-toothed calyx, which in *C. Betulus* is four-toothed^g.]

PROPAGATION AND CULTURE.

1. As the common Hornbeam will thrive upon cold, barren, exposed hills, and in such situations where few other sorts will grow, it may be cultivated to great advantage by the proprietors of such lands. It will resist the violence of winds better than most other trees, and is by no means slow in its growth. But where these are propagated for timber, they should be raised from seeds, upon the same soil, and in the same situation, where they are designed to grow; and not brought from a better land, and a

warmer situation, as is too frequently practised. Nor should they be propagated by layers, which is the common method where they are intended for hedges or underwood; for which those so raised will answer the purpose full as well as those raised from seeds, but the latter must always be preferred for timber-trees.

The seeds of this tree should be sown in the autumn, soon after they are ripe; for if they are kept out of the ground till spring, the plants will not come up till the following year. When the plants appear, they must be kept very clear from weeds, and treated as other forest-trees; in two years time they will be fit to transplant, for the sooner all trees which are designed for timber are planted where they are to remain, the larger they will grow, and the wood will be firmer and more durable. If these are not intermixed with other trees, they should be planted pretty close, especially on the outside of the plantations, that they may protect and draw each other up: and if they are kept clean from weeds three or four years, it will greatly promote their growth; after that, they will have obtained sufficient strength to keep down the weeds themselves.

[Others prefer keeping the seeds in sand till the spring, and then sowing them in rows two feet and a half asunder, and a foot distance in the rows, or else broadcast and thin on beds of fresh earth, three feet and a half or four feet in breadth, with alleys between of eighteen inches or two feet; covering the seeds three quarters of an inch deep: and in february following loosening the surface so as not to disturb the seeds, and sprinkling on some fresh mould. In these beds they may remain three years; and by that time they will be fit either for hedges or woods. For the former purpose, they may be removed into ten-foot rows, and five feet from each other in the rows, training them annually, and keeping them light and thin at top. After four years they will be seven or eight feet high, and may be planted out complete hedges where they are designed to remain. The straightest plants may be reserved for trees, and planted from the first nursery, in rows five feet asunder, and two feet distance in the rows. Some prefer the spring for transplanting; and others recommend it to be performed early in october^h.

For a wood of Hornbeam, Mr. Hanbury recommends to prepare the ground by a crop of Oats, Barley or Turneps, to plough very deep when these are off, and to harrow well. Just before planting to cross-plough and harrow as before. To plant from the seminary at two years old, in four-foot rows, at two feet distance in the rows. When they are too thick to take away every other tree, and to thin them afterwards as often as their heads touch. Where hares and rabbits cannot be kept out, they must continue in the nursery, till their leading shoot is out of reach.]

As the trees advance in growth they must be thinned with caution, cutting away the most unpromising plants gradually, so as not to let in too much cold at once, especially on the borders of the plantation.

The timber of this tree is very tough and flexible, and might be converted to many useful purposes, if it were suffered to grow to a proper size. But this not having been the case, the principal uses it is applied to is for turnery ware, for which it is an excellent wood, for mill-cogs, heads of beetles, stocks and handles of tools, and yokes. It is also an excellent fuel. [Linneus observes that the wood is very white and tough, harder than Hawthorn, and capable of supporting great weights; and that the inner bark is much used in dying wool yellow.]

The leaves remain upon the trees till the young buds in the spring thrust them off, so that they afford much shelter to birds in winter: this also renders them very proper to plant round the borders of other plantations in exposed situations to defend and promote the growth of more tender trees.

* Scopoli.

^f Hort. kew.^g Scopoli.^h Boucher and Hunter's Evelyn.

[The Hornbeam preserves itself well from the bruttings of deer, so that clumps of this tree are proper in parks, both for beauty and shelter.

There is a variety with striped leaves, which is propagated by budding on the common sort, but the colours are not strong or lively¹.

2. The Hop Hornbeam may be increased in the same manner with the common sort: and they may all be propagated by layers. The stools for the Eastern Hornbeam should be a yard asunder, and the others about two yards. They should be laid in the autumn; and in twelve months they will have struck root, and may be taken off to plant in the nursery; or this may be done the spring following^k.

CARPINUS. See *Dodonæa*, *Euonymus*, *Hedysarum*.

CARPOBOLUS. See *Lycoperdon*.

CARPODETUS. (From *καρπος*, fruit, and *δεω*, to bind; the fruit being surrounded or bound by a ring or fillet.)

Lin. gen. Schreb. n. 360. Forst. gen. 17.

Class. 5. 1. Pentandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth turbinate, fastened to the germ, five-toothed: teeth subulate, deciduous.

COR. Petals five, ovate, small, inserted into the margin of the calyx.

STAM. Filaments five, subulate, short, inserted into the margin of the calyx. Anthers roundish.

PIST. Germ inferior. Style filiform, longer than the stamens. Stigma flat-headed.

PER. Berry dry, globular, surrounded with the margin of the calyx fastened to it like a ring, five-celled.

SEEDS a few, slightly angular.

ESSENTIAL CHARACTER.

Cal. five-toothed, fastened to the germ. Cor. five-petalled. Stigma flat-headed. Berry globular, five-celled.

SPECIES.

1. *Carpodetus ferratus*.

Forst. gen. 17. fl. austral. n. 111.

Native of New Zealand.]

CARROT. See *Daucus*.

—— Candy. See *Athamanta*.

CARTHAMOIDES. See *Carthamus*.

CARTHAMUS. (From *καθαίρειν*, to purge.)

Engl. Bastard Saffron or Safflower. Fr. *Carthame*.

Lin. gen. n. 931. Reich. 1010. Schreb. 1261.

Gertn. t. 161. Tourn. 258. Vaill. A. G. 1718.

Juss. 172. *Atractylis*. Vaill. A. G. 1718.

Carthamoides. Vaill. A. G. 1718.

Class. 19. 1. Syngenesia Polygamia Æqualis.

Nat. order of *Compositæ*, or compound flowers, and division of *Capitatae*.—*Cinerocephalæ* Juss.

GENERIC CHARACTER.

CAL. Common ovate, imbricate; scales numerous, contracted below, increased at the tip by a foliaceous appendicle which is subovate, flat, spreading, obtuse.

COR. Compound uniform, tubular. Corollets hermaphrodite, equal—the proper one monopetalous, funnel-form; border five-parted, erect, subequal.

STAM. Filaments five, capillary, very short. Anthers cylindric, tubular.

PIST. Germ very short. Style filiform, longer than the stamens. Stigma simple.

PER. none. Calyx converging.

SEEDS solitary.

REC. flat, pilose, hairs longer than the seed.

OBS. *Carthamus* V. has the seed almost naked—quite so. *Allion*.

Atractylis V. has the seed furnished with an obscure crown.

Carthamoides V. has the seed furnished with a pilose crown.

C. lanatus bears neutral florets on the radius; and *C. creticus* abortient ones. R.

ESSENTIAL CHARACTER.

Cal. ovate, imbricate with scales, which at the end are subovate-foliaceous.

¹ Butcher. ^k Hunter's Evelyn.

SPECIES.

1. *Carthamus tinctorius*. Officinal Bastard Saffron, or Safflower.

Lin. spec. 1162. Reich. 3. 697. mat. med. 181. Gertn. fruct. 2. 375. Thunb. jap. 307. Lour. cochinch. 481. Allion. pedem. n. 562.

Cnicus. Bauh. pin. 378. 1. Clus. hist. 2. 152. Best. eyf. æst. 11. t. 3. f. 1. Rumph. amb. 5. t. 79.

Carthamus f. Cnicus. Bauh. hist. 3. 79. Raii hist. 302. Ger. emac. 1169. 1.

Leaves ovate entire ferrate-aculeate.

2. *Carthamus lanatus*. Yellow Distaff-Thistle, or woolly *Carthamus*.

Lin. spec. 1163. syst. 730. Reich. 3. 968. mant. 462. Villars dauph. 3. 36. Gouan. hort. monsp. 427. Blackw. t. 468.

Atractylis. Bauh. pin. 379. 1. Dod. pempt. 736. Camer. epit. 561. Col. ecphr. 1. 19. t. 23. Hall.

helv. n. 192. Scop. carn. n. 1016. Allion. pedem. n. 564. Raii hist. 304. 4. Park. 963. 1.

Stem hairy, woolly toward the top; lower leaves pinnatifid, upper stem-clasping toothed.

3. *Carthamus creticus*. Cretan *Carthamus*.

Lin. spec. 1163. syst. 730. Reich. 3. 698.

Atractylis fl. leucophæo. Vaill. æt. 172. Hall. goett. 363. Raii hist. 304. 5.

Cnicus cret. *attractylidis* fol. & facie, fl. leucophæo f. candidissimo. Tourn. cor. 33.

Stem somewhat glossy, calyxes a little woolly, floscules about nine, lower leaves lyrate.

4. *Carthamus tingitanus*. Tangier *Carthamus*.

Lin. spec. 1163. Reich. 3. 699.

Carduus. Mor. hist. 3. 159. f. 7. t. 34. f. 19.

Radical leaves pinnate, stem-leaves pinnatifid; stem one-flowered.

5. *Carthamus coeruleus*. Blue-flowered *Carthamus*, or Bastard Saffron.

Lin. spec. 1163. syst. 730. Reich. 3. 699. hort. cliff. 394. *tingitanus* α.

Cnicus. Bauh. pin. 378. 2. Clus. hist. 2. 152. f. 2. Raii hist. 302. 2. Ger. emac. 1169. 2. Park. 260.

f. 3. Leaves lanceolate spiny-toothed, stem one or two-flowered.

[6. *Carthamus mitissimus*. Small *Carthamus*.

Lin. spec. 1164. syst. 730. Reich. 3. 699. Gouan. illustr. 64. Ger. prov. 182.

Carthamoides. Vaill. æt. 1718. 772.

Carduncellus. Mor. hist. 3. 159. 14.

Leaves unarmed, those next the root toothed, on the stem pinnate.]

7. *Carthamus Carduncellus*. Mountain *Carthamus*.

Lin. spec. 1164. Reich. 3. 699. Gouan. hort. monsp. 427. illustr. 65. Villars dauph. 3. 36.

Cnicus. Herm. lugdb. 164.

Carduncellus. Lob. ic. 2. 20. Allion. pedem. n. 563. Stem-leaves linear pinnate the length of the plant.

8. *Carthamus arborescens*. Tree *Carthamus*.

Lin. spec. 1164. Reich. 3. 700. mant. 462.

Carthamoides. Vaill. æt. 1718. p. 772.

Cnicus hispanicus arb. foetidissimus. Tourn. inst. 451.

Leaves ensiform sinuate-toothed.

[9. *Carthamus falcifolius*. Willow-leaved *Carthamus*.

Lin. syst. 731. suppl. 350.

Shrubby; petioles spiny, leaves lanceolate entire tomentose beneath, pungent at the end; branches one-flowered.]

10. *Carthamus corymbosus*. Corymbed *Carthamus*.

Lin. spec. 1164. syst. 731. Reich. 3. 700. hort. cliff. 391. Gron. orient. 250. (Echinops.)

Chamæleon niger. Bauh. pin. 380. 6. Dalech. 1454.

Dod. pempt. 727.

Carduus Chamæleon. Mor. hist. 159. f. 7. t. 33. f. 17.

Flowers corymbed numerous.

DESCRIPTIONS, &c.

1. This is an annual plant, which rises with a stiff ligneous stalk two feet and a half, or three feet high, dividing upwards into many branches, with ovate pointed sessile leaves. The flowers grow single at the extremity of each branch: the heads are large,

large, inclosed in a scaly calyx; each scale is broad at the base, flat, and formed like a leaf of the plant, terminating in a sharp spine. The lower part of the calyx spreads open, but the scales above closely embrace the florets, which stand out near an inch above the calyx; these are of a fine Saffron colour, and this is the part which is gathered for the uses above-mentioned. When the florets decay, the germs become oblong, angular seeds, of a white colour, and having a pretty strong shell or cover to them. It flowers in july and august, and the seeds ripen in autumn; but if the season proves cold and moist, when the plants are in flower, there will be no good seeds produced; so that there are few seasons, wherein the seeds of this plant come to perfection in England.

It grows naturally in Egypt, in some of the warm parts of Asia, [and according to Allioni, on dry hills in the county of Nice: but in the latter country it has probably established itself only in modern times, since Pliny (25, 15.) says, that it was unknown in Italy under Vespasian.] Mr. Miller says, that he has frequently received the seeds from the British islands in America, but whether they were originally carried thither, or if it naturally grows there, he could never be rightly informed.

2. This plant is annual, perishing soon after the seeds are ripe; the lower leaves spread flat upon the ground; these are five or six inches long, narrow, and deeply indented on both sides; they are hairy, and have a few soft spines on their edges; the stalk rises about two feet high, covered with hairs, and garnished with oblong hairy leaves, which embrace the stalk, and are deeply sinuated, with sharp thorns growing on their edges. The upper part of the stalk divides into many branches, which have leaves of the same form but smaller. The flowers are produced at the end of the branches, having a cluster of stiff, hard, prickly leaves below the scaly calyx, which contains many yellow florets, succeeded by oblong angular seeds. It flowers in june and july, and the seeds ripen in autumn.

[It has the appearance, says Scopoli, of *Carlina corymbosa*. The florets are first golden, then saffron-coloured, with the edges of the segments black, and five black lines running down the corolla. Those in the circumference, according to Haller, are abortive. The receptacle is conic. The seeds are striated, but not to the bottom, between the angles. The aigrette is scarcely longer than the seed.]

It grows naturally in the South of France, Spain and Italy, where the women use the stalks for distaffs, whence it had the title of Distaff Thistle. It is by some called Bastard wild Saffron. The leaves are sometimes ordered for medicine, and are supposed to have the same virtues as *Carduus Benedictus*.

[It was cultivated in 1596, by Gerarde^a.]

3. This is an annual plant, growing near four feet high. It differs from the foregoing in having a smooth stalk: the leaves are very stiff, deeply indented, smooth, and armed with very strong spines: the heads of flowers are oval, and the florets white. It was discovered by Tournefort in the island of Crete or Candia, whence he sent the seeds to the royal garden at Paris.

[Haller observes, that the florets have five black lines at the opening, which divide and make the edges of the segments black: those in the circumference are abortive. The calyx is cobwebbed.

It was cultivated in 1739, by Mr. Miller^b.]

4. This has a perennial root. The stalks rise about a foot and a half high, seldom putting out any branches. Leaves the whole length of the stalk, narrow spear-shaped, deeply serrate, each of the serratures ending in a sharp point: [those next the root, as Linneus observes, entirely pinnate, but the stem-leaves pinnatifid.] The stalk is terminated by one large scaly head of blue flowers. [It is a native of Barbary:] and was first brought to

England from Tangier. [Mr. Miller cultivated it in 1768^c. Linneus remarks, that it is scarcely distinct from the species next following.]

5. This rises with a single stalk about two feet high, of a purplish colour, hairy and channelled, closely beset with broad spear-shaped leaves, sharply serrate, and covered with a short hairy down. The stalk is terminated by a single large head of blue flowers, having a scaly calyx composed of two orders of leaves; the outer broad, long, and armed with sharp spines on their edges; the inner narrow, and terminated by a sharp thorn. It flowers in june and july, and the seeds ripen in autumn. It is supposed by some to be the same with the foregoing, which is a great mistake, for they are extremely different. It grows naturally in Spain, France, and Italy, on arable land.

[According to the observation of Linneus, the stems are often procumbent: the leaves are smooth on their upper surface; the calyx is leafy; the anthers are black; and the down of the seed hairy.

It was cultivated with us in 1640^d.

6. Root-leaves, some lanceolate, dilated at the end and very smooth, from the middle to the end toothed, the teeth turned upwards, sharp, ending in a small thorn; others pinnatifid, like those of *Coronopus* or *Leontodon autumnale*; the pinnules linear-lanceolate, refalcated, quite entire; some eared at the base underneath. Stem-leaves interruptedly pinnatifid, like those of *Scabiosa ochroleuca*. The leaves vary much in size. Stem one-flowered, smooth, slightly striated, with one or two leaves. Calyx large: the outer scales larger, concave, leafy, spinose-ciliated, often quite entire, seldom lacinated and generally destitute of conspicuous veins or nerves. Inner scales narrower, obtuse, with a membranous, dilated, ciliated end, as in *Jacea*. Flower bright blue^e.

Sometimes the plant has no stem, and sometimes the stem is four inches high^f. The down of the seed is hairy^g.

The garden plant is hardly to be distinguished, by its decumbent stem four inches in length, and its longer soft sinuate leaves^h.

Native of France, about Paris and Montpellier. Introduced here in 1776, by Monf. Thouinⁱ.]

7. Root perennial. Stem about six inches high (in gardens), channelled and hairy. Leaves long and narrow, ending in several sharp spines, their edges indented, each indenture ending in a spine. Each stalk is terminated by one large head of blue flowers.

[Leaves villose and rugged, having prominent thorny-ciliate nerves. Root-leaves obovate; the rest pinnatifid: pinnules refalcated, having small thorns about the edge, and being usually eared at the base. Stem-leaves from one to three; but in garden plants, or such as grow in a strong soil, nine. Outer scales of the calyx leafy, at the end dilated green and thorny, nicely three-nerved and netted, as in the common sort: inner scales narrower, ciliate at top, but less dilated than in the foregoing. It varies in size from an inch, on rocks, to a foot, in pastures. In gardens the leaves are much softer^k. The down of the seed is hairy, unequal and deciduous^l. Native of the South of France, Spain and Italy. The root is eaten in Africa^m. Cultivated in 1739, by Mr. Millerⁿ.

8. The whole plant is pubescent. Stem firm, of a man's height, (eight to ten feet) evergreen. Leaves stem-clasping, ensiform or lanceolate, a foot long, pinnatifid-sinuate, toothed, mostly spinous at the end; rib white. Flower terminal (one or two), sessile, yellow, sweet smelling. Calyx with ciliate, spreading, pointed scales. Style twice as long as the corolla. Down hairy^o.] Mr. Miller received it from Andalusia, where it grows naturally in great plenty, and cultivated it before 1759.

^a Hort. kew.

^d Ibid.

^e Gouan. illustr.

^f Gouan.

^g Linn.

^h Ger. prov.

ⁱ Hort. kew.

^k Gouan. illustr.

^l Linn. and Allioni.

^m Shaw.

ⁿ Hort. kew.

^o Hort. kew.

^p Ibid.

^q Linn. mant.

[9. This has the habit of *Gorteria*, but the flowers are hermaphrodite, the stigma undivided, the down plumose, the receptacle chaffy, and the florets all discoid, therefore they have no ray. It is a woody shrub; the branches long and tomentose; the leaves approximating, smooth above, silky beneath; at the base or on the petiole, and sometimes but rarely on the edge having two or four spines; always ending in a spine. Branchlets one-flowered. Calyx imbricate; the outer scales acute and longer, similar to the stem-leaves. Florets white^p. Native of Madeira. Introduced 1784, by Messrs. Lee and Kennedy^q.]

10. Root perennial. Stem single, white, smooth, and channelled, never putting out any side-branches. Leaves long, narrow, pale green, closely armed on their edges with short stiff spines, which come out double. Stems terminated by single oval scaly heads of white flowers, each scale terminated by a purplish spine: the scaly calyx is closely joined at the top, so that few of the florets appear visible above it; and it is guarded by a border of long narrow prickly leaves, rising considerably above the flowers; which appear from June to August.

[It has the habit of *Echinops*. The quality is corrosive. The fructification should be examined more accurately^r.—Native of Apulia, the Hellespont, Lemnos, and Thrace.] Mr. Miller says that he received the seeds from Spain, where it grows naturally. [Cultivated 1714, by Charles Dubois, Esq.^s

PROPAGATION AND CULTURE.

1. It is propagated by seeds, which should be sown in April, upon a bed of light earth: the best way is to sow them in drills, drawn at two feet and a half distance from each other, in which the seeds should be scattered thinly, for the plants must not stand nearer each other than a foot in the rows; but as some of the seeds will fail, so a greater quantity should be sown, as it will be easy to thin the plants, at the time when the ground is hoed. If the seeds are good, the plants will appear in less than a month; and in a fortnight or three weeks after, it will be proper to hoe the ground to destroy the weeds, and at the same time the plants should be thinned where they are too close; but at this time they should not be separated to their full distance, lest some of them should afterward fail; so that if they are now left six inches asunder, there will be room enough for the plants to grow, till the next time of hoeing, when they must be thinned to the distance they are to remain for good: after this they should have a third hoeing, which, if carefully performed in dry weather, will destroy the weeds and make the ground clean, so that the plants will require no farther care, till they come to flower; when, if the Safflower is intended for use, the florets should be cut off from the flowers as they come to perfection; but this must be performed when they are perfectly dry, and then they should be dried in a kiln, with a moderate fire, in the same manner as the true Saffron, which will prepare the commodity for use.

But if the plants are designed for seed, the flowers must not be gathered; for if the florets are cut off, it will render the seeds abortive, though they may swell and grow to their usual size, as I have frequently experienced; yet when they are broken, there will be found nothing more than a shell without any kernel. And this frequently happens to be the case with these seeds, in wet cold seasons; and in very wet ones the germ will rot, and never come so forward as to form a shell.

I have been informed, that this plant was formerly cultivated in the fields in several parts of England, for the dyers use; and particularly in Gloucestershire, where the common people frequently gathered the florets, and dried them, to give a colour to their puddings and cheefecakes; but by putting in too great quantity, they acquired a cathartic quality.

If this plant was ever cultivated here in great quantity, it is surprising how it came to be so totally neglected, as that at present, there are not the least traces to be met with, in any part of England, of its ever having been cultivated; insomuch that the commodity is scarcely known, except to those who deal in it. The quantity annually consumed in England is so great, as to make it a considerable article of trade, so that it might be well worthy of public attention; for although the seeds seldom come to perfection in England, yet these might be procured from abroad, and the plants would constantly produce the flower, which is the only part used in dyeing.

[It appears from Dr. Turner's herbal, that the Bastard Saffron or Safflower was cultivated in England in 1551^t. The information to which Mr. Miller alludes, is confirmed by Mr. Houghton in his Collections: wherein he says that Henry Hall, Esq. relates (Nov. 14, 1683), that twenty-five acres, in the vale of Evesham in Gloucestershire, was sowed with this seed; the soil a mixed sand, of about 15s. an acre value; it bore a crop of Wheat the year before, was dressed for Barley, and had a harrowing extraordinary. This piece of ground was taken for two years by an adventurer in this seed, at the rate of 25l. per acre, in consideration that this plant is said to be a great impoverisher of land. He sold the flowers in London for 10l. per pound; a price he said much below his expectation; he gained above 30s. an acre clear profit, excepting the price of the seed: but of this there was a plentiful return, (about one hundred and forty bushels) which had it been well managed, would have amounted to a considerable value; for want of experience it was too soon gathered, and at a greater charge than needed, neither was it so carefully cured, as it ought, which much impaired the price^u.

The common people took it for Saffron, and privately stole considerable quantities, and used it in their puddings, cakes, and even bread; but finding in it a purgative quality, which to some was very troublesome, they sold their remaining stock to an apothecary^v.

Mr. Hall sowed some of the seed in February, and some about the middle of March; both thrived very well, flowered, and was fit to gather in July, and was gathered before the 20th of that month: by which means women and children could be had in plenty to gather the flowers, before gleanings time came on. He also found that plants from which the flower was not gathered, produced seed to the full as good as what is brought from Germany. And, that though it certainly impoverishes the ground, yet that the piece which was sown with Safflower, did, the year following, bear a good crop of Oats, and, had it been fallowed and well dressed the third year, would have been fit for Wheat or Safflower again. He adds that turkeys greedily fed on the seed, and in a short time became very fat: that geese fed on it, grew fat much sooner than those of their neighbours, that fed on other grain; and that a colt, eating of this seed, recovered in a short time from great poverty to a very good condition^w.]

This plant is cultivated in great plenty, in some parts of Germany, where the seeds constantly come to perfection; and as I have obtained a short account of their method of cultivation, from a curious gentleman of that country, I shall insert it for the benefit of those who may be induced to engage in this undertaking.

The ground in which they propose to sow the Carthamus, has always a double fallow given to it, first to destroy the weeds, and afterward to make it fine. They make choice of their lightest land, and such as is clear from Couch Grass, and other troublesome weeds. After the land has been fallowed a summer and winter, in which time they give it four ploughings, and harrow it between each, to break

^p Linn. suppl.

^q Hort. kew.

^r Hort. kew.

^s Linn. spec. and syst.

^t Hort. kew.

^u Hought. collect. 4. 355.

^v Ibid. p. 360.

^w Ibid. p. 358.

the clods, and pulverize it: in the latter end of march they give it the last ploughing, when they lay it in narrow furrows of about five feet or a little more, leaving a space of two feet between each: then they harrow these lands to make them level, and after it is finished, they sow the seeds in the following manner. With a small plough, they draw four shallow furrows in each land, at near a foot and a half distance, into which they scatter the seeds thinly; then with a harrow, whose teeth are little more than one inch long, they draw the earth into the drills to cover the seeds; after this, they draw a roller over the ground, to smooth and settle it. When the plants are come up, so as to be distinguished, they hoe the ground to destroy the weeds; and at this first operation, where the plants happen to be close, they cut up the least promising, leaving them all single, at the distance of three or four inches; which they always suppose will be sufficient room for their growth, till the second time of hoeing, which must be performed in about five weeks after their first; in which they are guided by the growth of the weeds, for as this work is performed with a Dutch hoe, so they never suffer the weeds to grow to any size before they cut them; in which they judge right, for when the weeds are small, one man will hoe as much ground in a day, as can be performed by three, when they are permitted to grow large; and the weeds will be more effectually destroyed.

They give a third hoeing to the plants, about five or six weeks after the second; which generally makes the ground so clean, as to require no more cleaning, till the *Carthamus* is pulled up. When the plants begin to flower, and have thrust out their florets (or thrum) to a proper length, they go over the ground once a week to gather it; and as it is from time to time gathered, it is dried in a kiln for use. There is usually a succession of flowers for six or seven weeks. After the crop is gathered, the stalks are pulled, and tied in bundles for fuel; and when they have been set up a few days to dry, they are carried off, and the ground is ploughed for Wheat; which they say, always succeeds well after this plant.

The good quality of this commodity is chiefly in the colour, which should be of a bright Saffron colour, and herein that which is cultivated in England often fails; for if there happens much rain during the time the plants are in flower, it will cause the florets to change to a dark or dirty yellow, which will also befall that which is gathered when there is any moisture remaining upon it; therefore great care must be taken not to gather it till the dew is quite dried off, nor should it be pressed together till it has been dried on the kiln. The manner of doing this being the same as for the true Saffron, I shall not mention it here, but desire the reader to turn to the article *Crocus*, where that is fully treated.

It is cultivated at present in many parts of Europe, and also in the Levant, whence great quantities are annually imported into England, for dyeing and painting.

In Spain this plant is cultivated in their gardens, as Marigolds are in England, to put into their soups, olios, and other dishes, to give them a colour. The Jews also are very fond of this, and mix it in most of their viands; and it is very probable they were the persons who first carried the seeds of this plant to America, and taught the inhabitants the use of it, for it is now as commonly used by the English there, as in any part of Europe.

This plant may be admitted to have a place in the borders of large gardens, where it will add to the variety, during the time of its continuance in flower, which is commonly two months, or ten weeks; for if the seeds are sown in the beginning of april, the first flowers will appear in the middle of july at farthest; and there will be a succession of flowers on the side branches, till the end of september, or in mild warm seasons till the middle of

october, during which time the plants will not be destitute of flowers; which being of a bright Saffron colour, make a pretty appearance; and if the plants are supported to prevent their being broken, or blown down by the wind, they will not interfere with the other flowers, because these have a regular upright growth.

When they are cultivated for this purpose, the seeds should be sown in the places where the plants are designed to remain, because they do not bear transplanting well; therefore three or four seeds should be sown in each patch, lest any of them should fail; and when the plants are grown so strong as to be out of danger, the most promising in each patch should be left, and the others pulled up, that they may not draw or injure those which are to stand.

2, 3. If the seeds of these sorts be sown in autumn, the plants will flower early the following summer, so that there will be a certainty of good seeds. They may be sown in any situation, and will require no other culture, but to keep them clean from weeds, and thin the plants where they are too close. There is a variety of this, which grows much taller; the heads also are larger, and the leaves are placed closer upon the stalks. It was found by Tournefort in the Levant.

4. The seeds of this are never perfected in England, it is increased therefore by parting the roots. The best time for this is the beginning of march. It should have a dry soil and a warm situation; otherwise it will be liable to be destroyed in severe winters.

5. This sort may be increased by parting the roots in autumn, when the leaves decay. In a light soil it will endure the cold of our winters, and continue many years. It may also be propagated by seeds, which ripen here in dry seasons.

7. Is difficult to propagate in England, the roots not putting out offsets, and the seeds ripening only in warm dry seasons. It requires a dry soil and warm situation.

8. The seeds not ripening in this country, this sort can only be increased by side shoots slipped from the branches in the spring, planted in pots filled with light sandy earth, and plunged into a moderate hot-bed, observing to shade them till they have taken root: then they must be gradually hardened and removed into the open air, and when they have obtained strength, some may be planted in a warm dry border, where they will endure the cold of our ordinary winters; but in severe frost they are frequently destroyed, and therefore a plant or two should be potted and sheltered in winter.

10. This seldom perfects seeds in England, and therefore is increased by parting the roots in the spring. In a light soil and warm situation it will live abroad in common winters, but in severe frost it is sometimes destroyed.

CARTHAMUS. See *Atractylis*.

CARUA. See *Justicia*.

CARUI. See *Carum*, *Seseli*, *Sison*.

CARUIFOLIA. See *Selinum*.

CARUM. (So named from *Caria*, a province of Asia. *Kapos*, *Dioscor*.)

Engl. Caraway. Fr. Carvi.

Lin. gen. n. 365. Reich. 395. Schreb. 497.

Juss. 219. Gertn. t. 23. Carui. Tourn. 160.

Class. 5. 2. Pentandria Digynia.

Nat. order of *Umbellatae*, or *Umbelliferae*.

GENERIC CHARACTER.

CAL. Umbel universal long; rays ten, frequently unequal; umbel partial crowded.

Involucre universal often monophyllous; partial none. Perianth scarcely manifest.

COR. universal uniform. Florets of the disk abortive. Proper unequal. Petals five, unequal, obtuse, crenate, inflex-emarginate.

STAM. Filaments five, capillary, length of the corolla, caducous. Anthers roundish, very small.

Pist.

C A R

Pist. Germ inferior. Styles two, very small. Stigmas simple.

PER. none. Fruit ovate-oblong, striated, bipartile.

SEEDS TWO, convex on one side, ovate-oblong, striated, flat on the other side.

OBS. Some of the floscules in the disk are neutral.

ESSENTIAL CHARACTER.

Fruit ovate-oblong, striated. Invol. one-leaved, Pet. keeled, inflex-emarginate.

SPECIES.

1. Carum Carui. Common Caraway.

Lin. spec. 378. Reich. 1. 722. fl. lapp. n. 105. succ. n. 260. mat. med. 85. Hudf. angl. 126. Wither. arr. 312. Relb. cant. n. 240. Hall. herb. n. 789. Pollich pal. n. 304. Jacqu. austr. 4. t. 393. Krock. files. n. 465. Gertn. fruct. 1. 106. Woodv. med. bot. 125. t. 45. Plenck, ic. t. 214. Blackw. herb. t. 529. Rivin. pent. t. 55. Fl. rust. t. 55. Dod. pempt. 299. 2. Camer. epit. 516. Lob. ic. 1. 724. 1. Ger. herb. 879. emac. 1034. Park. theat. 910. Mor. hist. f. 9. t. 9. f. 1. umb. t. 8. Raii hist. 446. Lyn. 213.

Apium Carui. Crantz. austr. 218. umb. 101.

Seseli Carum. Scop. carn. n. 361. Villars dauph. 2. 589.

Cuminum pratense, Carui offic. Baub. pin. 158.

β. C. hispanicum. Spanish Caraway. Mill. dict. n. 2.

DESCRIPTION, &c.

Caraway is a biennial plant. It has a taper root like a Parsnep, but much smaller, running deep into the ground, sending out many small fibres, and having a strong aromatic taste. [The whole plant is smooth. Stems solid, channelled, from eighteen inches to two feet and upwards in height, with spreading branches. Leaves decomposed, long and narrow, on long petioles; leaflets in sixes, in a sort of whorl, two of them longer; segments terminating in a reddish semitransparent substance^a. Universal involucre generally one-leaved, as Linneus describes it; but it has sometimes as far as five caducous leaflets. Rays of the umbel from nine to twelve. Some umbellules have twenty florets, white or tinged with red: some of them neutral, according to Linneus, but all fertile, as Dr. Withering affirms.

It grows naturally in rich meadows in Lincolnshire, in Yorkshire near Hull, in Norfolk, near Cambridge, Bury, &c. and is cultivated in some counties, particularly Essex. It flowers in may and june; and the seeds ripen in autumn.

Parkinson says, the young roots are better eating than Parsneps. The tender leaves in the spring are boiled in soup. The seeds, it is well known, are much used in cakes, and incruised with sugar for comfits; they are distilled also with spirituous liquors for their flavour. They were formerly recommended by Dioscorides for pale-faced girls; and in more modern days their use in that case is not forgotten. They are no despicable remedy in tertian agues. They abound with an essential oil, which is antispasmodic and carminative.

Lewis says, that about one ounce in thirty of essential oil arises from the seeds in distillation, that it is of a bright yellow colour, hotter and more pungent to the taste than what is obtained from most other warm seeds, that it is given from one to five drops as a carminative, and is supposed to be of peculiar efficacy in promoting urine. The herb affords a similar oil, but sixteen pounds of the herb in flower, stripped from the stalks, yield scarcely an ounce.

This is one of the essential oils of the London and Edinburgh Dispensatories. It enters the composition of Electuary of Scammony. A distilled water of the seeds is there also directed. The seeds themselves are an ingredient in compound spirit of

^a Withering.

^b Ibid.

C A R

Juniper, tincture of Senna, Confectio Opiata, and emplastrum Cumini.

According to Linneus's account, sheep, goats, and swine eat this plant; but kine and horses are not fond of it. Schreber on the contrary affirms, that it is an excellent food for kine. Dr. Anderson recommends both the roots and tops for cattle in the spring.]

β. Spanish Caraway rises with a stronger stalk, closely set with fine narrow leaves like those of Dill, and dividing at top into many branches, each terminated by looser umbels of white flowers, which are succeeded by larger broader seeds at Paris.

It grows naturally in Spain; the seeds were sent to Mr. Miller from the royal garden.

PROPAGATION AND CULTURE.

The best season for sowing the seeds of Caraway is in autumn, soon after they are ripe, when they will more certainly grow, than those sown in the spring; and the plants which rise in the autumn, generally flower the following season, so that a summer's growth is hereby saved. When the plants come up, the ground should be hoed to destroy the weeds; and where the plants are too close, they must be thinned in the same manner as is practised for Carrots, leaving them three or four inches apart. In the following spring they will require to be twice more hoed, which will keep the ground clean till the seeds are ripe; then the stalks must be pulled up, and tied in bundles, setting them upright to dry, when the seeds may be threshed out for use.

[The method of culture in Essex is, about the beginning of march to plough some old pasture land: if it has been pasture for a century the better; and the soil should be a very strong clayey loam. Twelve pounds of Caraway seed, are mixed with ten pounds of Coriander, and twelve pounds of Teasel seed. This is sufficient for one acre; and is sowed directly after the plough, harrowing the land well. When the plants appear of sufficient strength to bear the hoe, which will not be until about ten weeks after sowing, it must not be omitted; and in the course of the summer, the crop will require three hoeings, besides one at michaelmas; each costing about eight shillings an acre. The Coriander being annual, will be fit to cut about the beginning of july, and is reaped at four shillings the acre. It is left in the field after cutting, and threshed by the day on a cloth, in the same manner as Rape seed. About april following the Caraway and Teasel will want a good hoeing, done deep and well; and another about the beginning of june; these two hoeings are done at seven shillings the acre each. The Caraway will be fit to cut the beginning of july; and must be threshed in the same manner as the Coriander. The Teasel will not be ready till the middle of september. Some of the plants of Caraway and Teasel do not perfect their seeds till the third or fourth year; though in general there is a crop the second year, yet enough is left for a crop the third year: and the seeds that are scattered from the crop the second year often come to perfection the fourth: and there are instances of its being continued for seven years. The usual way however is to plough directly after the crop is gathered the third year, and to sow Wheat, of which commonly a very good crop is obtained, the land being in fine order, from the rotting of the turf, and repeated hoeings.

The produce of Caraway, on the very rich old lays in the hundreds, or low lands of Essex, has often been twenty hundred weight to the acre. There is always a demand for the seed in the London market; where it is sometimes so low as twelve shillings the hundred weight, and has been up to fifty shillings; but it is mostly on an average at twenty-one shillings. The land can only be filled with plants; and the more one predominates, the less must reasonably be expected of the others. This compound crop is mostly sown on land so strong, as to require being a little exhausted, to make it fit for corn. Caraway and Coriander are ofteneft sown without Teasel; the latter being a troublesome and uncertain

uncertain crop, and the produce of Caraway much greater without it^c.

Caraway has been long cultivated in the county of Essex. Mr. Houghton, at the end of the last century, says that "although Caraway-feed be scarce now, yet not many years since a friend of mine near Colchester produced so much, that it was sold for two-pence, and I believe less, the pound. I am afraid his great quantity did him damage, however I believe 'tis made now one of the staple pieces of husbandry^d."

CARUM. See *Sison*.

Bunius. See *Æthusa*.]

[CARYOCAR. (From *καρυα* or *καρυον*, a nut, and *καρη*, the head.)

Lin. gen. Reich. n. 739. Schreb. 931. Juss. 435.

Auth. D. Allamand.

Class. 13. 4. Polyandria Tetragynia.

GENERIC CHARACTER.

CAL. Perianth quinquepartite, coloured; divisions obtuse, concave, deciduous.

COR. Petals five, oval, concave, large.

STAM. Filaments numerous, filiform. Anthers oblong.

PIST. Germ globose. Styles four, (sometimes fewer.) Stigmas obtuse.

PER. Drupe fleshy, spherical, very large.

SEED. Nuts four (one to four), oval-triquetrous, reticulated with furrows, angulated with a suture on one side.

ESSENTIAL CHARACTER.

Cal. five-parted. Petals five. Styles usually four.

Drupe with four nuts, reticulated with furrows.

SPECIES.

1. *Caryocar nuciferum*.

Lin. syst. 504. Reich. 2. 618. mant. 247.

DESCRIPTION, &c.

A tall tree, with ternate leaves. Calyx orolla purple. Drupe the size of the human head. Nuts esculent, having the taste of Almonds^e.—Native of Berbices and Essequibo.

CARYOPHYLLASTER. See *Dodonaea*.

CARYOPHYLLATA. See *Anemone*, *Geum*, and *Dryas*.

CARYOPHYLLO AFFINIS. See *Dianthus*.

CARYOPHYLLUM. See *Sarracenia*.]

CARYOPHYLLUS. (*καρυου φυλλος*, nut-leaf.)

Engl. Clove-tree. Fr. Giroflier.—The fruit is named in Engl. Clove. Fr. Clou. Ital. Chiodi. Span. Clavo. Dutch, Naghel—from the similitude of it to a nail.

Lin. gen. n. 669. Reich. 727. Schreb. 848.

Juss. 324. Gært. t. 33. *Caryophyllus aromaticus*. Tourn. 432. *Caryophyllodendron*.

Vaill. A. G. 1722.

Class. 13. 1. Polyandria Monogynia.

Nat. order of *Hesperideæ*. Myrti Juss.

GENERIC CHARACTER.

CAL. Perianth of the fruit superior, quadripartite, acute, small, permanent.

Perianth of the flower superior, tetraphyllous; leaflets roundish, concave, deciduous.

COR. Petals four, roundish, crenate, smaller than the calyx of the flower.

STAM. Filaments numerous, capillary. Anthers simple.

PIST. Germ inferior, oblong, large, terminating in the calyx of the fruit. Style simple, inserted into the quadrangular receptacle. Stigma simple.

PER. oval, unilocular, terminated by the hardened converging calyx of the fruit, umbilicate.

SEED single, oval, large.

ESSENTIAL CHARACTER.

Cor. four-petalled. Cal. four-leaved, duplicate.

Berry one-seeded, inferior.

SPECIES.

1. *Caryophyllus aromaticus*. Clove-tree.

Lin. spec. 735. syst. 496. Reich. 2. 590. hort.

cliff. 207. mat. med. 136. Gært. fruct. 1. 167.

Woodv. med. bot. 366. t. 135. Lour. cochinch.

333. Blackw. t. 338. Pluk. alm. t. 155. f. 1.

^c Sewell in Young's Annals, vol. 21. p. 53, &c.

^d Collect. 2. 462.

^e Allamand.

Clus. exot. 16. Rumph. amb. 2. t. 1, 2, 3. Sonn. guin. 196. t. 197. Baub. pin. 410. Raii hist. 1508. Ger. 1351. emac. 1535. Park. theat. 1577. Pif. mant. 177.

DESCRIPTION, &c.

According to Mr. Miller, this tree rises to the height of a common Apple-tree, but the trunk generally divides at about four or five feet from the ground into three or four large limbs, which grow erect, and are covered with a thin smooth bark, which adheres closely to the wood. These limbs divide into many small branches, which form a sort of conical figure; the leaves are like those of the Bay-tree, and are placed opposite on the branches. The flowers are produced in loose bunches at the end of the branches; are small, white, and have a great number of stamens, which are much longer than the petals. The flowers are succeeded by oval berries, which are crowned with the calyx, divided into four parts, and spreading flat on the top of the fruit; it is the young fruit beaten from the trees before they are half grown, which are the Cloves used all over Europe.

[Monsr. Sonnerat describes the Clove shrub as of a pyramidal form. Leaves opposite, pointed at each end, smooth, and waving on the edge, on a petiole an inch in length, and red; this petiole is the most aromatic part of the whole shrub, not excepting even the Clove. The flowers grow in a cyme (par bouquet) at the ends of the branches. Petals blueish, veined with white, rounded at the end and concave. Fruit reddish, and inclosing commonly two seeds. The whole shrub is aromatic, and does not succeed except in moist situations.

It is not confined to Banda and Amboina, but is found in all the Moluccas, in many of the South Sea islands, New Guinea, and the neighbouring isles, &c.

Father Loureiro describes it as a middle-sized tree, with few ascending branches. Leaves broad-lanceolate, quite entire, smooth, opposite, petioled. Flowers white, on many-flowered, regular, upright, terminating peduncles. Calyx tubular, oblong, four-cleft, the segments acute, short, somewhat upright. Petals roundish, concave, small. Stamens inserted into the receptacle, longer than the corolla. Pericarp a calycine berry, ovate-oblong, corticose, pale brown, containing one seed, and crowned with the segment of the calyx.

This grows wild in CochinChina, and has scarcely any smell or taste; but it seems to agree in botanical characters with the true Clove.

Gærtner describes the calyx as four-toothed. Stamens as many as two hundred, disposed in four phalanxes, and inserted into a quadrangular fleshy vallum close to the teeth of the calyx. The immature germ (which is what we have in Europe as a spice) is two-celled, and in each cell there are twenty ovula fixed to the middle partition. The ripe berry (*Anthophyllus*, offic.) is inferior, coriaceous, umbilicated with a quadrangular vallum within the teeth of the permanent calyx, of an elliptic-sphæroidal form, one-celled or two-celled. There is a single seed in each cell, of the same shape with the cavity, therefore either ovate-cylindric or half-ovate, two-lobed, without any albumen.]

There are no plants of the Clove-tree in the gardens either of England or Holland. The Dutch have been ever jealous of other nations partaking with them in the spice trade; they will not therefore permit the trees to be removed from the islands where they grow naturally; nor will they suffer them, as far as they can prevent it, to grow in the uninhabited islands. [Captain Rofy told Dampier, that he was sent on purpose to cut them down, and that he did actually at several times cut down seven or eight hundred trees. Yet, says Dampier, there are many uninhabited islands that have great plenty of them.

Notwithstanding the extreme caution of the Dutch this valuable tree has been some time in the hands of the French at Cayenne and elsewhere. It is also

in the botanic garden in our island of St. Vincent and has been sent thence to Barbadoes (1794) by Mr. Alexander Anderson, the superintendent.

The Clove is considered as one of the hottest and most acrid substances of the aromatic class, and as such is often used, not only internally, but externally, as a stimulant; as in paralytic cases for example, in which the oil of Cloves has been administered to advantage: it is also made use of in the tooth-ach, in which it often succeeds in suddenly abating and subduing the pain. A tincture of Cloves in rectified spirit is kept in the shops, as well as the essential oil, which latter is perhaps seldom free from sophistication. For culinary purposes the uses of Cloves are innumerable.

CARYOPHYLLUS. See *Aphyllanthus*, *Arenaria*, *Cerastium*, *Cucubalus*, *Gypsophila*, *Holosteum*, *Hypericum*, *Jambolifera*, *Lychnis*, *Myrtus*, *Silene*, *Statice*, *Stellaria*, *Tagetes*.]

[**CARYŌTA.** (*Καρυώτας*, or *καρυώτις*, *Diosc.* *καρυώτις*, *φαινέ*, a nut-bearing Palm.)

Lin. gen. n. 1228. *Reich.* 1343. *Schreb.* 1701.

Juss. 38. *Gertn. t.* 7. *Mus. cliff.* 12. *Schunda-pana*.

Class. Appendix, *Palmæ*. (*Monoecia Polyandria*.)
Nat. order of Palms.

GENERIC CHARACTER.

* *Male flowers.*

CAL. Spathe universal, compound. *Spadix* ramose.

COR. tripartite. *Petals* lanceolate, concave.

STAM. Filaments very numerous, almost longer than the corolla. *Anthers* linear.

* *Female flowers, in the same spadix with the males.*

CAL. common with the males.

COR. tripartite. *Petals* acuminate, very small.

PIST. Germ roundish. *Style* acuminate. *Stigma* simple.

PER. Berry roundish, unilocular.

SEEDS two, large, oblong, roundish on one side, flat on the other.

ESSENTIAL CHARACTER.

MALE. *Cal.* common. *Cor.* tripartite. *Stamens* very many.

FEMALE. *Cal.* as in the male. *Cor.* tripartite. *Pist.* one. *Berry* dispermous.

SPECIES.

1. *Caryota urens.*

Lin. spec. 1660. *Juss.* 986. *Reich.* 4. 637. *fl. zeyl.*

396. *Thunb. act. stockh.* 1782. p. 286. *Gertn.*

fruct. 1. 20. *Burm. ind.* 241.

Palma indica fol. bicomposito, fr. racemoso. *Raii hist.* 1365. *Burm. zeyl.* 180.

Schunda-pana. *Rheed. mal.* 1. 15. t. 11.

Seguaster major. *Rumph. amb.* 1. 64. t. 14.

Fronds bipinnate, leaflets sessile, berry two-seeded.

2. *Caryota mitis.*

Lour. cochinch. 569.

Fronds bipinnate, petioles of the leaflets nodding, berries one-seeded.

DESCRIPTIONS, &c.

1. This Palm becomes a lofty tree. The trunk is frequently so large as scarcely to be embraced by two men: it is covered with a sort of cinereous crust, which is quite smooth. The branches (or fronds) are produced regularly from the top of the trunk, all round it, in a decussated order and in pairs. The leaves (or leaflets) are opposite, oblong, triangular, rigid, smooth, shining, brownish green, with strong nerves, and folding like a fan. The flowers are in long pendulous spikes, on which they grow in pairs. The corolla, which is sometimes bipartite, but commonly tripartite, is at first green, then red or purple, and finally yellow.

The fruit is a succulent, globular berry, a little flattened, terminated by a triangular twin stigma: at first it is hard and green, next yellow, then red, and when quite ripe dark red (almost black) and shining; the rind is thin, and the pulp is soft and red, very sharp and acrid. Within are two stones or seeds (sometimes only one) hard, roundish or ob-

long, convex on one side, flat on the other; wrinkled; they are of a dark red or blackish colour on the outside.

In the island of Ceylon this tree is known by the name of *Kettule*. Knox describes it as growing straight, but not so tall or big as a Cocoa-nut tree; the inside nothing but a white pith. It yields a sort of liquor, which the inhabitants call *Tellegie*, sweet and pleasing to the palate, wholesome, and no stronger than water. It is taken from the tree twice, and from some good trees thrice, in a day. An ordinary tree will yield three or four gallons. They boil this liquor, and thus make a kind of brown sugar of it, called *Jaggory*; but with skill, they can make it as white as the second best sugar. When the tree is come to maturity, there comes out a bud from the top, which if it be suffered to grow will bear the fruit, but this is only fit to set for increase. This bud they cut and prepare, by putting salt, pepper, lemons, garlick, leaves, &c. which keep it from ripening. They daily cut off a thin slice from the end, and the liquor drops into a vessel, which they set to catch it.

It bears a leaf like that of the Betel-nut tree, which is fastened to a skin as that is, only this skin is hard and stubborn like a piece of board; the skin is all full of strings as strong as wire, and they are used for making ropes. So long as the tree is growing the leaves shed, but when it is come to its full growth, they remain many years before they fall, but then no new ones come again. As the top bud withers, other buds come out lower and lower every year, till they come to the bottom of the boughs, and then having done bearing may stand seven or ten years, when it dies.

The wood is not above three inches thick, very strong and hard, but apt to split. Being very heavy, they make pestles of it to beat their rice with. The colour is black, but it looks as if it were composed of several pieces. The buds, like those of the Cocoa and Betel-nut tree, are excellent in taste, resembling Walnuts or Almonds.

2. The trunk of this Palm is fifteen feet high, two inches thick, very straight and regular. Fronds four feet long, reclining, on roundish, unarmed stipes; the leaflets are wedge-shaped, many-nerved, obliquely præmorse, on long, slender petioles. Spathe simple, oblong, subacute. Spadix branch-spiked, reflex: spikes several, simple, long: flowers regularly disposed; with single females between pairs of males. The latter have a perianth of three obtuse, concave leaflets, a corolla of three conic, curved, erect, almost closed petals; no filaments, but very numerous, linear anthers: the females have a five-leaved, imbricate, permanent perianth, the leaflets blunt and concave; the corolla as in the male; the germ three-cornered and superior, without any style, but an acute, bifid stigma. The berry is round, coriaceous, smooth, black, the size of a musket-bullet; containing one, globular, pale, softish seed. It is not eatable, but neither that nor the plant occasion an itching, as the other sort does. It is a most beautiful Palm, and grows in the woods of Cochin China.

CASCARILLA. See *Croton*.

CASCHOU. See *Anacardium*.

CASEARIA. See *Samyda*.

CASIA. See *Nitraria* and *Osyris*.

CASSADA or **CASSAVA.** See *Iatropa*.]

CASSIA. (*Κασσία*, *Diosc.* *Derivation uncertain*.)

Lin. gen. n. 314. *Reich.* 557. *Schreb.* 700.

Juss. 348. *Gertn. t.* 147. *Tourn.* 392. *Senna.*

Tourn. 390. *Mill. dict.* *Gertn. t.* 146.

Class. 10. 1. *Decandria Monogynia*.

Nat. order of Lomentaceæ. *Leguminosæ* *Juss.*

GENERIC CHARACTER.

CAL. Perianth pentaphyllous, (quinquepartite, G.) lax, concave, coloured, deciduous.

* Hort. malab.

• Gertner.

• Hort. malab.

* Hort. malab. and Gertner.

• Hist. of Ceylon, p. 15.

• Loureiro.

COR. *Petals* five, roundish, concave; the inferior ones more distant, more spreading, larger.

STAM. *Filaments* ten, declined; the three inferior ones longer; the three superior shorter. *Anthers* the three inferior very large, arcuate, rostrate, gaping at the tip; the four lateral ones without the rostrum, gaping; the three superior ones very small, sterile.

PIST. *Germ* subcolumnar, long, peduncled. *Style* very short. *Stigma* obtuse, ascending.

PER. *Legume* oblong, partitions transverse.

SEEDS many, roundish, affixed to the superior suture.

OBS. In *Cassia* T. the legume is oblong with entire partitions.

In *Senna* T. the legume is gibbous, and inflex.

ESSENTIAL CHARACTER.

Calyx pentaphyllous. *Petals* five; the three superior *anthers* sterile; the three inferior beaked. *Legume*.

SPECIES.

- [1. *Cassia diphylla*. Two-leaved *Cassia*.
Lin. spec. 537. *Reich.* 2. 249.
Leaves conjugate, *stipules* cordate-lanceolate.
2. *Cassia bacillaris*.
Lin. syst. 393. *suppl.* 231.
Leaflets two pairs ovate oblique, an obtuse gland between the lowest, racemes axillary peduncled, *siliqua* round long.
3. *Cassia Abfus*. Four-leaved *Cassia*.
Lin. spec. 537. *syst.* 393. *Reich.* 2. 249. *fl. zeyl.* n. 153.
Senna. *Burm. zeyl.* 212. t. 97. *Pluk. alm.* t. 60. f. 1.
Abfus. *Alp. ægypt.* 97. *Bauh. hist.* 2. 361. *Raii hist.* 922. 1.
Leaflets two pairs obovate, glands two subulate between the lowest.
4. *Cassia viminea*. Weakly *Senna*-shrub, or twiggy *Cassia*.
Lin. spec. 537. *Reich.* 2. 249. *amæn.* 5. 397.
Loefl. it. 232. *Brown. jam.* 223. n. 8. *Sloan. jam.* 2. 49. t. 189. f. 6, 7. *Swartz obs.* 156.
Leaflets two pairs ovate-oblong, acuminate, an oblong gland between the lowest, spines subpetioled obsolete three-toothed.
5. *Cassia Tagera*.
Lin. spec. 538. *Reich.* 2. 249.
Leaflets three pairs, gland petiolar, *stipules* ciliated cordate acuminate.]
6. *Cassia Tora*. Oval-leaved *Cassia*, or wild *Senna*.
Lin. spec. 538. *Reich.* 2. 250. *mant.* 378. *fl. zeyl.* n. 152. *Lour. cochinch.* 263. *Mill. fig.* t. 82. *Dill. elth.* 72. t. 63. f. 73.
C. *Pentagonia*. *Mill. dict.* n. 18.
β. *Herm. lugdb.* 557. *Raii hist.* 1743. (*Senna*) & 911. 2. (*Galega*).
Leaflets three pairs obovate, the outer ones larger, a subulate gland between the lower.
7. *Cassia bicapularis*. Six-leaved *Cassia*.
Lin. spec. 538. *Reich.* 2. 250. *Merian. sur.* t. 32. *Plum. spec.* 18. t. 76. f. 1.
Leaflets three pairs obovate smooth, the interior ones rounder and less, a globular gland interposed.
8. *Cassia emarginata*.
Lin. spec. 538. *Reich.* 2. 251. *Swartz obs.* 157. *Brown. jam.* 223. 3. *Sloan. jam.* 2. 44. t. 180. f. 1—4. *Raii dendr.* 110. 1.
C. *racemosa*. *Mill. dict.* n. 19.
Leaflets three or four pairs ovate almost entire, flowers in racemes irregular, stem arborescous.
- [9. *Cassia obtusifolia*. Round-leaved *Cassia*.
Lin. spec. 539. *Reich.* 2. 251. *Dill. elth.* 71. t. 62. f. 72. *Sloan. jam.* 2. 47. t. 180. f. 5? *Senna*. *Swartz obs.* 158. *Lour. cochinch.* 263? *Leaflets* three pairs obovate, blunt.
10. *Cassia falcata*. Sick-leaved *Cassia*.
Lin. spec. 539. *Reich.* 2. 251. *hort. cliff.* 159.
Leaflets four pairs ovate-lanceolate back-sickled, a gland at the base of the petioles.
11. *Cassia longisiliqua*. Long-podded *Cassia*.
Lin. syst. 393. *suppl.* 230.

Leaflets four pairs, the outmost lanceolate, a subulate gland below the inmost and between the outmost.]

12. *Cassia occidentalis*. Occidental *Cassia*.
Lin. spec. 539. *syst.* 393. *Reich.* 2. 251. *Swartz obs.* 159. *Brown. jam.* 224. 10. *Comm. hort.* 1. 51. t. 26. (*Senna*). *Sloan. jam.* 2. t. 176. f. 3, 4.

Leaflets five pairs ovate-lanceolate scabrous about the edge, the outer ones larger, a gland at the base of the petioles.

- [13. *Cassia planisiliqua*.
Lin. spec. 540. *Reich.* 2. 252. *Roy. lugdb.* 468. 11. *Plum. spec.* 18. t. 77.

Leaflets five pairs ovate-lanceolate smooth, a gland at the base of the petioles.]

14. *Cassia Fistula*. Alexandrian purging *Cassia*, *Cassia-stick Tree*, or *Pudding Pipe Tree*.

Lin. spec. 540. *syst.* 393. *Reich.* 2. 252. *fl. zeyl.* n. 149. *mat. med.* 111. *Plenck, ic.* t. 327. *Woodv. med. bot.* 449. t. 163. *Swartz obs.* 159. *Gärtn.* 2. 313. *Blackw.* t. 381. *Comm. hort.* 1. 215. t. 110. *Rumph. amb.* 2. 83. t. 21. *Lour. cochinch.* 264. *Raii hist.* 1746. *Alp. ægypt.* 3. t. 1. *Sloan. jam.* 2. 42. *Brown. jam.* 222. 1.

Conna. Rheed. mal. 1. 37. t. 22.

Leaflets five pairs ovate-acuminate smooth, petioles without glands.

- [15. *Cassia atomaria*.
Lin. syst. 393. *Reich.* 2. 252. *mant.* 68.
Leaflets five pairs ovate subtomentose, petioles round without glands.

16. *Cassia pilosa*.
Lin. spec. 540. *syst.* 393. *Reich.* 2. 252. *Brown. jam.* 224. 12. *Swartz obs.* 160.

Leaflets four or five pairs with very minute glands, *stipules* semicordate acuminate, stem stiff hairy.]

17. *Cassia Senna*. Egyptian *Cassia* or *Senna*.
Lin. spec. 539. & 1681. *syst.* 393. *Reich.* 2. 253. *mat. med.* 110. *Woodv. med. bot.* 446. t. 162. *Plenck, ic.* t. 326. *Swartz obs.* 161.

Senna alexandrina. *Bauh. pin.* 397. *Dod. pempt.* 361. *Mor. hist.* 2. 201. f. 2. t. 24. f. 1. *Mill. dict.* n. 1. *Raii hist.* 1742. *Regnault bot.* 388. fig. —*officinalis*. *Gärtn. fruct.* 2. 312.

β. *Senna italica*. *Bauh. pin.* 397. *Mor.* 200. f. 2. *Mill. dict.* n. 2. *Park. theat.* 225. *Sloan. jam.* 2. 47.

Leaflets four to six pairs subovate, petioles without glands.

18. *Cassia biflora*. Two-flowered *Cassia*.
Lin. spec. 540. *Reich.* 2. 253. *hort. cliff.* 159. *amæn.* 5. 397. *Brown. jam.* 223. n. 6. *Plum. spec.* 18. ic. 78. f. 1.

Leaflets six pairs rather oblong smooth, the lower ones smaller, a subulate gland between the lowest, pedicels two-flowered.

- [19. *Cassia ruscifolia*.
Lin. syst. 394. *Jacqu. collect.* 1. 43. *icon. rar.* t. 71.

Leaflets six pairs, lanceolate acute smooth, a gland above the base of the rib, flowers racemed.

20. *Cassia hirsuta*.
Lin. spec. 540. *Reich.* 2. 253. *hort. cliff.* 159. *Herm. lugdb.* 556.

Leaflets six pairs broad-ovate acuminate woolly.

21. *Cassia multiglandulosa*. Glandulous *Cassia*.
Lin. syst. 394. *Jacqu. collect.* 1. 42. *icon. rar.* t. 72. *Ait. hort. kew.* 52.

Leaflets six pairs, villose beneath and about the edges, obtuse; a gland between each pair of leaflets.

22. *Cassia tomentosa*.
Lin. syst. 394. *suppl.* 231.

Leaflets six or eight pairs linear obliquely rounded at the base, rough with hairs on the upper surface, panicles axillary, legumes villose.

23. *Cassia serpens*.
Lin. spec. 541. *Reich.* 2. 254. *Swartz obs.* 161. *Brown. jam.* 225. n. 15. *Sloan. jam.* 2. 5.

Leaflets seven pairs, flowers pentandrous, stems filiform prostrate herbaceous.]

24. *Cassia ligustrina*. Privet-leaved *Cassia*.
Lin. spec. 541. & 1681. *syf.* 394. *Reich.* 2. 254.
mant. 378. *Gron. virg.* 47, 65. *Dill. elth.* 350.
t. 259. *f.* 338. *Mart. dec.* 3. *t.* 21.
C. bahamensis. *Mill. dict.* n. 9.
C. ligustrina. *Mill. dict.* n. 12.
Leaflets seven pairs lanceolate, the outmost smaller, a gland at the base of the petioles.
25. *Cassia alata*. Broad-leaved *Cassia*.
Lin. spec. 541. *Reich.* 2. 254. *mant.* 378. *hort. cliff.* 158. *Swartz obs.* 162. *Mer. furin.* *t.* 58.
Rumph. amb. 7. 35. *t.* 18. *Brown. jam.* 224. 9.
Leaflets eight pairs oval-oblong, the lowest smaller, petioles without glands, stipules spreading.
26. *Cassia marilandica*. Maryland *Cassia*.
Lin. spec. 541. *Reich.* 2. 255. *Dill. elth.* 351.
t. 260. *f.* 339. *Mart. cent.* *t.* 23.
Leaflets eight pairs ovate-oblong equal, a gland at the base of the petioles.
27. *Cassia tenuissima*.
Lin. spec. 541. *Reich.* 2. 255.
Senna spuria frutescens, filiquis tenuissimis. Houst. M. S.
Leaflets nine pairs oblong, a subulate gland between the lowest.
28. *Cassia Sophera*.
Lin. spec. 542. *Reich.* 2. 255. *fl. zeyl.* n. 150.
Lour. cochinch. 264. *Burm. zeyl.* 213. *t.* 98.
(Senna). Rumph. amb. 5. 283. *t.* 97. *f.* 1.
(Gallinaria). Rheed. mal. 2. 101. *t.* 52.
(Ponnam-Tongera).
Leaflets ten pairs lanceolate, an oblong gland at the base.
29. *Cassia bracteata*.
Lin. syst. 394. *suppl.* 232.
Leaflets ten pairs oblong obtuse without glands, racemes elongated, bractes ovate swelling imbricate, legume quadrangular compressed.
30. *Cassia auriculata*. Eared *Cassia*.
Lin. spec. 542. *Reich.* 2. 255. *fl. zeyl.* n. 151.
Senna spuria maderaspatana, &c. Pluk. alm. *t.* 314.
f. 4. *Raii dendr.* 110.
Leaflets twelve pairs obtuse mucronate, several subulate glands, stipules kidney-form bearded.]
31. *Cassia javanica*. Java *Cassia*.
Lin. spec. 542. *Reich.* 2. 256. *Comm. hort.* 1. 217.
t. 111.
Leaflets twelve pairs oblong obtuse smooth, no gland.
- [32. *Cassia grandis*.
Lin. syst. 394. *suppl.* 230.
Leaflets twenty pairs, somewhat silky, without glands.]
33. *Cassia Chamæcrista*. Dwarf *Cassia*.
Lin. spec. 542. *Reich.* 2. 256. *Swartz obs.* 164.
Gron. virg. 47, 64. *Brown. jam.* 225. 13. *Comm. hort.* 1. 53. *t.* 37. *Curt. mag.* *t.* 107.
Leaflets many pairs, a petiolar pedicelled gland, stipules ensiform.
34. *Cassia glandulosa*.
Lin. spec. 542. *syst.* 395. *Reich.* 2. 256. *Breyn. cent.* 64. *t.* 24. (*Chamæcrista*).
Leaflets many pairs with many glands, stipules subulate.
- [35. *Cassia mimoides*.
Lin. spec. 543. *Reich.* 2. 257. *fl. zeyl.* n. 154.
Leaflets many pairs linear, an obscure gland at the base of the petioles, stipules setaceous.
36. *Cassia flexuosa*.
Lin. spec. 543. *Reich.* 2. 257.
not flexuosa of Miller.
Senna spuria. Herm. lugdb. 558. *Raii dendr.* 111. 7.
Chamæcrista. Breyn. cent. 65. *t.* 23.
Leaflets many pairs, stipules half-cordate.
37. *Cassia nictitans*.
Lin. spec. 543. *Reich.* 2. 257. *hort. cliff.* 497.
t. 36.
Senna spuria. Pluk. alm. *t.* 314. *f.* 5.
Amæna mæsta. Rumph. amb. 6. 147. *t.* 67. *f.* 1.
Leaflets many pairs, flowers pentandrous, stem somewhat erect.
38. *Cassia procumbens*.
Lin. spec. 543. *Reich.* 2. 257. *Comm. petrop.* 12. 289. *Lour. cochinch.* 264.
not procumbens of Miller, n. 20. see n 44.

Chamæcrista mariana, fl. minore. Pet. succ. 243. n. 40.
Leaflets many pairs without glands, stem procumbent.]

Other species in Miller.

39. *Cassia fruticosa*.
Mill. dict. n. 10. *Houst. reliq.* *t.* 17. *Herb. Amm. in mus. petrop.* 2. 601. n. 6.
Leaflets two pairs ovate-lanceolate smooth, flowers terminal, pods long round, stem shrubby.
40. *Cassia arborescens*.
Mill. dict. n. 15.
Senna spuria tetraphylla arborea, filiquis compressis angustis longissimis pendulis. Houst. M. S.
Leaflets two pairs oblong-ovate villose beneath, flowers corymbed, stem erect arboreous.
41. *Cassia villosa*.
Mill. dict. n. 4.
S. sp. arborea villosa, fol. latis mucronatis, filiquis articulatis. Houst. M. S.
Leaflets three pairs oblong-ovate equal villose, pods jointed, stem erect arboreous.
42. *Cassia uniflora*.
Mill. dict. n. 5.
S. sp. herbacea Orobi Pannonici fol. rotundioribus, fl. parvo, filiquis erectis. Houst. M. S.
Leaflets three pairs ovate-acuminate villose, flowers solitary axillary, pods erect.
43. *Cassia frutescens*.
Mill. dict. n. 2.
S. sp. americana frut., fol. mucronatis minoribus, fil. teretibus duplici seminum ordine fætis. Houst. M. S.
Leaflets five pairs ovate smooth, the outer ones longer, stem shrubby.
44. *Cassia tetraphylla*.
C. procumbens. Mill. dict. n. 20.
S. sp. tetr. herbacea proc., fil. hirsutis. Houst. M. S.
Leaflets two pairs ovate, flowers solitary axillary, filiques hirsute, stems procumbent.
45. *Cassia minima*.
C. biflora. Mill. dict. n. 14.
S. sp. minima procumbens, foliorum pinnis subrotundis, caule pubescente. Houst. M. S.
Leaflets four pairs oblong-ovate, stems procumbent, flowers axillary, peduncles two-flowered.

[Species in Hortus Kewensis, and Swartz.

46. *Cassia patula*. Shining *Cassia*.
Ait. hort. kew. 51.
Leaflets five pairs oblong sharpish smooth, a gland at the base of the petioles, branches even.
47. *Cassia stipulacea*. Large-stipuled *Cassia*.
Ait. hort. kew. 52.
Pseudo-Acacia fol. mucronatis, fl. luteo. Feuillée it. 3. 56. *t.* 42.
Leaflets about eight pairs ovate-lanceolate, a gland between the lower, stipules ovate very large.
48. *Cassia frondosa*. Smooth-leaved *Cassia*.
Ait. hort. kew. 53.
Leaflets nine pairs oval-oblong smooth bluntish, a cylindrical gland between the lower, petiole without any gland at the base.
49. *Cassia sericea*.
Swartz prodr. 66.
Leaflets about four pairs ovate hirsute, a subulate gland between the leaflets, peduncles four-flowered, legumes four-cornered.
50. *Cassia lineata*.
Swartz prodr. 66.
Leaflets five pairs somewhat oblong pubescent beneath equal, an obsolete gland beneath the lowest, peduncles one-flowered.
51. *Cassia virgata*.
Swartz prodr. 66.
Leaflets ten pairs ovate-lanceolate villose, a petiolar pedicelled gland, peduncles one-flowered, longer than the leaves.

DESCRIPTIONS, &c.

I. A shrub with a round stem. Two semiorbicate obtuse striated leaves on a short petiole. Stipules

pules covering the whole branches. West-Indies. Annual^a. Introduced into England 1781, by Mr. Francis Masson^b.

2. A shrub of twelve feet in height, and very smooth. Leaves alternate petiolate; leaflets very smooth on both sides; the lower nicely ovate, the upper more elongated. No stipules. Racemes solitary few-flowered erect: pedicels hanging down angular. Flowers orange, of a middling size. Legume so like that of *C. Fistula* as not to be distinguished from it, somewhat curved, cylindric, very smooth, ending in a filiform point, a foot long, intercepted within by partitions which do not appear outwardly. Native of Surinam: observed by Dalberg^c.

3. A hairy plant, with a slender striated stem. Leaflets nearly equal. Racemes axillary few-flowered. Legumes one-celled hispid, with a few stiff hairs. Native of India, Ceylon, Egypt. Annual^d. Introduced into England in 1777 by Patrick Russell, M. D.^e

4. Stem shrubby, climbing to the height of forty or fifty feet, striated, stiff; branches divaricate, loose, stiffish, round, striated, smooth. Leaves bi-jugous: leaflets petioled, the lower pair spreading, bent down, the end one bent down perpendicularly and approximating, all entire, nerved, veined, very smooth. General petioles thickened at the base, round, usually directed one way. Between the petioles of the lower pair is a linear oblong, erect, brown gland. On the adult and old branches there are spines. Racemes axillary, stiff, spreading, many-flowered, striated. Flowers large, on peduncles longer than the flowers. Leaflets of the calyx ovate, reflex, spreading, small, pale green. Petals unequal; the four upper ones smaller, ovate, with claws, the fifth lower, largish, concave. The three hinder filaments barren, six smaller, short, fertile, the tenth larger, and bent down below the pistil. Anthers oblong, beaked. Germ pedicelled, linear, longer than the corolla, bent down, and curved back: style subulate. Legume short, compressed. Native of Jamaica, in the woods of the higher mountains in the interior of the island^f.

Introduced here in 1786, by Mr. Alexander Anderson^g.

5. A small procumbent shrub, with filiform branches. Petioles very short. Folioles four semi-orbulate veined, the two outer larger. Stipules cordate or cordate-lanceolate, hairy at the edge. Native of India^h.

6. Stem erect, less woody, roughish, knotty from the scars of the leaves. Branches much expanding. Leaflets ending in a soft point: the lower shorter, more obtuse. Stipules linear acuminate hairy. Glands acuminate, brown at the end, not between the outer pair, but between the two lower pairs of leaflets. Flowers pale yellow. Native of the East-Indies, Japan, Cochin-china, &c. Annualⁱ.

It usually grows about four or five feet high (two feet *Di&*). Leaflets broadest at their extremity, where they are bluntly rounded off, (on long pedicels. *Di&*.) Flowers axillary, formed into close short spikes, (standing on a short peduncle, of a pale yellow colour. *Di&*.), bright yellow. Pod six inches in length, swelling in the middle, and having five angles or borders, lengthways, (bending, four inches long, having five longitudinal wings, and ending in a point. *Di&*.) Seeds liver-coloured, a little compressed. This plant was discovered by Dr. Houstoun at Campeachy. He entitled it, *Senna spuria plerumque hexaphylla, fl. magno, siliqua pentagona alata*. It approaches near the *C. siliqua quadrangulata* of Dillenius in its leaves; but the flowers are near twice as large, and the pods are much more turgid, with broader wings. It is also perennial (biennial *Di&*.), and the stem becomes woody, whereas the other is an annual plant. The leaves are substituted for Senna in the natural place of its

growth^k. Cultivated in 1693 by Jacob Bo-bart^l.

β. differs in having a recurved siliqua. Quere whether it be a distinct species^m.

7. Arborecent and very smooth. Siliques roundish, coriaceous, with a double, round cell. Only two pairs of leaflets, a globular gland between the lowest pair. Bractes ventricose, subimbricate. Siliqua long. Perennialⁿ.]

Miller describes his *bicapsularis* to be an annual plant, a foot and half high, with an erect herbaceous stalk; three pair of oval leaflets to each leaf; the flowers axillary, solitary, small, yellow; the pods taper; the natural place of growth Jamaica and the other sugar islands. [Also in the island of Madeira. This cannot be the same plant with Linneus's.

Cultivated 1739 by Mr. Philip Miller^o.

8. This is a small tree, with a trunk ten or twelve feet high, and subdivided, round, ash-coloured, pubescent branches. Leaves pinnate, scattered, spreading. Common petioles round, two inches long, pubescent. Leaflets petioled, blunt, nerved, thickish, tomentose, hoary beneath. Racemes axillary, solitary, patulous, shorter than the leaves, many-flowered. Flowers terminating, peduncled, yellow; peduncles one-flowered, short. Three leaflets of the calyx larger, ovate-oblong, patulous, concave-arched, pubescent on the outside. Petals unequal; four with claws, oblong, almost of a size, but the lower ones somewhat smaller; the upper petal with a claw, larger, irregular, in form of the letter S placed obliquely, concave, waved at the edge. Filaments very short, equal, subulate: anthers the length of the filaments, thick, curved in, fertile. Germ pedicelled, subulate, obliquely declined: style rising: stigma blunt. Legume flat, broad. It flowers in the spring, and the seeds ripen in august. Native of Jamaica, in dry coppices in the southern part^p.] Mr. Philip Miller says, that it was sent him from Carthage by Mr. Robert Millar.

It is known by the name of Senna tree in Jamaica, and the leaves of this are sometimes used instead of the true sort.

[9. Height from one to two feet. Stem solitary, straight, round, green, smooth, the size of the little finger below branching from the very bottom. Lower leaflets larger, upper smaller, resembling Italian Senna, enlarging toward the end, obtuse, but ending in a very short point, covered with a fine down, perceptible to the touch rather than the sight; at the base of the petioles a slender stipula on each side. Both leaves and stems have a strong smell. The upper part of the stem and branches downy. Flowers axillary, few, small, nodding, pale yellow. Annual^q. The leaves have no odd leaflet. Petioles alternate, spreading, roundish, thickened at the base, channelled in the middle, even. Leaflets subsessile, entire: between the lowest pair a minute, yellow, linear gland, on a short petiole. Peduncles solitary, shorter than the petioles, two-flowered; pedicels quadrangular, three times as long as the peduncles. Leaflets of the calyx ovate; two larger, convex, hairy at the edge. Petals nearly equal, with claws; the three upper ones spreading, the two lower contiguous, rather smaller. The four upper filaments minute, barren without anthers, four middle, larger fertile, two lower, bent down. Anthers perforate at the tip. Germ oblong, acuminate: style subulate, recurved: stigma simple, pubescent. Legume pedicelled, linear, four or five inches long, cylindric-angular, curved, even; containing from twenty to twenty-four seeds^r.

The seeds were sent from the Havanna in Cuba: and it is a native of Jamaica.

10. Leaflets gradually half as big again, the outmost therefore largest; three or four pairs, tapering to the base, almost sessile; the inner side of the leaflets broader and more gibbous, the lower towards the base most narrowed: by which mark it differs

^a Linn. spec. ^b Hort. kew. ^c Linn. suppl.
^d Linn. ^e Hort. kew. ^f Swartz. ^g Hort. kew.
^h Linn. spec. ⁱ Linn.

^k Mill. fig. ^l Hort. kew. ^m Linn. ⁿ Ibid.
^o Hort. kew. ^p Swartz. ^q Dillenius. ^r Swartz.

from all the other sorts. Perhaps, however, it may be only a variety of n. 12. Native of America^a.

11. Stem erect, roundish, obtusely grooved, branches scarcely pubescent. Leaflets very smooth, paler green beneath, ovate-oblong, the outmost gradually longer, so as to become rather linear than lanceolate. An oblong subulate gland between or below the lowest pair, and an acuter one between the outmost pair; seldom any between the intermediate pairs. Petiole erect roundish. Stipules linear acute short. Legume four-cornered, rough with hair, short. It sleeps at night by erecting the petiole close, and hanging down the leaflets near the stem. Native of America. Perennial^a.

12. Stem a foot and half high, rough with irregularly scattered dots, scored downwards from each petiole with two grooves. Leaflets smooth, acuminate, foetid, growing gradually larger to the outer ones. Raceme terminal. Flowers pale yellow without any spot. The leaves in the young plant have five pairs of leaflets, but in the adult only three^a.

According to Browne, this plant rises generally to the height of two feet and a half, or more: it is loose in its ramifications, and well supplied with flowers, disposed in loose spikes at the extremities of the branches. The gland, which is common to most species of Cassia, on some part of the common petiole, is in this sort situated very low, and near the insertion of the rib.

It is very common about Kingston in Jamaica, and is called there *Stinking-weed*. The tops of the plant are commonly employed in all resolutive baths, and it is accounted a very powerful ingredient on such occasions.

Cultivated by Mr. Miller in 1759^a.

13. Siliques linear compressed swelling where the seeds are, the futures a little prominent^a. Native of South-America.]

14. This tree rises to the height of forty or fifty feet, with a large trunk, dividing into many branches. The leaflets are equal at the base, have many transverse nerves, and the midrib is very prominent on the under side. The stipules are scarcely apparent. The flowers are produced in long spikes at the end of the branches, each standing upon a pretty long peduncle; they are of a deep yellow colour, and are succeeded by cylindrical pods, from one to two feet long, having a dark-brown woody shell, with a longitudinal seam on one side, divided into many cells by transverse partitions, each containing one or two oval, smooth, compressed seeds, lodged in a sweetish, black pulp.

[This pulp is an easy gentle laxative, opening the passages without irritating the intestines: but it grows rancid when it has been long out of the cells, and then acquires an acrimony that renders it precarious, and even dangerous^a. Native of both Indies.

It was cultivated in 1731, by Mr. Miller^a.

15. Stem the height of a man, woody, ash-coloured, very branching. Branchlets and petioles scarce manifestly pubescent. Petioles having sub-ferruginous atoms scattered over them, not channelled. Leaflets green on both sides, tomentose to the touch; the lower ones smaller, more obtuse, submarginate, the inner edge of the base not smaller. Stipules subulate, frequently permanent from the falling of the leaves of the year preceding. Observed in America by Jacquin^b.

16. Stem from one to two feet high, herbaceous, subdivided, upright, round, hirsute, reddish. Branches short, almost upright. Leaflets opposite, subsessile, oblong, rounded at the tip, sharp, with a very small bristle, fixed obliquely to the petiolule, veined, a little hirsute at the edge. Common petioles thicker at the base, round, hirsute. Glands extremely minute, pedicelled, concealed in the hairs under the lowest pinnae. Stipules opposite, sessile,

sickle-shaped, acuminate, entire, hirsute. Flowers two or three together, axillary, small, yellow. Peduncles filiform, long, one-flowered, smooth, purplish. Bractes two, whitish, under the flowers. Calycine leaflets lanceolate, spreading. Petals nearly equal, roundish, with claws, concave, waved about the edge. Filaments seven, two of them minute, barren. Anthers linear, white, bearing pollen at the tip. Germ oblong-lanceolate, villose, white: style cylindric, thick, recurved: stigma simple, obtuse. Legume subcylindric, linear, pedicelled, pubescent. Native of Jamaica; flowering towards the end of the year^c.]

17. The plant which produces the leaves commonly known in medicine by the name of Senna is annual, and rises with an upright branching stalk about a foot high. The leaves are pinnate, and have four pairs of small spear-shaped leaflets, ending in acute points. The flowers are yellow, and produced in loose bunches at the top of the stalk.

[It grows naturally in Persia, Syria and Arabia, whence the leaves are brought, dried and picked from the stalks, to Alexandria in Egypt;] and being thence annually imported into Europe, it has the title *alexandrina* added to it.

[These leaves are oblong, sharp pointed at the ends, about a quarter of an inch broad, and not a full inch in length, of a lively yellowish green colour, a faint but not very disagreeable smell, and a subacid, bitterish, nauseous taste. Some worse sorts are brought from Tripoli and other places, which may easily be distinguished by their being either narrower longer and sharper pointed, or larger broader and round pointed, with small prominent veins, or large and obtuse, of a fresh green colour, without any yellow cast.

Mr. Miller distinguishes that which is vulgarly called Italian Senna from this specifically, by its having five pairs of blunt leaflets.]

This is also an annual plant, rising with a branching stalk a foot and half high. The leaves have five pairs of obcordate leaflets, of a sea-green colour, and a thick consistence. The flowers are larger, and of a brighter yellow colour. It grows naturally in India.

[Swartz describes it, as it is found on the coast of the island of Jamaica, near Port-Royal; where however it is not originally a native.

Stem shrubby, branched, even, with subdivided branches. Leaves composed of five, seldom six pairs of leaflets. Common petioles alternate round, thickened at the base. Leaflets opposite, oblong, rounded at the tip where there is a very short bristle, veined, glaucous, on very short petiolules. Stipules at the base of the common petiole, opposite, acuminate. Raceme terminating, erect, many-flowered; the flowers on short peduncles, bent down, pale yellow. Calycine leaflets lanceolate. Petals convex, patulous. Three filaments superior, four middle smaller, three inferior. Anthers of the superior filaments large, of the middle ones small, of the lower ones barren. Germ lanceolate: style incurved: stigma acute. Legume shaped like the stomach, pedicelled, winged on each side for each seed, the lower margin crenate. Seeds eight, oblong, compressed.

Swartz seems to doubt whether it be the genuine Senna: and in having blunt leaflets it agrees with that which Miller says he received from the East-Indies.]

In the West-Indies, the inhabitants make use of the leaves of several species of Cassia, instead of the true Senna; and also of the Poinciana, or Flower-fence, which is frequently called there true Senna.

[The accurate Gartner, who distinguishes Senna from Cassia generically, describes the legume as ovate-reniform, membranaceous, leafy-compressed, torose where the seeds are, marked with capillary, transverse parallel streaks, having from six to nine

^a Linn. cliff.

^b Linn. suppl.

^c Linn.

^d Hort. kew.

^e Royen.

^f Browne.

^g Hort. kew.

^h Linn. mant.

ⁱ Swartz.

cells, and two valves: partitions transverse, very thin. Seeds solitary, obcordate-oblong, beaked, flattish on both sides, towards the periphery declining to a sharp edge, wrinkled, pale ash-colour, with a pale linear mark, and above that a small shining chestnut spot on both sides.

Senna is one of the most general purgatives in the materia medica. For this purpose it is used in infusion, and is not unfrequently mixed with other substances, as manna, &c. It is sufficiently efficacious, and operates without violence: it is however sometimes apt to excite tormina, and it has the disadvantage of being nauseous to the taste; but to remedy this inconvenience, compositions of various kinds are prepared in the shops. Thus, for example; six drams of tamarinds and two of crystals of tartar are boiled in a pint and half of water till half a pint is wasted, and the strained liquor poured boiling hot upon one, two, or three drams of Senna: after maceration for four hours, the strained infusion is sweetened with an ounce of syrup of violets, and flavoured with half an ounce of simple cinnamon-water. Or, three drams of Senna are infused in a quarter of a pint of boiling water for four hours; or till the liquor has grown cold, with the addition of a scruple of ginger; or with half a dram of lesser cardamom-seeds husked, and three fourths of a dram of crystals of tartar, which last are previously boiled in the water till dissolved; or with two drams of fresh lemon peel, and two drams by measure of lemon juice. This last, which is the *Infusum sennæ limoniatum*, is considered as the most agreeable form in which the infusion of Senna can be contrived.

18. This has the stature of *Orobis niger*. Leaflets oval-oblong, blunt, with a very small bristle-shaped point. Flowers yellow. Pods linear, compressed^d. Native of the West-Indies. Cultivated in 1766, by Mr. James Gordon^e.

This is not *C. biflora* of Miller: see n. 45.

19. This is an elegant shrub, the height of a man. Stem erect, round. Leaflets on very short petioles, opposite, the upper gradually a little larger; the rib about a foot long. Peduncles solitary and axillary towards the ends of the twigs, sustaining from three to six flowers on short pedicels. The peduncles, base of the petioles, and young branches are slightly pubescent. Leaflets of the calyx pale green, very concave, obtuse and spreading. Petals yellow, the three upper twice as broad, and a little longer than the two lower, on which three longer filaments lie; these are much declined, and bear larger anthers: Germ columnar, smooth; stigma capitate. Legume straight, a little compressed, smooth, ending in a blunt, roundish beak, about four inches long. Seeds ovate, a little compressed, shining, black, with hardly any pulp. These were gathered on the rocks of Madeira, by Masson^f.

20. Native of America. The leaves have six pairs of ovate-lanceolate, sessile leaflets: both they and the petiole are covered on both sides with a white wool*.

21. This also is a shrub the height of a man. The young branches, petioles, peduncles, under surface and edges of the leaves are villose. Leaflets on very short petioles, blunt, with a small point. Racemes at the ends of the twigs, having about five flowers in each. Leaflets of the calyx villose, concave, yellow, very blunt, spreading, unequal. Petals yellow, blunt, almost twice as large as the calyx, the three upper ones very large. Legume linear, brownish ash-colour, slightly villose and soft to the touch, blunt, torulose, about three inches long. Seeds subovate, blunt, hardly compressed, black and very shining, without any pulp. Found by Masson in the gardens of Teneriffe^g: and introduced by him into England in 1779. It flowers here most part of the summer^h.

22. This is a tree with round flexuose branches, covered with a thick soft white pile, which is yellow when they are dry. Leaflets linear-lanceolate, acute, quite entire, beneath white or pale yellow, and tomentose. Petioles tomentose. Stipules semilunar; or lanceolate, tomentose, deciduous. Panicles axillary, on the top of the stem, solitary. Peduncles tomentose. Flowers of a middling size; pale yellow. Pods straight, compressed, very tomentose. It was found in South-America, by Mutisⁱ.

23. Stems three or four inches long, simple, somewhat upright, but depressed at the base, stiff; round, villose. Leaflets from seven to nine pairs; opposite, somewhat sickle-shaped, sessile, approximating, flat, oblique, terminated by a very short bristle, and somewhat villose. Common petioles filiform, short, thickened at the base, round, hirsute. Beneath the lowest pair of leaflets are two flat, sessile, roundish, perforated, red glands. At the base of the petioles is a pair of stipules, opposite, oblique, lanceolate, acuminate, almost bristle-shaped at the tip. Flowers not axillary, but crowded above the petioles, small, yellow, on very short pedicels. Calycine leaflets lanceolate, spreading. Petals unequal, ovate, obtuse, concave, spreading. Filaments very short. Anthers linear, fertile; the three anterior ones bent down, and somewhat larger. Germ compressed, oblong: style thickish: stigma blunt, pubescent. Legume flat, compressed, of a broad linear shape; margined, blunt, villose, containing many seeds^k.

This is an annual plant, native of Jamaica, in dry pastures, creeping among the grass.

24. Stem six or seven feet high or more, the thickness of the little finger, slightly angular, putting forth many deeply striated branches from top to bottom. Leaflets from six to eight pairs, but seven the most common. The axillas, upper part of the stem, edges and backs of the leaves are finely pubescent. The lower leaflets are shorter. Flowers many, terminating, yellow. Pods at first incurved, afterwards straighter, flat, an inch broad, two inches long, and more. The leaves and flowers have somewhat of a fetid smell.

Native of the isle of Providence, and other islands in the West-Indies^l.

It was brought from the Bahama islands in 1726, by Mr. Mark Catesby; and flowered first in Sir Charles Wager's, and the Chelsea garden^m.

25. Stem subherbaceous, six feet high and more, branched, upright, furrowed, smooth, with simple striated branches. Leaves large, from one to two feet in length, with six pairs of leaflets (eight to ten *Lin.*) Common petiole thickened at the base, three-sided, excavated at top, in a manner winged. Leaflets gradually larger from the base to the tip, on very short petioles, obovate, obtuse, entire, nerved, smooth on both sides, paler underneath, pubescent. Glands none. Stipules semicordate. Racemes terminating, spiked, from one to two feet in length, solitary, round, upright, many-flowered. Flowers large, yellow, pedicelled. Bractes roundish-ovate, concave, entire, the colour of the flowers, and covering them, loosely imbricate like scales. Pedicels scattered, short, round, smooth. Calycine leaflets oblong, concave, coloured, tender. Petals unequal, with claws, roundish, concave, entire; the superior fifth petal a little larger than the others, waved with a fringed border. The three lower filaments very small, with barren anthers; the four middle ones smaller and fertile; the two upper ones longer, with very large recurved anthers, bifid at the base, retuse at the tip. Germ shortly pedicelled, long, declined, recurved, striated: style short, recurved: stigma obtuse. Pods two-valved, quadrangular, the opposite angles winged, the margin crenate. Seeds separated by alternate membranaceous partitions, rhomboidal, compressedⁿ.

^d Linn. amoen.

^e Hort. kew.

^f Jacquin.

^{*} Linn. hort. cliff.

^g Jacqu.

^h Hort. kew.

ⁱ Linn. suppl.

^k Swartz.

^l Dillenius.

^m Mart. dec.

ⁿ Swartz.

It lives but a few years, though it puts on the appearance of a shrub in its growth; and when cultivated, rises sometimes to the height of seven or eight feet, but seldom exceeds four in its native soil. Ants are very fond of the flowers. The juice of the leaves or buds is said to cure the Ring-worm, whence it is called in Jamaica the Ring-worm Bush^o. The French in St. Domingo, where it also grows wild, call it *Herbe à dartres*; and Rumphius for the same reason names it *Herpetica*. It flowers in the spring^p.] Mr. Miller says that the whole plant has a strong fetid odour. [It was cultivated by him in 1731^q.]

26. Root perennial, composed of a great number of black fibres, sending out in the spring several upright stems; four or five feet high, [dividing into many branches pointing obliquely upwards. The stem, branches, petioles, edges of the leaves, peduncles and calyxes have a few whitish hairs on them. Leaflets from six to nine pairs, but most commonly eight; and sometimes an odd leaflet. At the base of the petiole there is a slender stipule on each side. Flowers (two or three together) from the axillas of the upper leaves,] and in loose spikes at the end of the stem. [Before they open they hang down, but are afterwards erect. The petals are very narrow, slightly concave, scarcely differing in size, of a pale yellow colour. Calyx pale or greenish yellow^r.

Native of North-America. Peter Collinson received this species from Maryland in 1723^s.

27. Native of the Havanna^t.

28. The leaflets are acute smooth nearly equal and on very short petioles. Flowers in small racemes from the axillas. Corollas very pale yellow with brown veins. The three upper anthers are very small and barren; the three lowest are bowed, and the four middle ones straight^u. Native of the East-Indies, China, and the island of Tongatabu in the South Seas.

29. Leaves more than a foot long, with eight or ten pairs of leaflets, which are four inches long, linear, rounded at the end, soft and hoary beneath. Petiole compressed, and channelled between the leaflets. Raceme very large, composed of flowers thick heaped together, amid large ovate swelling imbricate nerved pubescent bractes, falling off immediately before the flowers unfold. Corollas yellow. Legumes incurved, compressed, having four angles. Found at Surinam by Dalberg^v.

30. Leaflets oval-oblong, smooth, petioled, nearly equal. On the common petiole between each pair there is a short gland. Stipules broad, stem-clasping, very obtuse, with one bristle at the base on each side. Flowers three, four, or five in a corymb, orange-coloured. The three upper anthers are barren; the three lower oblong, bowed, the four middle ones straight^w.

Native of the East-Indies. Introduced in 1777, by Daniel Charles Solander, LL.D.^x.]

31. This rises to a great magnitude, with a large trunk, dividing into many branches. Leaves very long, composed of twelve or fourteen pairs of smooth leaflets, of a light green, and placed near together. The flowers come out in loose spikes at the ends of the branches; they are of a pale carnation colour, and are succeeded by large cylindrical pods, [two feet long, and the thickness of a slender arm^y;] divided by transverse partitions into many cells, in which the seeds are lodged, surrounded with a black purging pulp. This is called Horse Cassia, because it is generally given to horses, but is seldom used by the human species on account of its griping quality. [It is a native of the East-Indies, as Linneus's trivial name implies, and seems to be confounded by Miller with one of the West-Indian sorts.—Introduced in 1779^z.

32. This is a stout tree, and the branches are

covered with a fine silky down. Leaflets oblong, obtuse, of equal breadth. Pods a foot and half in length, somewhat compressed, three fingers broad, very heavy, acuminate; the futures elevated, round, standing out, one of them doubled. Native of Surinam^b.

33. Stem herbaceous, a foot high or more, diffusely smooth, round; with hirsute branches. Leaves pinnate, with twenty-four or twenty-five pairs of leaflets. Common petioles round, hirsute, thicker at the base. Leaflets on very short petiolets, opposite, lanceolate, rounded at the base, oblique, blunt at the end and terminated by a very small bristle; nerved, smooth. Glands beneath the lowest pair of leaflets, pedicelled, capitate, truncate, turbinate at the tip. Stipules lanceolate, acuminate, opposite, at the base of the petioles, half-clasping, smooth but pubescent at the edge. Flowers among the stipules above the petiole, and not axillary; on very short, solitary, three-flowered pedicels. Corollas small, yellow; with two minute opposite bractes on the pedicels. Calycine leaflets linear, equal, acute, reflex, pubescent. Petals unequal; the two upper ones smaller, with a dusky spot; the other three larger, having claws, roundish, concave, waved about the edge. Filaments unequal, the seven hinder ones smaller, the three forward ones longer. Anthers linear, angular, bearing pollen at the tip. Germ oblong, white, very hirsute: style recurved, thick: stigma blunt. Legume compressed. It is an annual plant, native of the West-Indies, in dry pastures^c: and was cultivated here in 1699, by the Dutchess of Beaufort^d.

C. Chamæcrista of Miller does not seem to be the same with this; and he affirms that his plant, which he had from Vera Cruz by Dr. Houstoun, is very different from the Chamæcrista pavonis major.

34. Stems suffruticose, with almost naked branches. Leaflets lanceolate, with a pedicelled gland on the petiole between each pair. Peduncles axillary, double, one-flowered, shorter than the leaf. The flowers have six filaments, and two of the anthers are very long. The pods are like those of Orobus^e. Native of the West-Indies.

35. Stem erect (not flexuose), very simple, round, more than two feet high. Stipules lanceolate, terminated by a bristle. From the axils spring two erect filiform one-flowered peduncles, with a double lanceolate bracte towards the end. Seven, of the stamens have oblong anthers. Legumes linear. Native of the island of Ceylon^f.

36. This is an annual plant, and native of Brasil^g.

37. The petiolar gland is pedicelled and brown. The peduncles are usually three-parted and three-flowered, coming out in the space above the axils. It is an annual plant, and native of Virginia^h. Linneus refers also to Rumphius's Amboina.

38. This also is annual, and native both of the Indies and Virginiaⁱ: of Japan, Cochinchina and Africa.

The following species are added from Miller, who received them from Dr. Houstoun.]

39. This grows upwards of twenty feet high with several stems covered with brown bark, and dividing into many branches at top. The leaves have two pairs of leaflets, which in the lower ones are oval; but those of the upper are five inches long, and two and a half broad in the middle, smooth, and of a light green. The flowers are produced in loose spikes at the extremity of the branches; they are large, of a gold colour, and succeeded by taper brown pods about nine inches long, having many transverse partitions, in which the seeds are lodged in a thin pulp. Native of La Vera Cruz.

40. This rises with a strong upright trunk to the height of twenty-five or thirty feet, dividing into many branches covered with an ash-coloured bark. Leaves on long foot-stalks, composed of two pairs

^a Browne. ^p Swartz. ^q Hort. kew. ^r Dillenius.
^s Mart. dec. ^t Linn. spec. ^u Linn. suppl.
^v Linn. zeyl. ^w Hort. kew. ^x Linn. spec.
^y Hort. Kew.

^b Linn. suppl. ^c Swartz. ^d Hort. kew.
^e Linn. spec. ^f Linn. zeyl. & spec. ^g Linn. spec.
^h Ibid. ⁱ Ibid.

of leaflets, four inches long, and near two broad, smooth, of a dark green on their upper side, but paler underneath. The flowers are produced sometimes from the side of the stalks, where they are few and scattering; but the ends of the branches have large round bunches of flowers, which branch out from one centre; they are of a deep yellow inclining to orange colour, and are succeeded by compressed pods, near nine inches long, having a border on each side, and containing one row of oval smooth compressed seeds. Native of La Vera Cruz.

41. This rises with a woody stem to the height of fourteen or sixteen feet, sending out many lateral branches. The flowers come out in loose bunches at the ends of the branches, are of a pale straw-colour and small. The pods are long, narrow and jointed, each seed being lodged in a sort of isthmus: the seeds are oval and brown. Native of Campeachy.

42. This is a low herbaceous plant, seldom rising a foot high, with a single stem. The flowers come out single from the side of the stem; they are of a pale yellow and small; and are succeeded by narrow taper pods two inches long and growing upright. It is an annual plant, and a native of Campeachy.

43. This rises with a shrubby stalk five or six feet high, sending out many branches towards the top. The leaves have five pairs of oval leaflets, of which the upper ones are longest. The flowers are yellow, come out from the side of the stalks, and also terminate the branches in loose spikes. The pods are long, taper, and contain two rows of seeds. Native of Jamaica.

44. This is an annual plant, with several trailing herbaceous stalks, about two feet long. The leaves are on long footstalks, and at a considerable distance from each other. The flowers come out single from the side of the branches, are of a pale yellow colour, and are succeeded by short flat hairy pods, containing one row of flat seeds. Native of La Vera Cruz.

45. This also is an annual plant, and sends out from the root two or three slender stalks, which trail on the ground. The leaves have four pairs of pale green roundish leaflets. At the insertion of the foot-stalk arises the peduncle, which is jointed, divided into two shorter at the top, and sustaining two small yellow flowers. Native of Jamaica.

[46. Sometimes the leaves have six pairs of leaflets. It differs from *C. occidentalis* and *planifolia* in the leaflets not tapering to the extremity. Native of the West-Indies. Mr. Gilbert Alexander introduced it into England in 1778. It flowers in august and september.

47. This is a native of Chili; and was introduced in 1786, by Monf. Thouin.

48. This is a native of the West-Indies; and was introduced about 1769. It flowers in march and april^k.

49, 50, 51. These three are natives of Jamaica^l. In the 49th, Swartz refers to *C. sericea* of Miller: but Miller has no species under that title.]

PROPAGATION AND CULTURE.

Many of these plants are preserved in curious gardens, though several of them have not much beauty to recommend them. The most beautiful are the 8th, 14th, 31st, 39th, 40th, and 41st; these all make a good appearance in the stove when they are in flower, and as they retain their leaves all the year, they give an agreeable variety in winter. All the species contract their leaves every evening as the sun declines, and open them again with the rising sun: the under surface of the leaflets is turned outward, the upper surfaces being clapped close together. Most plants whose under surface is thus turned outward, grow on dry sandy land, where the roots do not find a sufficient supply of moisture; the lower surface of the leaves being generally covered with a short soft down, detains the nightly dews and inhales it. Those plants which have the upper

surface of the leaves turned outward, do not stand in need of this supply; and accordingly that surface being smooth, the moisture is cast off, and not imbibed.

All the species are propagated by seeds, which as they mostly come from very hot climates, must be sown on a hot-bed in the spring; and when the plants are fit to remove, they must be each planted in a separate pot, filled with light earth, and plunged into a moderate hotbed, where they should be shaded till they have taken fresh root; after which they should have fresh air admitted to them every day in proportion to the warmth of the season, and should be frequently watered. When the plants have filled the pots with their roots, they should be shifted into larger; and if they are too tall to remain in the hot-bed, they must be placed either in the stove, or a glass case, where they may be defended from cold, but in warm weather have plenty of air. With this management the plants will flower in july or august, and perfect their seeds in october, but may be preserved through the winter in a stove, where they will continue flowering a long time. In warm summers they may be placed in the open air towards the end of june, and will flower very well there; but they will not perfect their seeds, unless they are removed into the stove in autumn.

14. The seeds of *Cassia Fistula* may be easily procured from the druggists who import the pods for use; these must be sown on a hot-bed treated in the same manner as before directed, during the first summer; but in autumn must be removed into the stove, and plunged into the tan-bed: during the winter they should have very little water; for as these trees grow naturally in dry sandy land, moisture is a great enemy to them, but especially during that season. In the summer they should have a good share of air admitted to them in warm weather, but they will not thrive in the open air in this country at the warmest time of the year, so should constantly remain in the stove.

17. The officinal Senna must be treated in the same manner with the other sorts; but being an annual plant, unless it is brought forward in the spring, it will not flower; it must therefore be kept constantly in the hot-bed all the summer, admitting plenty of air to it in warm weather. It is very rare that it perfects seeds in England.

26. The Maryland Cassia, will live abroad in a warm border and dry soil. The seeds will come up in the full ground, if sown in april, and in autumn the plants may be removed into the borders where they are designed to remain.

Some of the most tender sorts (8, 14, 25, 31, 33, &c.) must be plunged into the tan-bed, and be watered very sparingly in winter.

CASSIA. See *Canella* and *Laurus*.

CASSIDA. See *Scutellaria*.

CASSINE.

Lin. gen. 371. Reich. 401. Schreb. 504. Juss 378. Gært. t. 92. Maurocenia. edit. 1. and Mill. dict.

Class. 5. 3. Pentandria Trigynia.

Nat. order of *Dumosa*. *Rhamni* Juss.

GENERIC CHARACTER.

CAL. Perianth quinquepartite, inferior, very small, obtuse, permanent.

COR. quinquepartite, spreading. Divisions subovate, obtuse, larger than the calyx.

STAM. Filaments five, subulate, spreading. Anthers simple.

PIST. Germ superior, conic. Style none. Stigmas three, reflex, obtuse.

PER. Berry roundish, triocular, umbilicated with the stigmas.

SEEDS solitary, subovate.

OBS. Corolla pentapetalous. S. V. p. 243. R.

ESSENTIAL CHARACTER.

Calyx quinquepartite. Petals five. Berry trispermous.

^k Hort. kew.

^l Swartz.

C A S

SPECIES.

1. *Cassine capensis*. *Cape Cassine*, or *Phillyrea*.
Linn. syst. 295. *mant.* 220. *suppl.* 184. *Reich.* 735.
Maurocenia Phillyrea. *Mill. dict.* n. 2.
Celastrus Burm. afr. 239. t. 85.
Phillyrea capensis, folio *celastris*. *Dill. elth.* 315.
t. 236. f. 305. *Seb. mus.* 1. 46. t. 29. f. 5.
Leaves petioled ovate-oblong retuse crenate.
2. *Cassine Peragua*.
Lin. spec. 384. *syst.* 295. *Reich.* 735. *mat.*
med. 88. *hort. cliff.* 72. *Plenck. ic.* t. 239.
C. corymbosa. *Mill. dict.* n. 1. fig. t. 83. f. 1.
Leaves petioled ferrate elliptic somewhat acute,
branchlets ancipital.
- [3. *Cassine barbara*.
Lin. syst. *Reich.* 735. *mant.* 220.
Leaves sessile ferrate-toothed cordate oblong, branch-
lets quadrangular.]
4. *Cassine Maurocenia*. *Great Hottentot Cherry*.
Lin. spec. 385. *Reich.* 736. *Gärtn. fruct.* 2. 70.
Maurocenia. *Lin. hort. cliff.* 108.
M. Frangula. *Mill. dict.* n. 1.
Frangula sempervirens, fol. *rigido subrotundo*. *Dill.*
elth. 146. t. 121. f. 147.
Leaves sessile quite entire obovate coriaceous.

DESCRIPTIONS, &c.

1. *Cape Cassine* has a woody stalk, which in this country seldom rises more than five or six feet high, sending out many branches, covered with a dark purplish bark. Leaves stiff, opposite, about an inch and half long, and a little more in breadth, of a light green, on short foot-stalks. The flowers are produced in roundish bunches from the side, and at the end of the branches; they are white, and have five small petals spreading open. Germ roundish, crowned by a bifid or trifid stigma. [Corymbs very short as in the *Maurocenia*, from which it is hardly distinct. The leaves vary in form, but this being gradual in the same tree shows the variation. The flowers are sometimes quadrifid and quinquefid. This shrub is a native of the Cape^a; and was cultivated in 1726 at Eltham by James Sherard, M. D.^b.]

2. It rises with two or three stems which send out many side branches their whole length and become bushy; they are seldom more than eight or nine feet high. Towards the upper part of the branches, the flowers come out from the sides in roundish bunches; they are white, and divided into five parts almost to the bottom.

The leaves are extremely bitter. They continue green very late in autumn, if the season prove mild, and they come out early in the spring. The flowers appear in July and August. Native of Virginia and Carolina.

[3. Leaves slightly embracing the stem, emarginate at the base, with raised veins, smooth, shining, with distinct serratures standing out. Peduncles axillary filiform, half the length of the leaves, commonly three-flowered^c. Native of the Cape of Good Hope.]

4. At the Cape of Good Hope, where this shrub grows naturally, it rises to a considerable height, but here it is rarely more than five or six feet high. The stalk is strong, woody, and covered with a purplish bark, sending out many stiff branches. Leaves very thick, for the most part opposite, about two inches long and almost as broad, of a dark green colour. The flowers come out from the side of the old branches in clusters, three, four or five together, on one common slender peduncle. Petals five, plane, equal, acute, first greenish yellow, but changing to white, spreading wide open. Germ oval, crowned by a trifid stigma. Between each petal a stamen; these spread open in the same manner as the petals, and are terminated by obtuse anthers. The fruit changes to a dark purple colour when ripe. [It is a berried drupe, superior, glo-bular, crowned with the three stigmas: rind fleshy, thin; shell crustaceous, thin, three-celled. Seeds

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fixed to the cells by the top, without any receptacle; they are solitary, ovate, acuminate above, black with a minute whitish umbilicus^d.

Introduced in 1690 by Mr. Bentick^e.

It flowers in July and August, and the fruit ripens in winter.

Linneus gave this shrub the name of *Maurocenia*, in honour of the Venetian Senator *Franc. Morosini*, who had a fine garden at Padua, a catalogue of which was published by Ant. Tita.]

Mr. Miller has two other species of *Maurocenia*. 1. *M. Cerasus*. *The smaller Hottentot Cherry*, which is *Celastrus lucidus* of Linneus.

2. *M. Americana*. n. 4.—with obovate emarginate leaves, and solitary axillary flowers. *Frangula folio subrotundo rigido subtus ferrugineo*. *Hoult. Mss.*

Stalk woody, from fifteen to twenty feet high, covered with a rough brown bark, and dividing into many branches. Leaves stiff, alternate, about an inch and half long, and a little more in breadth, gray on their upper side, but of a rusty iron colour on their under, having a stiff reflex border, and standing upon short foot-stalks. The flowers come out singly along the side of the branches: petals five, small, white, acute. Filaments slender, spreading open: anthers blunt. Stigma bifid, permanent. Berry round, one or two-celled, with one oblong seed in each cell.

It was discovered by Dr. Houstoun at the Palisades in Jamaica.

[*Cassine Paragua* of Miller is *Ilex Vomitoria*. *C. Paragua* of the Mantissa, is *Viburnum laevigatum*.]

PROPAGATION AND CULTURE.

The first and fourth sorts are too tender to live abroad in England, but as they require no artificial heat, they may be preserved through the winter in a good green-house, where they deserve a place for the beauty of their leaves; they may be propagated by laying down those shoots which are produced near the root, but they are long in putting out roots. The shoots should be twisted in the part which is laid, to facilitate their putting out roots; if these are laid down in the autumn, they will put out roots sufficient to remove in the following autumn; they may also be propagated by cuttings, but this is a tedious method, as they are seldom rooted enough to transplant in less than two years. When this is practised, the young shoots of the former year should be cut off, with a small piece of the old wood at the bottom, in the spring, and planted in pots filled with loamy earth, and plunged into a moderate hot-bed, covering the pots with glasses, which should be close stopped down to exclude the external air; they should be pretty well watered at the time they are planted, but afterward they will require but little wet; the glasses over them should be covered every day with mats, to screen the cuttings from the sun during the heat of the day, but in the morning before the sun is too warm, and in the afternoon, when the sun is low, they should be uncovered, that the oblique rays of the sun may raise a gentle warmth under the glasses. With this care the cuttings will take root, but where it is wanting, they seldom succeed. When the cuttings or layers are rooted, they should be each planted in a separate small pot, filled with soft loamy soil, and placed in the shade till they have taken new root; then they may be removed to a sheltered situation, where they may remain during the summer season; and, before the frosts of the autumn come on, they must be removed into the green-house, and treated in the same way as the other plants of that country, giving them but little water in cold weather, and in mild weather admitting the free air. In summer they must be removed into the open air, and placed in a sheltered situation with other exotic plants, and in very warm weather they must be watered three times a week, but it must not be given them too freely at any time. When the plants have

^a Linn. suppl.

^b Dill. elth.

^c Linn. mant.

^d Gärtner.

^e Hort. kew.

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obtained strength, the fourth sort will produce flowers and fruit, which, in warm seasons, will ripen perfectly; and if the seeds are sown soon after they are ripe, in pots, and plunged into the tan-bed in the stove, the plants will come up the spring following, and may then be treated in the same manner as those which are propagated by cuttings and layers.

The first sort is not altogether so hardy as the fourth, and must therefore have a warmer place in the green-house in winter, and should not be placed abroad quite so early in the spring, nor suffered to remain abroad so late in the autumn. As this does not produce seeds in England, it can only be propagated by layers and cuttings, and these not taking root without difficulty it is scarce in Europe.

The second sort is propagated by laying down the branches, which afford shoots in plenty for that purpose from the root, and lower part of the stem, so as to become very bushy and thick, if they are not cut off; there are numbers of these shrubs which produce flowers in England every year, but none of them ripen their seeds.

The leaves are frequently pinched by the frost in march, when they appear so soon.

It loves a light soil, not too dry, and should have a warm situation; for in exposed places, the young shoots are frequently killed in the winter, whereby the shrubs are rendered unsightly; but where they are near the shelter of trees or walls, they are very rarely hurt.

All the sorts delight in a soft, gentle, loamy soil, not over stiff, so as to detain the wet, nor should the soil be too light, for in such they seldom thrive. They retain their leaves all the year, which being remarkably stiff and of a fine green, make a good appearance, especially the fourth sort, the fruit of which ripens in winter, and when it is in plenty on the plants affords an agreeable variety.

CASSINE. See *Ilex*, *Prinos*, and *Viburnum*.

CASSIOBERRY-BUSH. See *Viburnum*.

CASSITHA. See *Cuscuta*.

CASSUTHA and CASSUTA. See *Cuscuta*.

CASSUVIUM. See *Anacardium*.

CASSYTA.

Lin. gen. n. 505. Reich. 548. Schreb. 690.

Osbeck. Jacqu. amer. 115. Juss. 439. Gærtn. t. 27.

Class. 9. 1. Enncandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* triphyllous, very small, permanent; *leaflets* semi-ovate, acute, concave, erect.

COR. *Petals* three, roundish, acute, concave, permanent. *Nectary* of three glands, oblong, truncate, coloured, length of the germ, standing round it.

STAM. *Filaments* nine, erect, compressed; two globular glands seated on the sides of the base of the three interior filaments. *Anthers* adjoined to the filaments below the tip.

PIST. *Germ* ovate, within the corolla and calyx. *Style* thickish, length of the stamens. *Stigma* obscurely trifid, obtuse.

PER. *Receptacle* growing out into a depressed-globular drupe, crowned with the converging calyx and corolla, perforated with a navel.

SEED. *Nut* globular, acuminate with the converging stamens.

OBS. *There is no calyx, but a sexpartite corolla; therefore the calyx is now regarded as part of the corolla.* *Syst. Veget. p. 318. R.*

ESSENTIAL CHARACTER.

Cor. calycine, sexpartite. *Nectary* of three truncate glands surrounding the receptacle. Interior *filaments* glanduliferous. *Drupe* monospermous.

SPECIES.

1. *Cassyta filiformis*.

Lin. spec. 530. syst. 384. Reich. 2. 230. Jacqu.

amer. 115. t. 79. 58. t. 116. Gærtn. fruct. 1. 133.

Cuscuta. Camell. luz. 1. n. 1. Pet. gaz. t. 49. f. 12.

Pluk. alm. t. 172. f. 2. Rumph. amb. 5. 491.

t. 184. f. 4.

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Acatfia-valli. Rheed. mal. 7. 83. t. 44. Raii suppl. 551.

Volutella aphylla. Forsk. ægypt. 84. n. 56.

Filiform lax.

2. *Cassyta corniculata*.

Lin. syst. 385. Reich. 2. 231. mant. 237. Burm.

ind. 93. t. 33. f. 1. Rumph. amb. 7. 52.

Branches woody spinous.

DESCRIPTIONS, &c.

1. This plant grows naturally in both Indies. I have received it from Barbadoes, Jamaica, and the Spanish West Indies; and that it grows also in the East Indies, is plain from its figure in the *Hortus Malabaricus*. It rises with taper succulent stalks, which divide into many slender succulent branches: these come out frequently by threes or fours at the same joint, afterward they send out side branches singly without order, and become very bushy: the flowers come out on the side of the branches singly, sitting very close thereto, having no calyx; the corolla is oval, white, with a small tincture of red, opening like a navel at the top, including the germ, stamina, style, and nectareous glands so closely, as not to be discovered till the corolla is cut open.

[This parasitical plant is generally said to be absolutely leafless, and Jacquin affirms that he has always found it to be so. The author of the *Hortus Malabaricus* however says, that on the green tender twigs there a few very small leaves, coming out several together. The twining thread-like stems put out many warts, like the feet of caterpillars, by which they adhere to the leaves and stems of shrubs so strongly as not to be separated without tearing them; and when they have fixed themselves to these, they no longer draw any nourishment from the soil. The spikes of flowers are lateral, very loose, thick, alternate at different distances. The flowers are very small, and have no scent. The fruit is pellucid, white, shining, sweet to the taste, the size of a pea; and contains a black stone, with a yellow kernel in it^a.

Jacquin found it in the island of Tierra Bomba near Carthagena. It also occurs in the Society and Friendly islands.

The East Indian plant may possibly be a different species. Gærtner is of opinion that it is, and names it *Cassyta zeylanica*. He says, that the belly of the calyx does not cover the whole nut, and that it has at the edge six pale, obtuse, concave, distant scales, like so many toothlets, three of them shorter, and a little without the others, but all converging. Stamens only six, in a single row within the scales; three shorter, corresponding with the larger scales and subulate; the other three placed within the smaller scales, longer, and having a globular gland on each side near the base, as in the other. The nut is globular, produced at top, with a short style and three stigmas, it is of a dark chestnut colour, smooth, one-celled and valvelets^b.

Linneus observes, that it has the herb of *Cuscuta*, and the fructification of *Laurus*: but the fructification being now better known, it appears to be as different in that from *Laurus* as in the habit.

2. Branches a foot long, woody, the thickness of a finger. Spines solitary, recurved. Leaves smaller than the spines, lanceolate-linear. Berries subsessile. Mountains of the island of Celebes, among rotten trunks of trees. *Lin. mant.* In Java. *Burm.* who says that he received it in 1758.

Jussieu (gen. 440.) doubts whether this be of the same genus with the foregoing, since it differs so much from it in the spines, and disposition of the parts.]

PROPAGATION AND CULTURE.

This plant is easily propagated by planting cuttings of it during the summer months, but as these cuttings are succulent, it will be proper to cut them off a week before they are planted, laying them in

^a Jacquin.

^b Gærtner.

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the stove, that the part cut may have time to heal over before they are planted. These cuttings should be planted in small pots, which must be plunged into a moderate hot-bed, where, if they are not over watered, they will take root in six weeks; then they may be parted, planting each into a separate small pot, filled with light sandy earth, and may be plunged again into the hot-bed to forward their taking new root; after which they should be removed into a dry stove, where they should constantly remain, giving but little water in winter, and in summer admitting a large share of air in warm weather, for this plant is too tender to thrive in the open air in this climate.

[CASTANEA. See *Fagus*.]

CASTANEA EQUINA. See *Æsculus*.

[CASTILLEIA. (So named by Mutis, in memory of Castilleius, a botanist of Cadiz.)

Linn. suppl. 47. n. 1408. Gen. Schreb. n. 1059.

Smith, ic. ined. 40. Juss. 100.

Class. 14. 2. Didynamia Angiospermia.

Nat. order of *Personatæ*. *Pediculares* Juss.

GENERIC CHARACTER.

CAL. one-leaved, tubular, longitudinally cloven in front beyond the middle, nerved, pubescent^c coloured, somewhat swelling at the base, compressed at top; upper lip bifid, obtuse; lower none.

COR. monopetalous, ringent. Upper lip very long, curved inwards, emarginate, pubescent on the back; lower very short, trifid, with acute segments.

Nectary? two glandular corpuscles inserted into the throat of the corolla between the divisions of the upper lip.

STAM. Filaments four, inserted into the base of the corolla, the length of the upper lip, filiform, smooth; the lower pair a little shorter. Anthers twin, linear, oblique.

PIST. Germ superior, oblong, compressed. Style filiform, the length of the stamens. Stigma simple, obtuse.

PER. Capsule ovate, acuminate, compressed, even, two-celled, the partition contrary to the valves.

SEEDS numerous small.

ESSENTIAL CHARACTER.

Cal. tubular, compressed: upper lip bifid, lower none. Cor. lower lip trifid, with two glands between the segments. Caps. two-celled.

SPECIES.

1. Castilleia fissifolia.

Lin. syst. 548. suppl. 293. Smith, ic. ined. 2. 40. Leaves pinnate-gashed at the tip.

2. Castilleia integrifolia.

Lin. syst. 548. suppl. 293. Smith, ic. ined. 2. 39. Leaves linear-lanceolate entire.

DESCRIPTIONS, &c.

1. Root branched, fibrous. Stem herbaceous, sometimes suffruticose, from three to four feet high, upright, roundish, little branched, leafy, pubescent; twigs axillary, from upright spreading, leafy, many-flowered. Leaves alternate, sessile, spreading very much, ovate at the base, entire, pinnatifid at the tip, with spreading blunt almost alternate segments, pubescent on both sides, three-nerved. Stipules none. Flowers towards the ends of the larger branches, axillary, solitary, peduncled, specious, probably scarlet. Proper bractes none. Peduncles round, pubescent, upright, one-third only of the length of the leaves.

Native of New Granada; where it was found by Mutis.

2. Stem herbaceous, round, upright, branched, leafy, slightly rough with hairs. Leaves alternate, sessile, spreading, obtuse, slightly channelled, nerved, pubescent on both sides. Stipules none. Flowers on the elongated ends of the branches, forming a sort of raceme, each from the axil of its own bract-shaped leaf. Peduncles filiform, upright, shorter than the leaves. The structure of the flower is the same in this as in the other species, but all the parts are a little smaller. The fruit seems to be the same in both.

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This also was discovered in New Granada, by Mutis^c.

The *integrifolia*, according to the Supplement, resembles the *fissifolia* so much, that Linneus suspected it to be no more than a variety. For this however there seems to be no foundation.]

CASTOREA. See *Duranta*.

[CASUARINA.

Forst. gen. n. 52. Lin. suppl. 62. n. 1428. Schreb.

1395. Juss. 412. Gært. t. 91.

Class. 21. 1. Monoecia Monandria.

Nat. order of *Coniferae*.

GENERIC CHARACTER.

* Males in a filiform ament.

CAL. Common ament loosely imbricate, consisting of small one-flowered one-leaved scales.

COR. Scales two-parted ovate minute.

STAM. Filament capillary, longer than the calyx. Anther twin.

* Females on the same plant.

CAL. Ament ovate-cylindric; with ovate, acute, keeled, imbricate scales.

COR. none.

PIST. Germ minute. Style filiform, longer than the calyx, bifid. Stigmas two.

PER. Strobile of bivalve scales gaping perpendicularly.

SEEDS solitary, conic, with a membranaceous edge.

ESSENTIAL CHARACTER.

MALE. Cal. of the ament. Cor. scalelets two-parted.

FEM. Cal. of the ament. Cor. none. Style bifid. Strobile.

SPECIES.

1. Casuarina equisetifolia. Horse-tail Casuarina.

Lin. syst. 840. suppl. 412. Thunb. diff. 53. Ait. hort. kew. 3. 320.

C. littorea. Rumph. amb. 3. 86. t. 57.

Monoecous; whorls of the stamens approximating.

2. Casuarina nodiflora.

Lin. syst. 840. Thunb. diff. 54. Gært. fruct. 2. 63. Rumph. amb. 3. 87. t. 58.

Monoecous; whorls of the stamens remote.

3. Casuarina stricta. Upright Casuarina.

Ait. hort. kew. 320.

Dioecous; branchlets erect; scales of the strobiles unarmed, smoothish; male-sheaths multifid smooth.

4. Casuarina torulosa. Cork-barked Casuarina.

Ait. hort. kew. 320.

Dioecous; branchlets flaccid; scales of the strobiles villose roughened with tubercles, male-sheaths quadrid.

5. Casuarina africana.

Lour. cochinch. 549.

Fronde filiform, swelling at the tip and floriferous; strobiles roundish axillary.

DESCRIPTIONS, &c.

1. A very large, spreading, and lofty tree. Branchlets scattered, round, ash-coloured, knotted and whorled with deciduous leaves; the last hispid with recurved dried leaves: the branchlets are long, lax, and subdivided. The last branchlets are scattered, aggregate, filiform-capillary, lax, covered with decurrent leaves, jointed, striated, flowering at the end, of a finger's length. Leaves, if they be truly such, in whorls of eight together, decurrent far down, at bottom subconnate, erect, spreading at top, subulate. Flowers on the last branches verticil-spiked. Male spike thicker than the branchlet, subclavated, an inch long. Female strobile oblong, obtuse, solitary on the branchlets below the males, erect, the size of a walnut, on a peduncle scarcely a line in length^d.

The leaves, if they may be so called, or rather branchlets, hanging down in bunches from twelve to eighteen inches in length, like a long head of hair, or a horse's tail, all jointed from top to bottom, like the Equisetums or Horse-tails, is a very remarkable character of this singular tree^c.

^c Smith.

^d Thunberg.

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It is a native of the East Indies and the South Sea Islands; was introduced in 1766 by Admiral Byron; and flowers in october and november^f.

2. A lofty tree. The branches and branchlets more deeply striated. The male flowers on the last branchlets in whorls, remote, distinct^e.

Gærtner describes the strobile as subglobular, echinate and pedicelled. The scales of the calyx, when ripe, thicken very much, and become suberous or like cork; they are retuse, white, in pairs, and placed so close as to appear one body handsomely tessellated in quadrangular figures. The valves of the calyx much lengthened out, coriaceous and concave, inclose the seed in a sort of sheath.—Native of the East Indies and New Caledonia.

3. A native of New South Wales. Introduced 1775 by Kennedy and Lee. It flowers in november and december.

4. A native of New South Wales. Sir Joseph Banks, Bart. introduced it 1772^h.

5. This is a tree above the middle size, with few, long, diffused branches, and leaf-bearing reclining branchlets. Fronds in bundles at the ends of the branchlets, a foot long, subcylindric, very stiff and straight, scarcely equalling the leaves of the Pine in thickness, somewhat jointed: *leaflets* tubular, longish, entirely sheathing, seven-furrowed, seven-cleft at the end, the segments sharp and pressed close. Male flower apetalous, terminating the frond, which is there thickened into an ament, composed of scales like the leaflet, but thicker, shorter, sheathing and seven-parted; each segment bearing a single filiform filament, longer than the scale, and terminated by an ovate, erect, two-celled anther. Female flower in a short ament at the axil of the frond; scales like those of the male, but thicker, seven-parted, acute, sheathing. Strobile roundish, half an inch long, woody, opening perpendicularly by twelve valves; each fissure opening three or four cells, having one seed in each: the partial valves acute. Seed subovate, terminated by a membranaceous wing.—Native of the sandy east coast of Africa. The wood is very hard and heavy.

The first species would not be very different from this, if the strobiles were alike, and the swelling tips of the fronds were converted into male aments, as in thisⁱ.

CATALPA. See *Bignonia*.]

CATANANCHE. (From *κατά* and *ανάγκη* violence: being once foolishly supposed to give a violent impulse to love.)

Lin. gen. n. 920. Reich. 999. Schreb. 1250. Gærtn. t. 157. Vaill. A. G. 1721. 56. 11. Juss. 171. Catanance. Tourn. 271.

Class. 19. 1. Syngenesia Polygamia Æqualis. Nat. order of compound flowers—division, *Semiflosculose*. *Cinarocephalæ* Juss.

GENERIC CHARACTER.

CAL. Common imbricate, turbinate; *leaflets* very many, loosely incumbent, acute, scariose; the *squamule* ovate-acuminate, concave, lax, glossy, permanent.

COR. Compound generally imbricate, uniform; *corollets* hermaphrodite, very many; the exterior ones longer.

Proper monopetalous, ligulate, linear, truncate, five-toothed.

STAM. Filaments five, capillary, very short. Anthers cylindric, tubular.

PIST. Germ oblong. Style filiform, length of the stamens. Stigma bifid, reflex.

PER. none. Calyx unchanged.

SEEDS solitary, turbinate-ovate. Down from a five-awned calycle.

REC. chaffy.

OBS. There is a species in which the compound corolla is not imbricate.

ESSENTIAL CHARACTER.

Receptacle chaffy. Calyx imbricate. Down awned from a five-bristled calycle.

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SPECIES.

1. *Catananche coerulea*.

Lin. spec. 1142. syst. 722. Reich. 3. 664. Gouan. hort. monsp. 418. 1. Villars dauph. 3. 58.

Chondrilla. Baub. pin. 130. 6. Dod. pempt. 638. Barr. ic. 1134. Raii hist. 257.

β. C. fl. pleno coeruleo. Tourn. inst. 478.

Ch. cær., cyani capitulis, altera. Baub. pin. 431. The lower scales of the calyx ovate.

2. *Catananche lutea*.

Lin. spec. 1142. syst. 722. Reich. 3. 664. Gærtn. fruct. 2. 356. Gouan. hort. monsp. 418. 2.

Chondrilla. Bocc. mus. 2. 21. t. 7. Barr. ic. 1135. The lower scales of the calyx lanceolate.

3. *Catananche græca*.

Lin. spec. 1142. syst. 722. Reich. 3. 665.

Scorzonera græca. Tourn. cor. 36. itin. i. t. 223-86. Leaves gashed.

DESCRIPTIONS, &c.

1. The first sort sends out many long, narrow, hairy leaves, which are jagged on their edges like those of Buckshorn Plantain, but the leaves are broader, the jags deeper, and at greater distances; these lie flat on the ground, turning their points upwards, which are very narrow. Between the leaves come out the flower-stalks, which are in number proportionable to the size of the plant; for from an old thriving root, there is frequently eight or ten, and young plants do not send out more than two or three. These stalks rise near two feet high, dividing into many small branches upward, with leaves like those below, but smaller, and have few or no jags on their edges: each of the peduncles are terminated with single heads of flowers, having a dry, silvery, scaly calyx, in which are included three or four florets, whose petals are broad, flat, and indented at their ends; these are of a fine blue colour, having a dark spot at bottom, and in each the stamens, with their yellow summits, standing a little above the petal, make a pretty appearance.

There is a variety of this with double flowers, which is not very common in the English gardens.

[Perennial. The leaves are hoary and brittle^a; linear-lanceolate, with one or two toothlets on each side^b. It is a native of the South of Europe; was cultivated, as appears from Parkinson, in 1640; and flowers from july to october^c.]

2. The second sort has broader leaves than the first, smoother, and less jagged on their edges: from each root arise two or three stalks, which grow a foot and a half high, sending out two or three slender peduncles, each sustaining a single head of yellow flowers, inclosed in a dry scaly calyx, of a darker colour than those of the first: as these flowers are small, they make but little appearance.

[Annual. The leaves are green, flexile and three-nerved. The later flowers are sessile at the root, hardly unfolded, but more fertile^d.

Native of the isle of Candia. Cultivated in the botanic garden at Chelsea, in 1714. It flowers in june and july^e.]

3. Tournefort mentions a third sort with a narrow leaf, in which it differs from the second; but if there is such a distinct species, I have not happened to meet with it; for although I have frequently received the seeds from several parts of Europe by this title, yet I could not find any difference between the plants, and those of the second sort; therefore I suppose Tournefort may have found the plants growing on a sterile soil, where the leaves were much narrower than those growing in a garden, or in better ground, which may have induced him to suppose they were distinct species. Both these plants grow naturally in the South of France, in Spain, Italy, and Candia, from whence it had the title of Candia Lions Foot.

[*C. græca* differs from *lutea* not only in having gashed leaves, but the pappus or aigrette of the

^a Linn. syst.

^b Gouan.

^c Hort. kew.

^d Linn. syst.

^e Hort. kew.

^f Hort. kew.

^g Thunb.

^h Hort. kew.

ⁱ Loureiro.

seed twelve-leaved; whereas in the *lutea* it is five-leaved^f].

PROPAGATION AND CULTURE.

The first of these plants is a perennial, and may be propagated by heads taken off the mother plant, either in spring or autumn; but those plants which are raised from seeds, are much stronger than those from slips. These plants are commonly planted in pots filled with light sandy soil, in order to shelter them in the winter from severe frosts; but if they are planted in warm borders, near walls, pales, or hedges, in a moderately dry soil, they will endure abroad very well. It begins flowering in may, and continues till august or september (especially if the summer is not too dry,) is a pretty ornament to a garden, and is easily kept within bounds. This may also be propagated by seeds, which should be sown in a border of good light earth in march; and in may, when the plants are come up, they may be either transplanted into pots or borders, where they are to remain for flowering. These plants should remain unremoved when they are planted in the full ground, which will cause them to flower better, and they will produce more seeds. The seeds ripen in august.

The second sort is an annual plant, and therefore only propagated by seeds, which ripen very well in this country. The time for sowing them is early in march, in beds or borders of light earth where they are to remain, which will come up in a month or five weeks time, and require no other care but to keep them clean from weeds, and thin the plants where they are too close. These flower in june, and perfect their seeds in august or september; but as they have little beauty, they are not often kept in gardens.

[CATAPPA. See *Terminalia*.

CATAPUTIA. See *Euphorbia* and *Ricinus*.

CATARIA. See *Dracocephalum*, *Hyssopus*, and *Nepeta*.

CATCHFLY. See *Lychnis*.

CATECHU. See *Areca*.

CATELÆ-VEGON. See *Aristolochia*.

CATERPILLARS. See *Scorpiurus*.]

CATESBÆA. (Named by Gronovius in honour of Mr. Mark Catesby, author of the *Natural History of Carolina*.)

Lin. gen. n. 130. Reich. 136. Schreb. 166.

Juss. 199. Gronov.

Class. 4. 1. Tetrandria Monogynia.

Nat. order of *Luridæ*. *Rubiaceæ* Juss.

GENERIC CHARACTER.

CAL. Perianth four-toothed, superior, very small, acute, permanent.

COR. monopetalous, funnel-form. Tube extremely long, straight, gradually widening upwards. Border semi-quadrifid, broad, erect-flat.

STAM. Filaments four, growing within the neck of the tube, Anthers oblong, erect, almost longer than the corolla.

PIST. Germ roundish, inferior. Style filiform, length of the corolla. Stigma simple.

PER. Berry oval, crowned, unilocular. (bilocular Sw.)

SEEDS many, angulate.

ESSENTIAL CHARACTER.

Cor. monopetalous, funnel-form, extremely long, superior. Stamens within the mouth. Berry polyspermous.

SPECIES.

1. *Catesbæa spinosa*. Lily-thorn.

Lin. spec. 159. Reich. 311. Catesb. car. 2. t. 100.

Curtis magaz. t. 131.

C. longiflora. Swartz prodr. 30.

Tube of the corolla very long, berries oval.

[2. *Catesbæa parviflora*.

Swartz. prodr. 30.

Tube of the corolla four-cornered abbreviated, berries roundish.]

DESCRIPTIONS, &c.

1. This shrub was discovered by Mr. Catesby, near Nassau town, in Providence, one of the Bahama

^f Gartner.

islands, where he saw two of them growing, which were all he ever saw; from these he gathered the seeds, and brought them to England in 1726, from which many plants were raised in the English gardens, some of which have since flowered here.

It rises with a branching stem to the height of ten or twelve feet, covered with a pale russet bark; the branches come out alternately from the bottom to the top, with small leaves, resembling those of the Box-tree, in clusters all round the branches, at certain distances; the flowers come out single from the side of the branches, hanging downward; and are of a dull yellow colour. The berry is the size of a middling Plum, hollow within, with small angular seeds.

[Mr. Catesby relates that the largest of the trees which he saw was about four inches thick, and twelve or fourteen feet in height; the bark smooth, of a greenish russet colour, and the wood seemingly tough and hard; the leaves like those of Box, but smaller, growing in clusters at intervals of about an inch; from every cluster two sharp pliant spines shooting out. The flowers are about six inches long, in form of a Roman trumpet, except that they are divided at the verge into four deep segments, usually reflex. The fruit is the size of a pullet's egg, the pulp like that of a ripe apple, with a smooth yellow skin, and has an agreeable tartness^g.

It flowers most part of the summer, but not so freely as many other stove plants^h.

2. Native of Jamaicaⁱ.]

PROPAGATION AND CULTURE.

This shrub is propagated by seeds, which must be procured from the country where it naturally grows. If the entire fruit be brought over in sand, the seeds will be better preserved: when they arrive in England, the seeds must be sown in small pots filled with light sandy earth, and plunged into a moderate hot-bed of tanners bark, and now and then moderately watered. If the seeds are good, the plants will appear in about six weeks after sowing: when, if the heat of the bed declines, the tan should be turned over to the bottom, and, if necessary, some fresh added to renew the heat, for these plants make but little progress the first year. When the pots are plunged again into the tan-bed, they must have fresh air admitted to them every day in proportion to the warmth of the season, and frequently refreshed with water, in small quantities, for much wet will certainly kill them; if the nights should prove cold, the glasses should be covered with mats every evening. As these plants grow slowly, they will not require to be removed out of the seed-pots the first year. In the autumn the pots should be removed into the stove, and plunged into the tan-bed. During the winter, the plants should be watered with great caution, and in spring they should be carefully taken up, and each planted in a separate small pot filled with light sandy earth, and plunged into a fresh hot-bed of tanners bark, being careful to shade them until they have taken fresh root, as also to refresh them with water gently, as they may require it; and in summer, when the weather is warm, they should have a good share of air admitted to them; but in autumn must be removed into the stove, where they should constantly remain, and must be treated afterward in the same manner as other tender exotic plants.

This plant may be propagated by planting cuttings in small pots filled with light earth, during the months of june and july. The pots should be plunged into a moderate hot-bed of tanners bark, and the cuttings closely covered with small bell-glasses to exclude the external air. If this is properly performed, the cuttings will put out roots in about two or three months, when they may be carefully separated, planting each into a small pot filled with light earth, and plunged into the hot-bed again, and afterward must be treated as the seedling plants.

^g Catesby.

^h Curtis.

ⁱ Swartz.

C A T

Most of those plants which were raised from Mr. Catesby's seeds, were killed by the severe winter in 1739; but afterwards I received some fresh seeds, which succeeded so well, as to enable me to communicate plants to several curious persons in England and Holland.

[None were so successful in raising it, as Mr. Powers, a skilful and curious gardener, at Mr. Blathwait's, of Derham near Bath, who raised a plant, which flowered in 1734^k.

CATIANG. See *Dolichos*.

CATI-MARUS. See *Kleinbovia*.

CAT-MINT. See *Nepeta*.

CATRICONDA. See *Coix*.

CAT'S-TAIL. See *Typha*.

GRASS. See *Pbleum*.

CAT-THYME. See *Teucrium*.

CATTU-GASTURI. See *Hibiscus*.

CATTU-SCHIRAGAM. See *Conyza*.

CATTU-TIRPALI. See *Piper*.

CATULLI-POLA. See *Pancreatium*.

CATURUS.

Lin. gen. Reich. 1206. Schreb. 1499. Juss. 390.

Class. 22. 3. Dioecia Triandria.

Nat. order of Tricoccæ. Euphorbie Juss.

GENERIC CHARACTER.

* Male.

CAL. none.

COR. monopetalous, tubular, femitrifid; divisions ovate, concave, acute, permanent.

STAM. Filaments three, capillary, longer than the corolla. Anthers roundish.

* Female.

CAL. Perianth tripartite; leaflets ovate, flat, permanent.

COR. none.

PIST. Germ villose. Styles three, long, pinnate-multifid. Stigmas acute.

PER. Capsule roundish, tricoccous, trilocular.

SEEDS solitary, round.

OBS. I have had but an indistinct view of the male flowers.

SPECIES.

1. Caturus spiciflorus.

Lin. syst. 882. Reich. 4. 239. mant. 127, 519.

Acalypha hispida. Burm. ind. 303. t. 61. f. 1.

Watta-Tali. Rheed. mal. 5. 63. t. 32.

Cauda-felis agrestis. Rumph. amb. 4. 84. t. 37.

Spikes axillary pendulous.

2. Caturus scandens.

Lour. cochinch. 612.

Spikes axillary upright, leaves oblong subserrate, stem scandent.

DESCRIPTIONS, &c.

1. This is a tree about twenty feet in height, with many branches diffused all round; the wood is white and close, with a thick, dusky, unctuous, inodorous bark, and a yellow pith within. Leaves alternate, stipulaceous, roundish, acuminate, petioled, of a bright green above, greenish beneath, inodorous, insipid; the midrib pale green, hairy, with a few other nerves running from it. The flowers are small, of an herbaceous colour, and have two petals with two stamens. The fruit is a round, yellowish-green, insipid berry, inclosing one round, green seed^l.

Native of the East Indies: where a conserve of the flowers is used in the Diarrhœa and all disorders arising from a laxity of the vessels^m.

2. This is an unarmed shrub, with a long branching stem, climbing but without tendrils. Leaves acuminate, incurved, veiny, smooth, alternate. Flowers very small, white, in close, short spikes, with small, subulate bractes. The male flower has three petals, and three filaments longer than the petals, both diverging elastically.—Native of the woods of CochinChinaⁿ.

CATURUS RAMIFLORUS. See *Boehmeria*.

CATU TSIERU. See *Limonia*.

CAVALAM. See *Sterculia*.]

^k Catesby.

^l Hort. malab.

^m Burm. & Rumph.

ⁿ Loureiro.

C A U

CAUCALIS. (*Καυκαλίσ*, Hippocr. & Theoph. *Caucalis*, Plin. from the form of the seeds, which resemble oblong hemispherical vessels.)

[*Lin. gen. n. 331. Reich. 362. Schreb. 464.*

Gærtn. t. 20. Tourn. 171. Juss. 224.

Class. 5. 2. Pentandria Digynia.

Nat. order of Umbellatæ, or Umbelliferæ.

GENERIC CHARACTER.

CAL. Umbel universal unequal, with very few rays.

Umbel partial unequal, with more copious rays, of which the five exterior are longer.

Involucrc universal with leaflets of the number of the rays, undivided, lanceolate, membranaceous at the edge, ovate, short.

Involucrc partial with consimilar leaflets, longer than the rays, often five.

Perianth proper five-toothed, protruded.

COR. Universal difform, radiate. Florets of the disk abortive.

Proper one of the disk male, small. Petals five inflected-cordate, unequal, the exterior one very large, bifid.

STAM. in all the flowers. Filaments five, capillary. Anthers small.

PIST. Germ of the ray oblong, rugged, inferior. Styles two, subulate. Stigmas two, spreading, obtuse.

PER. Fruit ovate-oblong, with longitudinal streaks, hispid with little rigid bristles.

SEEDS two, oblong, convex on one side; armed in the direction of the streaks with subulate points, flat on the other side.

OBS. The universal involucre in some of the species is wanting. R.

ESSENTIAL CHARACTER.

Cor. radiated, in the disk male. Petals inflex-ernarginate. Fruit hispid with bristles. Involucres entire.

SPECIES.

1. *Caucalis grandiflora. Great-flowered Bastard Parsley.*

Lin. spec. 346. syst. 275. Reich. 1. 644. mant. 350.

Gærtn. fruct. 1. 81. Hall. helv. n. 740. Pollich

pal. n. 270. Crantz. austr. 224. Jacqu. austr.

1. 33. t. 54. Krock. files. n. 403. Ger. prov.

237. 6. Villars dauph. 2. 655. Bauh. pin. 152. 4.

Ger. herb. 868. emac. 1021. 1. Park. theat. 920.

f. 1. Mor. umb. t. 1. f. v, &. Raii hist. 466. 1.

Daucus grandiflorus. Scop. carn. n. 308.

Echinophora. Col. ecphr. 1. 91. t. 94. f. 1. Riv. pent. t. 25.

Lappula canaria, fl. pulchro magno albo. Bauh. hist. 3. 79.

Each involucre five-leaved, one leaflet double the size of the rest.

2. *Caucalis daucoides. Carrot-leaved Bastard Parsley.*

Lin. syst. 276. mant. 351. Gærtn. fruct. 1. 82.

Hall. helv. n. 739. Leers herbarn. n. 194.

Jacqu. austr. 2. t. 157. Krock. files. n. 404.

Ger. prov. 236. 3. Villars dauph. 2. 653.

C. leptophylla. Lin. spec. 347.

Echinophora. Col. ecphr. 1. 96. t. 97. f. 2. Riv. pent. t. 24.

Umbels trifid leafless, umbellules three-seeded three-leaved.

3. *Caucalis latifolia. Broad-leaved Bastard Parsley.*

Lin. syst. 276. Reich. 1. 665. mant. 350. hort.

cliff. 91. 1. Ait. hort. kew. 1. 334. Gærtn.

fruct. 1. 81. Hudf. angl. 113. Wither. arr. 271.

Relb. cant. n. 212. Hall. helv. n. 738. Pollich

pal. n. 271. Jacqu. hort. 2. t. 128. Ger.

prov. 237. 5. Villars dauph. 2. 654. Mill. fig.

t. 85. Riv. pent. t. 26.

Tordylium latifolium. Lin. spec. 345. Mill. dict. n. 8.

C. arvensis echinata latifolia. Bauh. pin. 152. Raii

hist. 468, syn. 219. Ger. emac. 1021. 2. Park.

theat. 920. Mor. hist. f. 9. t. 14. f. 2. row. 1.

Petiv. brit. t. 27. f. 6.

Echinophora. Col. ecphr. t. 97. f. 1.

Lappula canaria latifolia. Bauh. hist. 3. 80. f. 2.

Involucres and involucrets membranaceous, universal umbel with about four rays; bristles of the seeds clustered and hispid, leaves pinnate gashed and hairy.

4. *Caucalis*

4. *Caucalis mauritanica*. Barbary Bastard Parsley.
Lin. spec. 347. *Reich.* 1. 666.
Universal involucre one-leaved, partial involucre three-leaved.
5. *Caucalis orientalis*. Eastern Bastard Parsley.
Lin. spec. 347. *syft.* 276. *Reich.* 1. 666. *mant.* 351. *Lour. cochinch.* 177. *Bellon. it.* 3. 49. t. 200. *Mor. hist.* 3. 308. f. 9. t. 14. f. 5.
Umbels spreading, partial leaflets superdecompound lacinated, small divisions linear.
6. *Caucalis leptophylla*. Fine-leaved Bastard Parsley.
Lin. syft. 276. *mant.* 351. *Hall. belv.* n. 742. *Ger. prov.* 236. 2. *Villars dauph.* 2. 653.
C. pumila. *Jacqu. hort.* 2. 92. t. 195.
C. daucoides. *Huds. angl.* 112. *Wither. arr.* 271. *Relb. cant.* n. 211.
C. arvensis echinata parvo flore & fructu. *Baub. pin.* 152. 5.
C. tenuifolia flosculis fubrubentibus. *Raii hist.* 467. (non descr.) *syn.* 219.
Lappula canaria fl. minore f. tenuifolia. *Baub. hist.* 3. 2. 80. *Mor.* 305. t. 13. f. 3.
Universal involucre scarcely any, umbel bifid, involucrets five-leaved.
7. *Caucalis arvensis*. Corn Bastard Parsley.
Huds. angl. 113. *With.* 272. *Relb. n.* 213. *Ait. hort. kew.* 1. 334. *Hall. belv. n.* 742.
C. helvetica. *Lin. syft.* 276. *Jacqu. hort.* 3. 12. t. 16.
C. infesta. *Curtis lond.* n. 62.
C. segetum minor Anthriscus hispido similis. *Raii hist.* 468. *syn.* 220.
C. arvensis humilior ramosior. *Mor. hist.* 3. 338.
C. pumila segetum Goodyero. *Ger. emac.* (Ray).
Universal involucre scarcely any, seeds ovate, styles reflex, leaves decompound, outmost leaflet linear-lanceolate, stem branching very much.]
8. *Caucalis Anthriscus*. Hedge Bastard Parsley.
Huds. angl. 114. *Curtis lond. n.* 63. *Wither. arr.* 272. *Relb. cant. n.* 214. *Ait. hort. kew.* 1. 335. *Scop. carn. n.* 311. *Hall. belv. n.* 741. *Ger. prov.* 238. 8. *Villars dauph.* 2. 652.
Tordylium Anthriscus. *Lin. spec.* 346. *syft.* 275. *Reich.* 1. 663. *suec. n.* 236. *mant.* 350. *Pollich pal. n.* 296. *Leers herborn. n.* 196. *Jacqu. austr.* 3. 34. n. 261. *Wither. arr.* 270. *Mill. dict. n.* 7.
Caucalis femine aspero, flosculis rubentibus. *Baub. pin.* 153. *prodr.* 80.—minor, flosc. rubent. *Ger. emac.* 1022. 5. *Park. theat.* 921. 9. *Mor.* 9. 14. 8. *Raii hist.* 468. *Petiv. brit. t.* 27. f. 9.—sem. asp. hispido. *Baub. hist.* 3. 2. 83. 1. *Raii syn.* 219.
Involucre many-leaved, seeds ovate, styles reflex, leaves decompound, outmost leaflet linear-lanceolate.
9. *Caucalis nodosa*. Knotted Bastard Parsley.
Huds. angl. 114. *Wither. arr.* 273. *Relb. cant. n.* 215. *Ait. hort. kew.* 1. 335. *Scop. carn. n.* 313. *Villars dauph.* 2. 653. *Ger. prov.* 235. *Jacqu. austr.* 5. app. t. 24. *Riv. pent. t.* 36.
Tordylium nodosum. *Lin. spec.* 346. *syft.* 275. *Reich.* 1. 663. *Mill. dict. n.* 6.
Torilis nodosa. *Gärtner fruct.* 1. 82.
Caucalis nodosa echinato femine. *Baub. pin.* 153. *prodr.* 80. *Baub. hist.* 3. 2. 83. 2. *Ger. emac.* 1022. 6. *Park. theat.* 921. *Mor. hist.* 9. 14. 10. *Pet. brit. t.* 27. f. 11. *Raii hist.* 468. *syn.* 220.
Umbels simple subsessile, leaves superdecompound.

[DESCRIPTIONS, &c.]

1. Stem very smooth and even, two feet in height and branched. Leaves like those of Carrot, decompound with very small narrow leaflets, even, but rugged underneath. Involucre white about the edge: universal two or three to five or six-leaved; leaflets unequal, lanceolate, membranaceous, permanent: partial frequently five-leaved, with three leaflets large and two small; but sometimes they have only three or four leaflets. Umbels, but not the umbellets, radiate. Many florets of the disk barren. Petals white, the outer one remarkably

large, bifid almost to the base^a. Fruit nearly of the same size as in the third sort, but not gibbous like that, or transversely broader, but rather compressed or flattened, having four thick dorsal ribs, armed with stiff, ascending, pungent spines, alternate or in pairs; and between these, three furrows, in which are minute, short, bristle-shaped prickles, divaricated and bent in upwards^b. The flat seeds of this species connect this genus with *Tordylium*, as *C. Anthriscus* (n. 8.) does with *Daucus*. The stem varies in different situations, sometimes being two feet high, straight, and branching only at top; sometimes much lower, and branching from the very bottom^c.

It is a native of the South of Europe; was introduced in 1775, by Joseph Nicholas de Jacquin, M.D. and flowers in July and August^d.

2. Stem a foot high, upright, angular-grooved, branched and even, the joints white with bristles. Leaves superdecompound; petioles membranaceous at the base; both they and the leaves having white bristles thinly scattered over them: pinnules pinnatifid, narrow, bluntish, bifid or trifid at the tip. Universal umbel of three, strong, four-cornered rays: partial of five, seven, or nine rays, of which the outer are stronger and bear fruit; but the central ones are more slender, and barren. Involucre sometimes a single lanceolate leaflet, but commonly none, and instead of it a heap of white bristles. Involucre halved, three-leaved, spreading; leaflets lanceolate, the length of the florets. The three outmost flowers larger, hermaphrodite, fertile; the central ones (two to four and six) male and barren. Segments of the calyx lanceolate, the two outmost larger than the others. Petals obcordate, emarginate, purplish, unequal, the outmost three times the size of the rest. Stamens the length of the petals. Germ rugged. The male flowers have none, with a smooth calyx. Each umbellet has three, distant, oblong, fruits, crowned with the calyx^e. They are of a middle size, and composed of two oblong, semicylindric seeds. They have four thick dorsal ribs, armed with stiff, spreading, pungent prickles, somewhat remote; between the ribs are narrow chinks, from which very minute bristle-shaped spinules sometimes spring^f.

Native of the South of Europe.

3. This is the most beautiful of our native umbelliferous plants. Stem from a foot to eighteen inches or sometimes near two feet in height, branched, angular, set with short prickles pointing upwards. Leaves arising from a membranaceous sheath, pinnate, the midrib rough like the stem; leaflets lanceolate, serrate; the lower ones almost pinnatifid, the upper ones confluent with the midrib. Peduncles rugged. Umbel of three or four rays. Umbellets sessile, generally with five fruits. Corolla purplish, the outer petal large, the rest small. The barren flowers are smaller and less irregular. The universal involucre is three-leaved, and the partial five-leaved; both are membranaceous^g. Fruit ovate, composed of two, largish, ovate, gibbous seeds, mucated with seven crests; three broader and thicker, armed with a double row of stiff pungent prickles; the other four a little narrower, with a single row of prickles only; the belly flattish, with a raised streak along the middle, channelled near the base^h.

Native of Germany, Switzerland, Italy, France, and England. It is one of our rare plants, and has been observed in Cambridgeshire and Hampshire, in corn fields; flowering from June to August.

4. Native of Barbaryⁱ.

5. Stem herbaceous, round, straight, streaked, branching, three feet high. Leaves pinnate-gashed, jagged, smooth. Umbels spreading; the rays of the universal umbel long and unequal, of the partial very short. Involucre entire, subulate, shorter than

^a Haller, Pollich, Scopoli, Krock, Villars, Linn. mant.

^b Gärtner.

^c Villars.

^d Hort. kew.

^e Leers.

^f Gärtner.

^g Woodw. Mss.

^h Gärtner.

ⁱ Linn.

the ray. Flowers flosculous, almost naked. Fruit ovate-oblong, echinate-hispid^k, with bristles which stand out, and have viscid glands at the end^l.

Native of the Levant and China.

6. Stem low, round, rugged backwards. Leaves bipinnate, rugged with hairs. Umbellets five-flowered, not radiate, purplish white, with one or two barren florets. Fruit ovate, hispid with prickles in whorls three-pronged at the end^m.

Gerard (in fl. Gallo-provinc.) thus describes it. Stem round, rugged, divaricate. Leaves pinnate, leaflets pinnatifid, with gashed segments. Umbel bifid, without an involucre. Involucrets with five linear, acute leaflets. Flowers sessile, fertile, few. Petals unequal, the outer or larger ones bifid. Fruits hispid, small, with hooked prickles, on short thick pedicels.

According to Mr. Woodward, who suspected our plant to be *C. leptophylla*, *syn. veget.* and not *C. daucoides*; the stalks are angular, and rough if drawn through the hand: leaves superdecompound, and extremely elegant. Universal umbel of three or four rays, without any involucre: partial the same number: involucrets mostly five-leaved. Seeds large, covered with strong hairs hooked at the extremity.

Native of the South of Europe, and of England, in corn fields and by way sides. In Cambridgeshire, Lincolnshire, Norfolk, &c. Flowering in June and July.

7. Stem single, from six inches to two feet high, but very seldom more than a foot or eighteen inches; dividing near the bottom into numerous, alternate, angular branches, spreading very much, a little crooked, below smooth and reddish, above roughish with minute, short, appressed hairs, striated and green. Leaves alternate, sessile, somewhat remote, turned down a little at the tip, petioled, pinnate, slightly hirsute on both sides with minute white hairs, of a dull green usually turning purple: leaflets three, five or sometimes seven, opposite, lanceolate, ferrate, hairy; the outmost very long, the lowest petioled and more distant than the others, the upper ones confluent. Flowers white with a cast of yellow, small and without scent; in the disk male. Universal umbel with three, four, or five rays; partial crowded, convex. Universal involucre of one short, subulate leaf, or none: partial, of five linear-subulate, appressed leaflets, slightly hirsute, and almost the length of the umbellet. Anthers purplish. Germ hispid with hairs red at the tipsⁿ. Seeds ovate-oblong, with hairs curved upwards, rugged with minute points, and generally terminated by a hooked point^o.

This species seems not to have been distinguished by old writers from the next following. Goodyer appears first to have noticed it, and Ray first discriminated them thus: 1. that is taller, being frequently three feet high: this seldom exceeding a foot, certainly not a cubit. 2. That is more upright with longer internodes; this twisted and diffused, with more frequent joints. 3. That has the stalk near the ground more hirsute. 4. The florets of that are white or very pale red, with almost equal petals, and purple anthers; the petals of this incline to yellow, the two outer ones are evidently larger than the three inner ones, and the anthers are white. 5. The seeds of this are much larger, with the permanent styles green; the seeds of that are far more fragrant and aromatic, of a darker colour, with purple styles. Finally, that is seldom found except in hedges and among bushes; whereas this commonly grows among corn, never in hedges^p.

If it be n. 742. of Haller, which I doubt, it is wild in Switzerland, probably it is common in other countries as well as England; but it has not been distinguished from the *Anthriscus*. Ray refers to Goodyer and Johnson's edition of Gerard's herbal for this plant; but I cannot find any mention of

it in that work. Neither he nor Curtis give the page.

8. Stem from four to six feet high, upright, somewhat flexuose, round, purplish, rough, covered with minute, white, rigid bristles, pressed downwards to the stem, and scarcely visible. Branches numerous, alternate, and nearly upright. Leaves few, nearly a hand breadth in length, distant, spreading greatly, turned downwards at the tips, on petioles which are hollowed above, broader at the base and somewhat sheathing: pinnae three or four pairs with an odd one, ovate, pointed, the lower ones petioled and broader, the upper ones sessile, shorter, narrower, the outermost very long, linear-lanceolate; leaflets gash-ferrate, a little pointed, covered with very minute yet visible bristles. Universal umbel flattish, thin, unequal, with about eight rays: partial a little thicker, somewhat convex, unequal, with about twelve or more rays, the outermost longest, all hispid with bristles pressed upwards. Universal involucre many-leaved, (five to eight) about half the length of the rays, the leaves usually as many as the rays, linear, pointed, the margin membranous and white: partial also of many leaves similar to the others, pressed to the rays, the length of the umbellets. Universal corolla difform, radiate. Florets white or reddish, without scent: those of the disk small, equal and male; those of the ray hermaphrodite, very widely spreading, on the under side slightly villose; the outmost somewhat larger and bifid. Anthers small, double, purple. Germ oblong, hispid. Fruit small, ovate, slightly flattened: seeds on one side gibbous, with three grooves, hispid with rigid bristles, white or red, curved upwards; on the other side marked longitudinally with one smooth hollow groove.

The presence of the involucre is a ready distinction of this from the foregoing sort, which it resembles very much; but it is sometimes so closely pressed to the rays, as not to be immediately visible; the styles too, in general, are bent or bowed back to a greater degree in this^q.

It is common in hedges and bushes, flowering in July and August.

Dr. Withering says, that horses are fond of it.

9. Stems two, three or more, round, striated, rough, branched, commonly prostrate, from a span to a cubit in length. Leaves somewhat like those of Parsnep, but shorter and fewer, and much more finely cut, winged, slightly hairy on each side, very dark green^r. The whole plant is rigid. Umbels simple, almost sessile, opposite to the leaves, with white florets crowded together on unequal rays. Fruit subglobular, hispid: seeds semiovate, very gibbous; those on the outside echinated all over with bristle-shaped, rugged prickles, slightly hooked at the end; those in the centre rugged with rough tubercles, like shagreen, terminating here and there in short prickles; the belly narrow, with a furrow along it^s. The umbels are sometimes on short peduncles^t.

Native of the South of Europe, and of England, on the borders of corn fields and on banks; flowering from May to August. Johnson (in Gerard) marks it as growing in the fields and on the banks about St. James's and Piccadilly.

I have retained the old English name of Bastard-Parsley for these plants. Gerard says, they are also called Hen's-foot.

PROPAGATION AND CULTURE.

These plants are all annual, or at most biennial, and are seldom cultivated, except in botanic gardens. They will rise readily from seeds, where they are permitted to scatter: or if any person be desirous of raising them, the seeds should be sown in autumn, soon after they are ripe. They will grow in any soil and situation.

CAUCALIS. See *Conium*, *Daucus*, *Echinophora*, *Sanicula*, *Scandix*, *Tordylium*.

CAULIFLOWER. See *Brassica*.]

^k Lourciero.

^l Linn. mant.

^m Ibid.

ⁿ Curtis.

^o Stokes in With.

^p Hist. 468.

^q Curtis.

^r Ray hist.

^s Gartner.

^t Woodw. Mss.

CEANOTHUS. (*Κεανθος* of Theophrastus.)
Lin. gen. n. 267. *Reich.* 286. *Schreb.* 361.
Gærtn. t. 106. *Juss.* 380.
 Class. 5. 1. Pentandria Monogynia.
 Nat. order of *Dumosaë. Rhamni* Juss.

GENERIC CHARACTER.

CAL. *Perianth* one-leaved, turbinate; border five-parted, acute, close-converging, permanent.
 COR. *Petals* five, equal, roundish, of an arched faccular shape, compressed, very obtuse, spreading, smaller than the calyx, seated on claws the length of the petal, growing from the interstices of the calyx.
 STAM. *Filaments* five, subulate, erect, opposite to the petals, the length of the corolla. *Anthers* roundish.
 PIST. *Germ* superior, triangular. *Style* cylindric, semitrifid, the length of the stamens. *Stigma* obtuse.
 PER. *Berry* (capsule, G.) dry, three-grained, three-celled, obtuse, retuse, set with tubercles.
 SEEDS solitary, ovate.

OBS. *C. Africanus* differs in the calyx being half five-cleft, and the style consisting of three conjoined, and with three stigmas.

ESSENTIAL CHARACTER.

Petals five, faccular, vaulted. *Berry* dry, three-celled, three-seeded.

SPECIES.

1. *Ceanothus americanus*. *American Ceanothus* or *New Jersey Tea*.

Lin. spec. 284. *Reich.* 549. *mat. med.* 69. *Trew. ebret. t.* 94. *Plenck, ic. t.* 143. *Mill. fig. t.* 86. *Dubam. arb. t.* 138. *t.* 51. *Gron. virg.* 32. *Gærtn. fruct.* 2. 110.

Euonymus novi belgii, *Corni feminae fol.* *Comm. hort. t.* 167. *t.* 86. *Raii dendr.* 69. *Pluk. alm. t.* 28. *f.* 6.

Leaves three-nerved.

[2. *Ceanothus asiaticus*. *Asiatic Ceanothus*.

Lin. spec. 284. *Reich.* 1. 550. *fl. zeyl. n.* 98. *Thunb. jap.* 95. *Burm. zeyl.* 111. *t.* 48.

Leaves ovate nerveless.]

3. *Ceanothus africanus*. *African evergreen Ceanothus*.

Lin. spec. 284. *synt.* 236. *Reich.* 1. 550. *mant.* 342. *hort. cliff.* 73. (*Celastrus*.) *Pluk. phyt. t.* 126. *f.* 1. *Comm. præl.* 61. *t.* 11. (*Alaternoides*.) *Seba, thes. t.* 35. *t.* 22. *f.* 6. (*Ricinoides*.)

Leaves lanceolate nerveless, stipules roundish.

[4. *Ceanothus reclinatus*.

L'Herit. fert. 6.

Rhamnus. Brown. jam. 272. *n.* 1. *t.* 29. *f.* 2.

Leaves ovate entire many-nerved, branches hanging down.

5. *Ceanothus circumscissus*.

Gærtn. fruct. 2. 110.

Rhamnus circumscissus. Lin. syst. 235. *suppl.* 152.

Leaves obcordate opposite in two rows, prickles solitary recurved opposite to the leaves.

6. *Ceanothus capsularis*.

Forst. fl. austral. n. 112.

Leaves ovate-cordate acuminate serrate, capsules three-valved gaping.]

DESCRIPTIONS, &c.

1. In England this shrub seldom rises more than three or four feet high, sending out branches on every side from the ground upward. The branches are very slender, and as it is pretty late in the spring before they begin to shoot, they keep growing very late; therefore, unless the autumn proves dry and mild, the tender shoots are often killed down very low by the early frosts; but in favourable seasons, the extreme parts of the shoots only are injured by the cold. These branches are garnished with oval pointed leaves, having three longitudinal veins running from the foot-stalk to the point, and diverging in the broad part of the leaves from each other: the leaves are placed opposite, are deciduous, and of a light green colour. At the extremity of each shoot the flowers are produced in close thick spikes, and are composed of five small petals, of a clear white. These appear in July; and make a pretty appearance during their continuance; for, as every shoot is terminated by one of these spikes, the whole shrub is covered over with flowers, the branches commonly

growing very close to each other; and when the autumn proves mild, these shrubs often flower again in October.

[The fruit, according to Gærtner, is a corticated, three or four-grained capsule. The rind, before it is ripe, is soft and fleshy, but afterwards dries into a thin skin, forming spongy tubercles and very narrow crests on the head and back of the grains. These are cartilaginous, thin, extremely smooth within, opening elastically by the internal future, and receding from each other spontaneously when ripe. The seeds are ovate-rounded, convex on one side, very obscurely angular on the other, of a shining bay colour.]

Native of most parts of North America, as Canada, New England, Pennsylvania, Virginia, and Carolina. It is there known by the name of New Jersey Tea: the leaves being dried for the same purpose as Tea. The Canadians use the root in venereal cases; and the cattle browsing upon the shrub, keep it very low. [It dyes wool a fine strong Nankin cinnamon colour.]

This shrub was cultivated before 1713 by Bishop Compton, in the episcopal garden at Fulham, and in Mr. Derby's garden at Hoxton. For several years after, it was lost in England, but has since been recovered from America, so as to be now pretty common in most of our curious gardens and nurseries.

2. Branches alternate, flexuose, striated, smooth. Leaves alternate, resembling those of the Pear, acuminate, smooth, veined, crenate, unequal, aggregate at the ends of the small branches, scarcely an inch in length, on petioles half the length of the leaves. Racemes from each axilla usually two, small, the length of the petioles, consisting of many florets, on very short pedicels, they are caducous, one often remaining which bears fruit; hence the raceme is toothletted from the falling of the flowers. Berries large, closely embraced at the base by the calyx^b.—Native of Ceylon and Japan. Introduced in 1781^c.

Jussieu doubts whether the *Tubanthera* of Commerson, which is the same with the *Katapa*, Hort. malab. 5. t. 47. and perhaps also with this *C. asiaticus* of Linneus, be of a different genus. According to Commerson, the petals are short rolled up with the stamens and tubular, there is scarcely any style, the peduncles are axillary and many-flowered.]

3. The third sort grows naturally at the Cape of Good Hope, from whence it was originally brought to Holland, and has been many years preserved there; and since has been communicated to most of the curious gardens in Europe, where it has been long known by the title of *Alaternoides*, &c.

This rises to the height of ten or twelve feet, with a woody stem, covered with a rough dark-coloured bark, and sends out many weak branches, which hang downward: these while young are green, but afterward change to a purplish colour. They are garnished with oblong pointed leaves, of a lucid green, smooth, and slightly serrate on their edges. The flowers are small, of an herbaceous colour, coming out from the side of the branches; these sometimes appear in July, but are not succeeded by seeds in this country, nor do the plants often produce flowers; so that they are preserved only for the beauty of their shining evergreen leaves, which make a variety in the green-house during the winter season.

[It was cultivated here in 1712^d.

4. This having a juiceless fruit, absolutely that of *Ceanothus*, with vaulted petals, though shorter than in *C. americanus*, is referred by Monf. L'Heritier to this genus rather than to that of *Rhamnus*. He is however of opinion, that the whole genus of *Ceanothus* might with more propriety be united with *Rhamnus*.—It is a native of Jamaica^e.

^a Mill. fig.

^b Linn. zeyl. & Thunb. jap.

^c Hort. kew.

^d Ibid.

^e Sert. angl.

5. Branches simple, opposite, spreading very much, angular, even. Prickles solitary, opposite, fixed, horizontal, curved back, solid. Leaves petioled, even, obscurely toothed. Petioles the length of the spines. Stipules in pairs very minute. Fructifications lateral, without prickles, umbelled, a little longer than the petioles, simple. Calyx bell-shaped, circumscised; border upright, five-parted; teeth sharp, deciduous. Petals inserted into the calyx, obcordate, ciliate, snow-white, involving the anthers. Filaments alternate, a little shorter than the calyx: anthers upright, oblong. Style short, permanent: stigma emarginate^f. Pericarp a sub-globular capsule, closely adhering to the rounded disk of the calyx, rounded-three-cornered, three-celled, not opening by three valves without pressure. Partitions simple, inserted into the middle of the valves, the substance of paper. Seeds solitary, roundish, convex on one side, obscurely angular on the other, testaceous or dark brown, not shining; covered with a crustaceous, thick, hard outer skin, the inner very thin and bay-coloured^g.

Native of the East-Indies, Ceylon, and Mauritius.

This species is a connecting link between *Ceanothus* and *Rhamnus*, but having a dry fruit, opening by pressure into three regular valves, it seems to approach nearer to the former, and therefore I have followed Gærtner in placing it here.

6. Native of Otaheite^h.]

PROPAGATION AND CULTURE.

1. This shrub is best propagated by seeds, which should be sown in the autumn in small pots, and plunged into an old hot-bed, where they may remain during the winter, exposing them in mild weather to the open air, but in frost they must be protected from cold. In march the pots should be plunged into a moderate hot-bed to bring up the plants, which should be inured to bear the open air by degrees; and as soon as they have obtained a little strength, they should be exposed in a sheltered situation till autumn, when they must be placed under a hot-bed frame, to screen them from severe frost in winter; in mild weather they should be fully exposed to the open air, but while the plants are young, they will not endure the cold of the winter. In the following spring, before the plants begin to shoot, they should be transplanted; some of them may be put into separate pots, and the others into a nursery-bed, in a warm situation, where they may remain a year or two to get strength, after which time they may be removed to the places where they are designed to remain. They should have a moderately dry soil and a sheltered situation, where they will thrive and flower extremely well; but in stiff cold land, they are always very late in the spring before they come out, so that their young shoots are full of sap in the autumn, and the first frost commonly kills their tops, which frequently causes them to die great part of their length.

It may also be propagated by laying down the young branches, which, in a light soil, will put out roots in a year's time, but these layers should not be much watered; for as the shoots are tender, moisture will often occasion their rotting, when it is given in quantities, or too often repeated; therefore the best method is to cover the surface of the ground in dry weather, all round the layers, either with mulch or rotten tan, which will preserve a sufficient moisture in the ground, provided the season is not extremely dry; in which case they should have a little water once in eight or ten days, which will be sufficient.

The best time for laying down these branches is in autumn; and if after this is performed, the surface of the ground is covered over with some old tan, taken from a decayed hot-bed, it will prevent the frost from penetrating the ground, which will secure them from injury; and the same covering will prevent the winds from drying the ground in the spring,

and thereby promote their putting out roots. These layers, when rooted, may be taken up the following spring, and treated in the same manner as those raised from seeds.

[2. The second may be increased by layers or cuttings, and must have the protection of the bark-stove.]

3. The third may be propagated in the same ways, but that by cuttings being most sure and expeditious is generally preferred. They should be planted in spring in pots filled with good kitchen-garden earth, and plunged into a very moderate hot-bed, observing to shade them in the heat of the day, and now and then to refresh them with water. In two months, or less, they will have taken root, when they must be gradually enured to the open air, placing them in a sheltered situation till they have obtained strength, when they may be separated, and each planted in a small pot filled with light earth, placing them in the shade till they have taken fresh root; then they may be removed, and intermixed with other exotic plants, and treated in the same manner.

CEANOTHUS. See *Serratula arvensis*.

CECROPIA.

Lin. gen. n. 1099. Reich. 1200. Schreb. 1492.

Juss. 402. Loeßl. 272. Coilotapalus. Brown.

Class. 22. 2. Dioccia Diandria.

Nat. order of *Scabridæ*. *Urticæ* Juss.

GENERIC CHARACTER.

* Male.

CAL. Spathe ovate, bursting, caducous, containing Aments very many, fasciculate, columnar, imbricate with scales; the scales (receptacles) copious, turbinate, compressed-quadrangular, obtuse, with a double perforation.

COR. none, unless the scales be called nectaries.

STAM. Filaments two, capillary, very short, from the perforations of the scales. Anthers oblong quadrangular.

* Female.

CAL. Spathe

Aments four, columnar, imbricate with germs.

COR. none.

PIST. Germs many, imbricate, compressed-quadrangular, obtuse. Styles solitary, very short. Stigmas somewhat headed, lacerated.

PER. Berry the form of the germ, one-celled, one-seeded.

SEED oblong, compressed.

ESSENTIAL CHARACTER.

MALE. Spathe caducous. Ament imbricate with turbinate scales, compressed-quadrangular. Cor. none.

FEM. as in the male. Germs imbricate. Style one. Stigma lacerated. Berry one-seeded.

SPECIES.

1. *Cecropia peltata*. Trumpet-tree, or Snake-wood.

Lin. spec. 1449. Syst. 878. Reich. 4. 221. mant.

499. amæn. 5. 410. Loeßl. it. 272. Jacqu.

obs. 2. t. 46. f. 4. amer. pict. 126. t. 262. f. 66.

Coilotapalus. Brown. jam. 111.

Ficus furinamensis, &c. Pluk. alm. t. 243. f. 5.

Yaruma Oviedi. Sloan. jam. 1. 137. t. 88. f. 2. & t. 89.

Ambaiba. Marcgr. bras. 91. Pif. bras. 147. Raii hist. 1373.

DESCRIPTION, &c.

[This tree rises commonly to a considerable height, being seldom under thirty-five or forty feet in the most perfect state. The trunk and branches are hollow every where, and stopped from space to space with membranous septas, answering to so many light annular marks in the surfaceⁱ. Leaves few, alternate, large, at the ends of the branches; they are peltate, divided into many lobes like those of *Carica Papaya*, downy-white underneath, petioled; lobes entire, sharp, rugged on the upper surface, the nerves obliquely transverse, and the veins very much so. There are stipules between the leaves, as in the Fig, opening on the side opposite to the leaf, obvolute or

^f Linn. suppl.

^g Gærtner.

^h Forster.

ⁱ Browne.

imbricate on the edge, soon falling off*. The fruits rise four, five or more from the very top of a common peduncle, and shoot into so many oblong cylindrical berries, composed of a row of little *acini*, something like our Raspberry, which they resemble in flavour when ripe, and are agreeable to most European palates on that account.

The wood of this tree, when dry, is very apt to take fire by attrition. The native Indians have taken the hint, and always kindle their fires in the woods by rubbing a piece of it against some harder wood. [The bark is strong and fibrous, and is frequently used for all sorts of cordage. The trunk is very light, and for that reason much used for bark-logs and fishing-floats. The smaller branches, when cleared of the septums, serve for wind instruments. Both trunk and branches yield a great quantity of fixed salt, which is much used among the French, to despumate and granulate their sugars. The fruit is much fed upon by pigeons and other birds, and thus the tree is much spread and propagated¹.

Native of South America; Jamaica, and other West India islands.]

Mr. Miller received specimens of this tree from Dr. Houstoun, who found it growing naturally at La Vera Cruz in New Spain. [It does not appear however that he ever cultivated it. In the catalogue of the royal botanic garden at Kew, it is said to have been introduced in 1778, by Thomas Clark, M. D.]

PROPAGATION AND CULTURE.

It may be propagated by seeds, procured from the places of natural growth. They should be brought over in sand, for if they are put up moist in papers, they will be apt to grow mouldy.

They should be sown in small pots filled with light earth, and plunged into a moderate hot-bed of tanners-bark, observing to water the pots duly, and to admit fresh air whenever the weather is favourable. When the plants come up and are fit to transplant, they should be carefully taken up, and each planted in a separate small pot filled with the like light earth, and plunged into the hot-bed again, being careful to water them to settle the earth to their roots, and also to screen them from the sun till they have taken new root: after which they should be constantly kept plunged into the bark-bed in the stove, and treated in the same manner as other plants from the same country.

CEDAR, Barbadoes. See *Cedrela*.

— Bermudas, } See *Juniperus*.

— Carolina. }

— Jamaica. See *Theobroma*.

— Libanus or Lebanon. See *Pinus Cedrus*.

— Lycian, }

— Phœnician, } See *Juniperus*.

— Virginian. }

— White. See *Cupressus*.

[CEDRELA.

Lin. gen. n. 277. Reich. 297. Schreb. 383.

Juss. 266. Gært. t. 95. Cedro. Loeft. 183.

Cedrela. Brown. t. 10. f. 1.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Miscellaneæ. Melicæ Juss.*

GENERIC CHARACTER.

CAL. *Perianth* monophyllous, campanulate, very small, five-toothed, withering.

COR. Funnel-form, pentapetalous, the tube bellied below. *Petals* linear-oblong, obtuse, erect, adjoined to the receptacle at one-third beneath.

STAM. *Filaments* five, subulate, seated on the receptacle, shorter than the corolla. *Anthens* oblong, bent outwards at the tip.

PIST. *Receptacle* proper five-cornered. *Germ* globular. *Style* cylindric, length of the corolla. *Stigma* headed, depressed.

PER. *Capsule* superior, woody, roundish, five-celled, five-valved; valves deciduous.

* Linn. amoen. & Loeffing.

¹ Browne.

SEEDS numerous, fleshy, imbricate downwards, terminated by a membranaceous wing. *Receptacle* woody, five-angled, free.

OBS. *This genus may be compared with Swietenia.*

ESSENTIAL CHARACTER.

CAL. withering. COR. five-petalled, funnel-form, fastened by the base to the receptacle to one-third of its length. CAPS. woody, five-celled, five-valved. SEEDS imbricate downwards, with a membranaceous wing.

SPECIES.

1. *Cedrela odorata. Barbadoes Bastard Cedar.*

Lin. spec. 289. Reich. 562. Loeft. it. 183. Gært.

fruct. 2. 84. Brown. jam. 158. t. 10. f. 1.]

Pluk. alm. t. 157. f. 1.

Cedrus odorata. Mill. dict. n. 1.

[*Pruno affinis arbor, &c. Sloan. jam. 2. 128. n. 19.*

t. 220. f. 2. Raii dendr. 43. n. 8.

Flowers panicled.]

DESCRIPTION, &c.

This tree rises with a straight stem to the height of seventy or eighty feet, while young the bark is smooth, and of an Ash-colour; but as it advances, the bark becomes rough and of a darker colour. Toward the top it shoots out many side branches, garnished with winged leaves, composed of sixteen or eighteen pair of leaflets, so that they are sometimes near three feet long; the leaflets are broad at their base, and are near two inches long, blunt at their ends, and of a pale colour; these emit a very rank odour in the summer season, so as to be very offensive. The fruit is oval, about the size of a partridge's egg, smooth, of a very dark colour, and opens in five parts, having a five-cornered column standing in the middle, between the angles of which the winged seeds are closely placed, lapping over each other like the scales of fish.

[According to the description of Loeffing, the leaves are alternate; leaflets oblong-acute, smooth, entire, ending in a narrow point. Peduncle round, slightly compressed above, clavated at the base; pedicels round, opposite. Flowers on a very branching raceme, panicled, the branches spreading very much; the branchlets alternate, somewhat remote, bearing two or three flowers. Corollas whitish flesh colour, liliaceous, resembling that of Hyacinth.

The fruit is a capsule continued from a woody peduncle and woody itself, brown with irregular pale spots, appearing as it were leprous, within of a reddish bay colour, the valves opening from the top, but permanent at the base, and not falling. The top seeds are elliptic, the middle ones oblong-ovate, the lower ones ovate-lanceolate, all ferruginous-cinnamon colour, with a nucleus at top, and terminating below in a membranaceous wing^m.

The trunk is covered with a rough bark, marked with longitudinal fissures. This, as well as the berries and leaves, has a smell like *Assa-fœtida*, when fresh. The timber however has a pleasant smellⁿ.]

This is commonly known under the name of Cedar in the British West India islands. The trunk is so large as to be hollowed out into canoes and periaguas, for which purpose it is extremely well adapted, the wood being soft, it may be cut out with great facility, and being light, it will carry a great weight on the water. There are canoes in the West Indies, which have been formed out of these trunks, forty feet long and six broad; the wood is of a brown colour, and has a fragrant odour, whence the title of Cedar has been given to it: it is frequently cut into shingles for covering houses, and is found very durable; but as the worms are apt to eat this wood, it is not proper for building ships, though it is often used for that purpose, as also for sheathing of ships. It is often used for wainscoting of rooms, and to make chests, because vermin do not so frequently breed in it, as in many other sorts of wood, this having a very bitter taste, which is communicated to whatever is put into the chests, especially when the wood is fresh; for which reason it is

^m Gærtner.

ⁿ Browne.

^o Hort. kew.

never made into casks, because spirituous liquors will dissolve part of the resin, and thereby acquire a very bitter taste.

[Dampier mentions some of these trees in the island of St. Andreas near the isle of Providence, the bodies of which were forty or fifty, and many sixty or seventy feet long.

It was cultivated in 1739, by Mr. Philip Miller.

Loureiro has another species, to which he has given the name of *Cedrela Rosmarinus*. It is a shrub, about four feet high, with linear leaves, and axillary one-flowered peduncles: the seeds are not winged. It grows wild in Cochinchina and about Macao in China. It yields a fine essential oil, and a spirit not inferior to that which is drawn from Rosemary.]

PROPAGATION AND CULTURE.

It is propagated by seeds, which may be easily procured from the West Indies. They must be sown upon a hot-bed in the spring, and the plants treated in the same manner as the Mahogany. See *Swietenia*.

They are of much quicker growth, for in four years the plants will be upwards of ten feet high.

[CEDRELA. See *Swietenia*.

CEDRO. See *Cedrela*.

CEDRONELLA. See *Dracocephalum*.

CEDRŌTA.

Lin. gen. Schreb. n. 660. Aniba. Aubl. 126. Juss. 438.

Class. 8. 1. Octandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth one-leafed, six-parted: parts ovate, obtuse, concave.

COR. none.

STAM. Filaments eight, short. Anthers roundish.

PIST. Germ superior, roundish, surrounded by a gland. Style short. Stigma obtuse.

PER.

SEED

ESSENTIAL CHARACTER.

Cal. six-parted. Cor. none. Germ superior, surrounded by a gland. Style short.

SPECIES.

1. *Cedrota guianensis*.

Linn. syst. ed. Gmel. 629.

Aniba guianensis. Aubl. guian. 327. t. 126.

DESCRIPTION, &c.

This is a tree forty feet in height, and two feet in diameter, with a thick, unequal, wrinkled bark, full of clefts, and a yellow, heavy, aromatic wood, which however becomes light when dry. It has a great number of large branches at top, some straight, others inclined, and spreading every way. These are loaded with twigs, having leaves either opposite, or in whorls of three or five together: they are smooth, thin, entire, oblong, oval, acuminate, on a short petiole channelled above. Flowers very small, loosely racemed, on a long, weak, axillary peduncle.

It grows in the great forests of Guiana, flowering in May. The inhabitants call it *Bois de Cedre*, and use it for making their pirogues; they say that it is also fit for masts.

CEDRUS. See *Cedrela*, *Cliffortia*, *Juniperus*, *Pinus*, *Swietenia*.]

CEIBA. See *Bombax*.

CELANDINE. See *Chelidonium*.

CELASTRUS. (*Theophrastus* calls some wild evergreen trees *Κηλαστρους*.)

Lin. gen. n. 270. Reich. 290. Schreb. 372.

Juss. 378. Gertn. t. 95. Euonymoides. Isnard.

A. G. 1716.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Dumose*. *Rhamni* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leafed, half-five-cleft, flat, small; divisions obtuse, unequal.

COR. Petals five, ovate, spreading, sessile, equal, reflected at the borders.

• Hort. kew.

• Aublet.

STAM. Filaments five, subulate, length of the corolla. Anthers very small.

PIST. Germ very small, immersed in a large flat receptacle, which is marked with ten streaks. Style subulate, shorter than the stamens. Stigma obtuse, trifid.

PER. Capsule coloured, ovate, obtusely triangular, gibbous, trilocular, trivalvular.

SEEDS few, ovate, coloured, smooth, half involved in an unequal coloured Arillus with a four-cleft mouth.

Obs. There is a species without any style, and with a triple stigma, and consequently allied to the order Trigynia of this class.

ESSENTIAL CHARACTER.

Cor. five-petalled, spreading. Caps. triangular, trilocular. Seeds calyptrated.

SPECIES.

1. *Celastrus bullatus*.

Lin. spec. 285. Reich. 552.

Euonymus. Pluk. alm. t. 28. f. 5.

Unarmed, leaves ovate quite entire.

2. *Celastrus scandens*. Climbing Staff-tree.

Lin. spec. 285. Reich. 552.

C. punctatus. Thunb. jap. 97.

Euonymoides. Dubam. arb. 1. 223. t. 95. Isn. act. gall. 1716. t. 30.

Unarmed, stem twining.

3. *Celastrus myrtifolius*. Myrtle-leaved Staff-tree.

Lin. spec. 285. Reich. 552. hort. cliff. 72.

Unarmed, leaves ovate finely serrate, flowers racemed, stem erect.

4. *Celastrus procumbens*. Procumbent Staff-tree.

Lin. syst. 237. suppl. 153.

Unarmed, procumbent, leaves ovate serrate, flowers axillary subsolitary.

5. *Celastrus filiformis*. Filiform-branched Staff-tree.

Lin. syst. 237. suppl. 153.

Unarmed, leaves lanceolate entire, branches filiform, peduncles axillary one-flowered.

6. *Celastrus acuminatus*. Acuminate-leaved Staff-tree.

Lin. syst. 237. suppl. 154.

Unarmed, leaves ovate acuminate serrate, peduncles axillary one-flowered, stem erect lax.

7. *Celastrus microphyllus*.

Lin. syst. 237. suppl. 154.

Unarmed, leaves ovate obtuse entire, cymes terminal dichotomous.

8. *Celastrus articulatus*.

Lin. syst. 237. Thunb. jap. 97.

Unarmed, leaves rounded acuminate serrate, peduncles axillary subtrifid.

9. *Celastrus dilatatus*.

Thunb. in transf. Linn. soc. 2. 332.

Euonymoides baccis parvis. Thunb. jap. 354.

Leaves obovate, cusped, serrate at the tip and smooth, stem unarmed.

10. *Celastrus striatus*.

Lin. syst. 237. Thunb. jap. 98.

Unarmed, branchlets erect striated, leaves ovate acuminate serrate, peduncles scattered one-flowered.

11. *Celastrus alatus*. Wing-branched Staff-tree.

Lin. syst. 237. Thunb. jap. 98. Kämpf. amæn. 5. 796.

Unarmed, branches winged.]

12. *Celastrus buxifolius*. Box-leaved Staff-tree.

Lin. spec. 285. Reich. 553. hort. cliff. 72.

Lycium. Pluk. alm. t. 202. f. 3.

Spines leafy, branches angular, leaves obtuse.

13. *Celastrus pyracanthus*. Pyracantha-leaved Staff-tree.

Lin. spec. 285. Reich. 553. Gertn. fruct. 2. 85.

Mill. fig. t. 87. Pluk. alm. t. 126. f. 2, 3.

Lycium. Comm. hort. 1. 163. t. 84. Raii dendr. 72. n. 28.

Spines naked, branches round, leaves acute.

14. *Celastrus lucidus*. Shining Staff-tree, or small Hottentot Cherry.

Lin. syst. 237. Reich. 553. mant. 49. L'Herit. fl. nov. fasc. 3. 49. t. 25.

Euonymus. Pluk. alm. t. 280. f. 4.

Leaves oval shining quite entire margined.

15. *Celastrus linearis*. *Linear-leaved Staff-tree*.
Lin. syst. 237. suppl. 153.
Spines leafy, leaves linear entire.
16. *Celastrus integrifolius*. *Entire-leaved Staff-tree*.
Lin. syst. 237. suppl. 153.
Spines leafy, leaves ovate obtuse quite entire, cymes lateral.
17. *Celastrus crenatus*. *Notch-leaved Staff-tree*.
Forst. florul. austr. n. 113.
Unarmed; leaves ovate, crenulate; cymes axillary.
18. *Celastrus corniculatus*.
L'Herit. fert. angl. 6. n. 1.
Euonymus. Breyn. ic. t. 22. f. 3. Burm. afr. t. 97. f. 1.
Leaves oval quite entire perennial, capsule three-horned.
19. *Celastrus Cassinoides*. *Crenated Staff-tree*.
L'Herit. fert. angl. 6. n. 2. t. 10. Ait. hort. kew. 271.
Unarmed; leaves ovate, acute both ways, loosely toothed, perennial; flowers axillary.
20. *Celastrus phyllacanthus*.
L'Herit. fert. angl. 6. n. 3.
Thorns leafy, leaves lanceolate, serrate perennial, flowers lateral.
21. *Celastrus octogonus*. *Angular-leaved Staff-tree*.
L'Herit. fert. angl. 7. n. 4. Ait. hort. kew. 272.
Unarmed; leaves elliptic angular almost nerveless perennial, capsules bivalve, one-seeded.
22. *Celastrus undulatus*. *Waved-leaved Staff-tree*.
L'Herit. fert. angl. 7. n. 5. Ait. hort. kew. 272.
Unarmed; leaves nearly opposite lanceolate waved, capsules bivalve, many-seeded.

DESCRIPTIONS, &c.

This genus consists of shrubs or small trees, with alternate leaves, and the flowers many together, on axillary subdichotomous peduncles. It is so nearly allied to *Euonymus*, that some would unite it to that genus.]

1. It rises to the height of eight or ten feet; but in England there are few of these shrubs much more than half that height. It generally puts out two or three stems from the root, which divide upward into several branches, covered with a brown bark, garnished with leaves near three inches long, and two broad, placed alternately on the branches; the flowers come out in loose spikes at the end of the branches, and are white; the capsule is of a scarlet colour, set full of small protuberances; it opens into three cells, each containing a hard oval seed, covered with a thin red pulp. This shrub flowers in July, but rarely produces good seeds in England.

It grows naturally in Virginia, and many other parts of North America.

2. The second sort sends out several woody stalks, which are flexible, and twist themselves round trees and shrubs, or round each other, to the height of twelve and fourteen feet or more; girdling trees so closely as in a few years to destroy them. The leaves are about three inches long, and near two broad, ferrate, alternate, of a lively green above, but paler on their under side, having several transverse nerves. The flowers are produced in small bunches towards the ends of the branches; they are of an herbaceous colour, and are succeeded by roundish three-cornered capsules, which are red when ripe, and spread open their three cells, disclosing their seeds in the same manner as our common Spindle-tree. It flowers in the beginning of June, and the seeds ripen in autumn.

[Thunberg, who had made a new species of this under the name of *C. punctatus*, but afterwards corrected his error, adds; that the branches are elongated, polygonous, rough with white dots, ferruginous and naked: branchlets scattered, striated, spreading much; often recurved, leafy and short. Leaves acute, smooth, an inch long, on very short petioles. Flowers scattered, solitary, on very short, loose, jointed peduncles. The seeds are covered with a yellow wrinkled aril.

Native of North America and Japan.

It was introduced in 1736, by Peter Collinson, Esq.*.

3. Native of North America. The synonyms of Sloane and Ray belong to a new species of *Prunus*, which Swartz has named *P. sphaerosperma*. Miller's *Celastrus myrtifolius* is the same plant.

4, 5, 6, 7. Found at the Cape of Good Hope, by Thunberg†.

8. Stem shrubby erect. Branches polygonous, ferruginous, smooth, dotted with white. Leaves smooth, nerved, spreading, an inch and half in length. Petioles channelled, one-third of the length of the leaves. Peduncles bifid and trifid.

9. This is a shrub or small tree, upright, with round smooth branches. Leaves blunted at the end, but having a point, narrowed below, entire, paler underneath, unequal, from one inch to three in length, on petioles scarcely half a line long. The fruits are berries terminating the peduncles, sessile, aggregate, minute, blue.

10. Stem shrubby; branches round, somewhat wrinkled, ash-coloured, erect. Leaves opposite, on very short petioles, smooth, spreading, an inch long. Peduncles capillary, jointed, spreading much. Capsules one-celled, two, three or four-celled; or rather the capsules are aggregate. It differs from the second species in having the branches neither dotted nor climbing, and the leaves subsessile.

11. Stem shrubby, a fathom in height: branches opposite loose upright smooth: branchlets also opposite, much spreading, short, winged as well as the branches; the wings somewhat crose, irregularly scattered here and there, adhering to the bark, but easily separating. Leaves opposite, on very short petioles, elliptic, acuminate, very finely serrate, smooth, spreading, an inch long. Flowers scattered, on capillary, one-flowered peduncles, an inch long, having two glands above the middle. Capsules one or two-celled, seldom three-celled. Seeds arilled.

It is difficult to determine whether this be a *Celastrus* or *Euonymus*, the two genera being so nearly allied as that perhaps they ought not to be separated: but it seems rather to be a *Celastrus*, by its having usually a one-celled capsule.

This and the three foregoing species were first observed by Thunberg in Japan.

The last is a handsome shrub, singular for its winged branches. It is frequently cultivated by the Japanese in their gardens; and the young men hang bunches of the flowers before the doors of the house, to signify their desire to pay addresses to a young woman within‡.

12. This rises with a slender woody stalk to the height of ten or twelve feet, covered with a light ash-coloured bark, and full of joints, armed with long spines, upon which grow many small leaves; the branches are slender, armed also with spines at every joint; but the whole plant is so weak as to require some support. The leaves come out in clusters without any order; are shaped somewhat like those of the narrow-leaved Box-tree, but longer and of a loose texture. [They are obovate and acutely serrate. Both branches and branchlets are angular. The flowers are on peduncled cymes from the axils. The fruit is globular. In the next species it is triquetrous§.

It is a native of the Cape of Good Hope; was cultivated by Mr. Miller in 1759; and flowers in May and June¶.

13. This rises with an irregular stalk three or four feet high, sending out several side branches, covered with brown bark. Leaves about two inches long, and more than half an inch broad, some pointed and others obtuse; they are stiff, of a lucid green, come out irregularly from the branches, and continue green through the year. The flowers are produced from the sides of the branches in loose

* Hort. kew.

† Linn. suppl.

‡ Thunb. jap.

§ Linn. spec. & cliff.

¶ Hort. kew.

tufts, many from one point, on long peduncles, and of an herbaceous white colour. The fruit is of a fine red colour, and opens into three cells, containing one oblong hard seed; two of the cells being generally empty.

[The branches and branchlets are roundish: the leaves are oval-lanceolate, sharp to both ends, terminating in the petioles, in the upper part having acuminate serratures which are almost spiny. Cymes peduncled, lateral^f. Capsule superior, obovate, acuminate at the tip, three-sided, three-furrowed, reddish-ferruginous on the outside, pale straw-colour within, three-celled, opening into three parts at the top, but entire at the base: partitions answering to the middle of the valvular grooves. Seeds few, about four in each cell, but scarcely two ripening; they are ovate, attenuated towards the navel, brown, and covered with a membranaceous, soft, scarlet aril, pervious on the side opposite to the navel, with a four-cleft, unequal mouth^g.]

It is a native of the Cape of Good Hope, whence the seeds were first brought to the gardens in Holland, and thence communicated to most of the curious gardens in Europe.

[It was cultivated in 1752, by Mr. Miller, and flowers most part of the summer^h.

14. An upright shrub, with brown hard branches. Leaves ovate or obovate, somewhat obtuse, veined, on very short petioles, the edge quite entire and turned back. Peduncles axillary, crowded, simple, shorter than the leaves. Petals concave. Stamens shorter than the corolla. Style thick, with three diverging stigmasⁱ.

It differs from *C. pyracanthus* in having rounder leaves, which are concave, and as it were boat-shaped; and in the branches being without spines^k. Native of the Cape of Good Hope. Introduced in 1722, by James Sherard, M.D. It flowers from april to september^l.

15, 16. Found at the Cape of Good Hope by Thunberg^m.

17. Native of the Marquesas islands in the South seasⁿ.

18. It has the appearance of *Euclea*, and is a native of the Cape of Good Hope^o.

19. A native of the Canary islands. Mr. Francis Masson introduced it in 1779. It flowers in august and september^p.

20. Found in Senegal by Adanson. It has flowered in the Paris garden, but has not borne fruit.

21. Leaves glaucous. Flowers perhaps polygamous, the hermaphrodites or females very rare. Seed arilled, two-furrowed. Found in Peru by Dombey. There are other species from Peru and Chili, which have a bivalve capsule^q.

Introduced in 1786 by Monf. Thouin. It flowers in october^r.

22. Leaves acuminate, sometimes having one nerve, the edge whitish and revolute. Petals spatulate. Stigma obscurely capitate: capsule one-celled, two-valved. Seeds eight to twelve, naked, not arilled. Thus it recedes from the genus in its pericarp and seeds, but not sufficiently to constitute a new genus. Commerçon found it in the isle of Bourbon, where they call it *Bois de joli cœur*, and use it as an *antisyphilitic*^s.

Introduced in 1785 by Messrs. Lec and Kennedy^t.]

PROPAGATION AND CULTURE.

1. It is propagated here by layers, which will take root in one year; the young branches only are proper for this purpose, so that where there are not any of these near the ground, the main stalks should be drawn down, and fastened with pegs to prevent their rising, and the young shoots from them should be laid. The best time for doing this is in autumn, when they begin to cast their leaves, and by that

time twelvemonth they will be sufficiently rooted; when they should be cut off from the old plant, and planted in a nursery for two or three years to get strength; after which they must be removed to the places where they are to remain. This shrub grows naturally in moist places, and will not thrive well in a dry soil. It is very hardy, and bears the cold of our winters very well. It is also propagated by seeds, which are frequently brought from America; but as these rarely arrive here time enough to sow before the spring, the plants never come up the first year; therefore the seeds may be sown either in pots, or in a bed of loamy earth, keeping them clean from weeds during the summer; and those in the pots should be placed in the shade till the autumn, when the pots should be either plunged into the ground in a warm situation, or placed under a common frame, to prevent the frost from penetrating through the side of the pots, and if the surface of those which are plunged into the ground, and also the bed where the seeds are sown are lightly covered with some old tan from a decayed hot-bed; it will secure the seeds from being hurt by severe frosts. In the spring, when the plants come up, they must be kept clear from weeds; and if the season proves dry, they should have water now and then, which will greatly forward their growth. If the plants make good progress the first summer; they may be transplanted into a nursery in autumn; otherwise they should remain in the seed-bed till the second year, when they may be treated in the same manner as the layers.

2. The seeds of the second sort generally ripen well in England, and this may be propagated from these or by layers, as the former. It delights in a strong loamy soil, rather moist than dry, and will grow in woods among other trees and shrubs; where, when the fruit is ripe, it makes a pretty appearance. It is extremely hardy.

4, 5, 6, 7, 12, 13, 14, 15, 16, 18. The Cape sorts may be propagated by cuttings; which is more expeditious than raising them from seeds, because these rarely come up the same year. The cuttings may be planted any part of the summer; but those which are planted early, will have more time to get strength before winter. Put them in small pots filled with good kitchen garden earth, four together: plunge them into a moderate hot-bed, shade them from the sun, and gently refresh them with water now and then. When they have taken root, expose them gradually to the open air, and then place them in a sheltered situation till they have obtained strength. Plant each in a small pot filled with the same earth; place them in the shade till they have taken fresh root; set them with other exotic plants in a sheltered situation till autumn; then house them with other hardy green-house plants.

12. Rises easily from seeds, and will be four feet high in two years, without artificial heat. In mild winters this will live under a south wall, but it sheds the leaves there.

If the young shoots are laid, they will take root in one year, and may then be transplanted either into pots, or against a warm wall, where if they be covered in severe frosts, they may be brought, when old, to live abroad without protection. Those in pots will require a little shelter in winter, but should not be tenderly treated, for that will cause them to have weak branches, nor will the leaves have so much verdure, as when they are exposed to the open air in mild weather.

21, 22. Are more tender, and must be kept in the stove.

CELASTRUS. See *Cassine*, *Ceanothus*, *Euonymus*.

CELERI or Celery. See *Apium*.

CELOSIA.

Lin. gen. n. 289. *Reich.* 312. *Schreb.* 405. *Juss.* 88. *Gertn. t.* 128. *Stachyarpagophora*. *Vaill. A. G.* 1722.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Miscellaneæ*. *Amaranthi* Juss.

GENERIC

^f Linn. spec.

^g Linn. mant.

^h Linn. suppl.

ⁱ Hort. kew.

^j L'Heritier.

^k Gærtner.

^l L'Heritier.

^m Forster.

ⁿ L'Heritier.

^o Hort. kew.

^p Hort. kew.

^q Hort. kew.

^r L'Heritier.

^s Hort. kew.

^t Hort. kew.

GENERIC CHARACTER.

CAL. Perianth three-leaved: leaflets lanceolate, dry, acute, permanent, similar to the corolla.

COR. Petals five, lanceolate, acuminate, erect, permanent, stiffish, calyciform.

NECTARY a margin surrounding the germ, very small, five-cleft.

STAM. Filaments five, subulate, conjoined at the base to the plaited nectary, length of the corolla. Anthers versatile.

PIST. Germ globular. Style subulate, straight, length of the stamens. Stigma simple.

PER. Capsule globular, surrounded by the corolla, one-celled, circumscissile.

SEEDS few, roundish, emarginate.

OBS. *C. trigyna* is furnished with three stigmas.

ESSENTIAL CHARACTER.

CAL. three-leaved, leaflets similar to those of the five-petalled corolla. STAM. conjoined at the base to the plaited nectary. CAPS. gaping horizontally.

SPECIES.

- [1. *Celosia argentea*. Silvery-spiked Celosia.
Lin. spec. 296. syst. 246. Reich. 577. hort. cliff. 43. 1. Lour. cochinch. 163.
Amaranthus. Rheed. mal. 10. 77. t. 39.
Leaves lanceolate, stipules subfalcated, peduncles angular, spikes scarious.]
2. *Celosia margaritacea*.
Lin. spec. 297. Reich. 577. Lour. cochinch. 164.
Retz. obs. 3. 27. n. 39, 40.
Amaranthus. Baub. pin. 121. 4. Mart. cent. t. 7.
Rheed. mal. 10. 75. t. 38.
Leaves ovate, stipules falcated, peduncles angular, spikes scarious.]
3. *Celosia cristata*. Crested Amaranth, or Cock's-comb.
Lin. spec. 297. syst. 247. Reich. 577. hort. cliff. 43. 2. ups. 52. Thunb. jap. 106. Gartn. fruct. 2. 215.
Amaranthus panicula conglomerata. Baub. pin. 221.
Ger. herb. 254. emac. 322. Park parad. 371. 1.
Ruii hist. 202. 1.
β. A major paniculis surrectis flavescentibus. Herm. lugdb. 30.
Buff-coloured Celosia or Cock's-comb.
Leaves oblong-ovate, peduncles round substriated, spikes oblong.]
4. *Celosia paniculata*. Panicked Celosia.
Lin. spec. 298. Reich. 578. Swartz. obs. 100.
Brown. jam. 179. Sloan. jam. 1. t. 91. f. 1.
Leaves ovate-oblong, stem rising panicked, spikes alternate terminal remote.]
5. *Celosia coccinea*. Scarlet Celosia, or Chinese Cock's-comb.
Lin. spec. 297. Reich. 578.
Amaranthus. Baub. pin. 121. 2. Baub. hist. 2. 969.
fig. Ger. herb. 254. f. 2. emac. 322. 2. Park. parad. 371. 2. 1. 373. f. 4. Ruii hist. 202. 2.
Leaves ovate stiff earless, stem grooved, spikes manifold crested.]
6. *Celosia castrensis*. Branched Celosia, or Cock's-comb.
Lin. spec. 297. Reich. 578. Lour. cochinch. 163.
Amaranthus. Cam. epit. 792. Barr. rar. t. 1195.
Bocc. mus. 2. t. 66. Rumph. amb. 5. 236. t. 84.
Beyl. cyl. aut. 2. t. 8. f. 1.
Leaves lanceolate-ovate, marked with lines, very much acuminate, stipules falcated, spikes crested.]
- [7. *Celosia trigyna*. Oval-leaved Celosia.
Lin. syst. 247. Reich. 579. mant. 212. Jacq. hort. 3. t. 15.
Leaves ovate-oblong, raceme lax, pistil trifid.]
8. *Celosia lanata*. Woolly Celosia.
Lin. spec. 298. Reich. 579. fl. zeyl. n. 102.
Jacq. hort. 3. t. 85.
Leaves lanceolate tomentose obtuse, spikes crowded, stamens woolly.]
- [9. *Celosia Guaphaloides*.
Lin. syst. 247. suppl. 161.
Shrubby, woolly; leaves opposite ovate white beneath; head globular peduncled.]
10. *Celosia nodiflora*. Knotted Celosia.
Lin. spec. 298. syst. 247. Reich. 579. fl. zeyl. n. 101. Retz. obs. 4. 24. n. 70.

Amaranthoides. Burm. zeyl. 16. t. 5. f. 2. Pluk. alm. t. 133. f. 2.

Leaves wedge-form somewhat acute, spikes globular lateral.

11. *Celosia procumbens*. Procumbent Celosia.

Lin. syst. 247. Murr. in comm. gott. 1782. p. 16. t. 5. Jacq. misc. 2. 344. icon. rar. Ait. hort. kew. 289.

Gomphrena interrupta. L'Herit. stirp. nov. 5. t. 3. Swartz. obs. 108.

Stems decumbent, peduncles very long leafless, spikes ovate approximating, capsules compressed crested-winged.

12. *Celosia Monsonia*. Downy Celosia.

Ait. hort. kew. 288. Retz. obs. 2. 13. n. 26.

Ilcebrum Monsonia. Lin. suppl. 161.

Amaranthoides. Pluk. mant. t. 334. f. 4.

Spikes compact cylindric, branches brachiate, leaves subulate.

13. *Celosia polygonoides*.

Retz. obs. 2. 12. n. 25.

Leaves cordate, stem hispid, raceme spiked loose, flowers three-styled.

14. *Celosia baccata*.

Retz. obs. 5. 23. n. 55.

Flowers three-styled, fruits berried.

DESCRIPTIONS, &c.

Celosias or Cock's-combs, are all herbaceous plants, and annual. The flowers are glomerate in spikes or panicles, some of which are flatted and shaped somewhat like the comb of a cock.

1. Stem more upright than in *cristata*. The leaves approaching by no means to an ovate form, as in that. Spike terminating, ovate, close, erect, acuminate, the thickness of the human thumb, the florets all sessile, never branching, the colour white, rarely approaching to red. Sometimes a little spike or two from the axils of the upper leaves^a.

Native of the East-Indies, China, Cochin-China and Japan.

Introduced in 1714, by the Dutchess of Beaufort. It flowers from June to September^b.

2. This, says Linneus, bears so much similitude to the foregoing sort, as to be almost a variety. There can indeed be little doubt of its being quite so.—The leaves are rather ovate, and the stamens are purple.

Loureiro keeps them distinct, and gives these differences. The stem of the *margaritacea* is caespitose and two feet high. Leaves oblong-ovate, subrepand. Flowers in oblong, subcylindric, close, fulvous spikes. The stem of the *argentea* is angular, with straight ascending branches. Leaves lanceolate, quite entire, tomentose underneath. Flowers in oblong-conic, white and red spikes.

Mr. Miller describes his *margaritacea* as] rising with an upright stalk about two feet high, garnished with oval leaves ending in points, of a pale colour; those on the lower part being four or five inches long, and one and a half broad in the middle, but they diminish gradually in their size upward. Toward the upper part of the stalk, there are a few side branches sent out which stand erect; each terminated by a slender spike of flowers, and the principal stalk is terminated by one which is much larger; this is two or three inches long, and about as thick as a man's middle finger, the whole spike being of a silvery colour. But there is a variety of this with slender pyramidal spikes, intermixed with red toward the top, the seeds of which I received from Linneus, by the above title; but I am inclinable to think it is different from that which was figured by Martyn in his Decades of rare plants, and which I have cultivated many years in the Chelsea garden, without its varying. The spike of this is much thicker than that of Linneus's, and of equal size the whole length; whereas his diminishes almost to a point at the top, and the colours of both are very different. He says that it grows naturally in America; and that he has frequently received the seeds from thence.

^a Linn. cliff.

^b Hort. kew.

[Retzius says, that a plant sent him under the name of *Celosia marilandica* is certainly the same with this, answering to the Linnean character except that the leaves are rather lanceolate than ovate. The calyx is shorter than the corolla: the stamens truly monadelphous: a minute nectary surrounds the pedicel of the germ pressed back beneath and the bell-shaped filament with a five-toothed tip: and the stigma is slightly bifid.]

Celosia margaritacea sent from Tranquebar by Koenig differs from this, in having the calyx longer than the corolla, and ending in long awn-shaped tips: the leaves are narrow and lanceolate: the petals linear-lanceolate: the stamens slightly connected at the base. The fabric of the stamens in *C. argentea* is the same as in the *marilandica*.]

3. This is well known by its common appellation of Cock's-comb, which was given it from the form of its crested head of flowers, resembling the comb of a cock. There are many varieties, differing in form, magnitude and colour, from the same seed. I have raised great varieties from seeds which came from China, and other countries, but have generally found them alter in a few years, notwithstanding great care has been taken in saving the seeds: the principal colours of their heads are red, purple, yellow, and white; but I have had some, whose heads have been variegated with two or three colours. I also raised some from seeds which I received from Persia, whose heads were divided like a plume of feathers, and were of a beautiful scarlet colour, but these in a few years degenerated. [Linneus remarks, that it varies with narrow and broad leaves. It is a native of Asia. Thunberg informs us, that the crests or heads of flowers are frequently a foot in length and breadth in Japan, and extremely beautiful, but that they degenerate in other countries.]

It was cultivated here in 1570^c.

4. Stem suffruticose, prostrate, round, subdivided, striated: branches diverging. Leaves acuminate, petioled, entire, smooth. Spikes racemed, axillary and terminating, short. Flowers distinct, whitish. The calyx consists of five ovate, acute leaflets, whitish within. Corolla none, but a cup-shaped, five-cornered nectary, surrounding the germ: to the edge of this the filaments are fixed. The anthers are versatile and purple. Germ ovate: style subulate, simple, red: stigma trifid. Capsule covered by the permanent calyx, with numerous, shining seeds^d.]

Mr. Miller says, that the stems are near four feet in length; and that the slender spikes are of a pale yellow, shining with a gloss like silk: that it grows naturally in most of the sugar islands, and that the seeds were sent him from Jamaica by Dr. Houstoun.

5. This has a furrowed stalk, rising three or four feet high, and terminated by several spikes of flowers variously formed, some being crested, others plumed like feathers, of a bright scarlet colour, and making a good appearance. The seeds even when carefully saved are apt to degenerate.

[According to Linneus, it differs from the third sort, in having leaves three times as thick and brittle; the flowers wholly purple, not red with a purple keel; and the stamens shorter instead of longer than the corolla.]

It is a native of China, whence Mr. Miller says that he received the seeds: [but it was cultivated long before by Gerarde in 1597^e.]

6. This is of humbler growth. The branches proceed from the axils of the leaves almost the length of the stalk, and are terminated by slender spikes of flowers of no great beauty; the plant therefore is only preserved in botanic gardens.

[The stem, according to Loureiro, is a foot and half in height, red, striated and thick; with simple, rising branches. Leaves quite entire, smooth, scattered, marked underneath with red lines running obliquely, on short petioles: Linneus adds, that they

often grow by threes. Flowers blood-red, in terminating spikes which are crested and large, and in axillary ones which are oblong and small. The capsules have many flattened, black, shining seeds.

Native of the East-Indies. Cultivated generally in China and Cochin-china; here by Mr. Miller in 1739^f.

7. Stem upright, simple, slightly angular, striated, stiff, a foot and half high. Leaves petioled, even, acute. Stipules in pairs, crescent-shaped, horizontal, clasping. Raceme terminating, composed of a few crowded white flowers, on short pedicels. Bractes scarious, silvery, ovate, distant. Calyx two-leaved, similar to the petals. Corolla ovate, acute, scarious, white; permanent. Filaments purplish, shorter than the petals. Style very short, with three purple stigmas longer than the style. Seeds three, subglobular^g.

Native of Senegal. Introduced in 1777, by Monf. Thouin^h.]

8. This rises with a white woolly stalk from two to three feet high. From the upper part come out two or three slender side branches; which, as also the principal stalk, are terminated by woolly spikes of flowers; the corollas are so closely wrapped up in their woolly calyxes as to be scarce visible to the naked eye; so that they make no great appearance: the extreme whiteness however of the stalk leaves and spikes, makes a pretty variety. It is a native of the island of Ceylon.

[Linneus remarks, that it has the appearance of *Halimus*: and Retzius doubts whether it be distinct from *Illecebrum javanicum*. (5.3.)]

9. This is very similar in its white woolly surface to the woolly *Celosias* and *Illecebrums*; from which however it differs in having the leaves opposite, and a solitary globular peduncled terminating head.

It was found in Brasil, on monte Video, by Thouinⁱ.

10. Stems angular, grooved, even. Leaves like those of Purslane, obovate, obtuse with a point, quite entire, smooth, subpetioled. Spikes solitary, peduncled; peduncle commonly shorter than the leaf^k. Instead of the calyx there are from one to three linear bractes. Stamens fixed to the nectary at the base. Stigma twin-capitate. Seed single, lens-shaped. It varies, 1. with oblong leaves and peduncled heads: 2. with short roundish leaves ending in a point, and sessile heads: the first from Sumatra, and the second from Malabar^l.

It was introduced here in 1780; and flowers in July and August^m.

11. Stems two feet high, prostrate, round, little branched, geniculated, silky with appressed hairs, glaucous, ending in a subpanicled spike, on a long peduncle and leafless. Root-leaves and lower stem-leaves oblong, narrowing gradually at the base into the petiole, quite entire, four or five inches long, dotted on both sides, silky on the reverse and at the edges, thickish, and roughish to the touch. Stem-leaves opposite, smaller, remote; the upper subsessile and subovate. Spikelets oblong, compact, the side ones sessile. The proper peduncles visible only with a glass, and defended with a woolly fascicle. Native of S. Domingoⁿ. Introduced 1784, by Monf. Thouin^o.

12. Stems prostrate, branching, ending in more elongated branches, a span long, and hoary. Lower leaves crowded almost into a tuft; the rest in whorls and subulate. Spikes opposite and terminating, somewhat oblong, whitish and reddish, very beautiful^p.

According to Retzius, the root is somewhat branched and woody. The stem divaricate and tomentose, with brachiate branches. Leaves like those of *C. corymbosa* and naked. Stipules, if any, very like the leaves. Spikes numerous, solitary, peduncled seldom sessile, the thickness of a crow quill;

^f Hort. kew.

^g Linn. suppl.

^h Hort. kew.

ⁱ Linn. suppl.

^k Linn. mant.

^l Linn. zeyl.

^m Hort. kew.

ⁿ Jacq. mist.

^o Hort. kew.

^p Retz.

^q Hort. kew.

^c Hort. kew.

^d Swartz.

^e Hort. kew.

the florets imbricate, woolly on the outside, with a five-leaved calyx.

Native of the East-Indies. Introduced in 1778 by Sir Joseph Banks, Baronet^a.

13. Stem almost upright, striated. Leaves blunt, petioled, rugged. Racemes simple; glomerules alternate, remote, sessile, with about two flowers, and even. Calyxes scarious. Capsule pitcher-shaped, with a contracted mouth, lidded, longer than the calyx, many-seeded. It resembles *Achyranthes polygonoides*. *C. trigyna* differs from this in being thrice the size, in having an even stem, ovate acuminate leaves, many-flowered peduncled glomerules, and a globular capsule.

Sent from Tranquebar by Koenig.

14. Stem upright. Leaves alternate, petioled, cordate, acuminate, entire. Racemes axillary, solitary, and several long terminating ones. Flowers small, on very short peduncles. The calyx has two minute leaflets pressed close. Petals ovate, somewhat concave. Filaments dark-coloured dilated at the base, so that they surround the germ, which is roundish-three-cornered. Stigmas simple. Berry black, inclosing three broadish seeds, concavo-convex, shining.

Found in the East-Indies by Koenig^r.]

PROPAGATION AND CULTURE.

3. In order to have large fine Amaranths, great care should be taken in the choice of the seeds; for if they are not carefully collected, the whole expence and trouble of raising them will be lost. The seeds must be sown on a hot-bed, which should have been prepared a few days before, that the violent heat may be abated, about the beginning of March; and in about a fortnight's time, if the bed is in good temper, the plants will rise; but as they are tender when they first appear, they require great care for a few days till they get strength; first, in giving them a due proportion of air, to prevent their drawing up weak; and next to keep them from too great moisture, for a small share of moisture will cause their tender stems to rot: in sowing the seeds, there should be care taken not to put them too close, for when the plants come up in clusters, they frequently spoil each other for want of room to grow: in a fortnight or three weeks time the plants will be fit to remove, when you must prepare another hot-bed, covered with good rich light earth, about four inches thick; which should be made a few days, that it may have a proper temperature of heat; then raise up the young plants with your finger, so as not to break off the tender roots, and prick them into the new hot-bed about four inches distance every way, giving them a gentle watering to settle the earth to their roots: but in doing this, be very cautious not to bear the young plants down to the ground by hasty watering.

After the plants are thus planted, they must be screened from the sun till they have taken fresh root; but as there is generally a great steam rising from the fermentation of the dung, which condenses against the glasses, and dropping upon the plants, very frequently destroys them; the glasses should therefore be frequently turned in the day-time, whenever the weather will permit; but if the weather happen to prove bad, it will be of great service to your plants, to wipe off all the moisture two or three times a day with a woollen cloth, to prevent its dropping upon the plants. When your plants are firmly rooted, and begin to grow, you must observe to give them air every day (more or less, as the weather is cold or hot) to prevent their drawing up too fast, which greatly weakens their stems.

In about a month or five weeks these plants will have grown so as to meet; therefore another hot-bed should be prepared of a moderate temper, and covered with the same rich earth about six inches thick, in which they should be planted (observing to take them up with as much earth

^a Hort. kew.

^r Retz.

about their roots as possible) at seven or eight inches distance every way, giving them some water to settle the earth about their roots; but be very careful not to water them heavily, so as to bear down the plants, and keep them shaded in the heat of the day, until they have taken fresh root; and be sure to refresh them often (but gently) with water, and give them air in proportion to the heat of the weather, covering the glasses with mats every night, lest the cold chill your beds, and stop the growth of the plants.

In the middle of May you must provide another hot-bed, which should be covered with a deep frame, that your plants may have room to grow: upon this hot-bed you must set as many three-penny pots as can stand within the compass of the frame; these pots must be filled with good rich earth, and the cavities between each pot filled up with any common earth, to prevent the heat of the bed from evaporating, and filling the frame with noxious steams; then with a trowel, take up your plants with as much earth as possible to the roots, and place each single plant in the middle of one of the pots, filling the pot up with the earth before described, and settle it close to the root of the plant with your hands; water them gently, as before, and shade them in the heat of the day from the violence of the sun, by covering the glasses with mats; refresh them often with water, and give them a good quantity of air in the day-time.

In about three weeks more, these plants will have grown to a considerable size and strength, so that you must now raise the glasses very much in the day-time; and when the air is soft, and the sun is clouded, draw off the glasses, and expose them to the open air, and repeat this as often as the weather will permit; which will harden them by degrees, to be removed abroad into the places where they are to remain the whole season: but it is not advisable to set these plants out until a week in July, observing to do it when the air is perfectly soft, and if possible, in a gentle shower of rain.

Let them at first be set near the shelter of a hedge for two or three days, where they may be screened from the violence of the sun, and strong winds, to which they must be inured by degrees: these plants, when grown to a good stature, perspire very freely, and must be every day refreshed with water, if the weather prove hot and dry; otherwise they will stunt, and never produce their plumes so fine as they would do if taken care of.

This is the proper management, in order to have fine Amaranths; which, if rightly followed, and the kinds are good, in a favourable season, will produce wonderful large fine heads, and are the greatest ornament to a good garden for upwards of two months: by this method, I have had plants five or six feet high, with crests near a foot in breadth; and I am persuaded, if the kind be good, (and there be no want of dung, or conveniencies) in a kindly season, they will grow much larger.

By the middle or latter end of September, the Amaranths will have perfected their seeds, so that you must make choice of the largest, most beautiful, and least branching plants of each kind for seed; which you should remove under shelter, (especially if the weather prove wet, or the nights frosty) that the seeds may be perfectly ripened; be sure never to take any seeds from side branches, nor from the neck of the plume, but only such as are produced in the middle thereof, which in many plants, perhaps, may be but a small quantity; but I do assure you, it is only those you can depend upon, to have your kinds good the succeeding year.

CELOSIA. See *Iresine*.

CELSIA. (The name was given to this plant by Linneus, in honour of Olaus Celsus, D. D. professor of the Greek language, and afterwards of Theology, in the university of Upsal.)

Lin. gen. n. 757. Reich. 815. Schreb. 1015. Juss. 124. Gertn. t. 55.

Class. 14. 2. Didynamia Angiospermia:
Nat. order of *Lurideæ*. *Solanææ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* five-parted; *divisions* lanceolate, obtuse, length of the corolla, permanent.

COR. Monopetalous, rotated; *Tube* extremely short; *Border* flat, half-five cleft, unequal; *divisions* roundish, of which the two superior ones are smaller, the inferior one larger.

STAM. *Filaments* four, capillary, inclined towards the smallest divisions of the corolla; of which the two longer ones are shorter than the corolla, and are outwardly woolly. *Antbers* roundish, small.

PIST. *Germ* roundish. *Style* filiform; length of the stamens. *Stigma* obtuse.

PER. *Capsule* roundish, compressed at the tip, acuminate, sitting on the calyx, bilocular.

SEEDS. Very many, small, angular. *Receptacles* foliary, hemispherical.

ESSENTIAL CHARACTER:

Cal. five-parted. Cor. rotated. Filam. bearded. Caps. two-celled.

SPECIES.

1. *Celsia orientalis*. *Oriental Celsia*.
Lin. spec. 866. *Reich.* 3. 150. *hort. cliff.* 321.
upf. 179. t. 2. *Gertn. fruct.* 1. 262.

Verbascum orientale, *Sophiæ* fol. *Tourn.* cor. 8.
Buxb. cent. 5. 17.

Blattaria orient., *Agrimoniae* fol. *Buxb. cent.* 1. 14.
t. 20.

Leaves bipinnate.

[2. *Celsia Arcturus*. *Scollop-leaved Celsia*.
Lin. syst. 561. *Reich.* 3. 151.

Verbascum Arcturus. *Lin. spec.* 254. *mant.* 339.
Jacq. hort. 2. t. 117.

Verbascum. *Baub. pin.* 240. *Col. ecphr.* 2. 81.
t. 82. *Alp. exot.* 123. t. 122.

Radical leaves lyrate-pinnate, *peduncles* longer than the flower.

3. *Celsia cretica*. *Great-flowered Celsia*.

Lin. syst. 561. *Reich.* 3. 151. *suppl.* 281.

Blattaria perennis cretica incana, fol. *binis conjugatis*. *Mor. hist.* 2. 488.

Radical leaves lyrate, *stem-leaves* subcordate embracing, *flowers* subsessile.

4. *Celsia linearis*.

Jacqu. collect. 2. 270. n. 210. ic. 2. t. 13. *Curt. magaz.* t. 210.

Leaves tern linear toothblotted.]

DESCRIPTIONS, &c.

1. *Leaves* oblong, finely divided almost to the midrib on both sides, lying flat on the ground: from the centre of these a round herbaceous stalk rises near two feet high, with leaves of the same shape the whole length, but gradually diminishing in size to the top: they are placed alternately, and at the foot-stalk of each come out the flowers, more than half the length of the stalk: they are of an iron colour on the outside, but pale yellow within, spreading open like those of common Mullein; but they are not so regular. It flowers in June, and the seeds ripen in September.

Native of the Levant. Tournefort sent the seeds from Armenia to the Royal garden at Paris, whence this plant has been communicated to most parts of Europe. It is an annual; but in England it will rarely ripen its seeds, unless the plants come up in the autumn, and live through the winter.

[It was cultivated in 1739, in Chelsea garden^a.

2. *Leaves* opposite (others say alternate), the lowest pinnate or sublyrate; leaflets lateral minute; the upper ones simple. *Floral leaves* sessile, cordate, serrate-toothed. *Raceme* terminal, long. *Peduncles* solitary, one-flowered, longer than the floral leaves. *Corolla* yellow. *Filaments* four only, with a purple beard. Native of Crete^b. Biennial. Cultivated about 1780^c.

3. *Leaves* pinnate-lyrate alternate; the upper ones simple cordate-stem-clasping. *Flowers* sessile. *Calyxes* serrated. *Filaments* four, the two upper hairy, the lower glossy and the anthers larger. *Corolla*

yellow with two ferruginous spots at the upper part of the tube^d. Native of the East-Indies. Introduced 1776, by Mons. Thouin. It flowers in July. Biennial^e.

4. This is an elegant, evergreen, smooth shrub. The trunk is woody, but weak, the thickness of a quill, striated, pale brown, three feet high, putting out numerous spreading branches its whole length; the younger ones green, grooved and very leafy. Leaves growing three together, lanceolate-linear, acute, thinly serrate, or sometimes quite entire, shining on both sides, subpetioled, spreading much, the largest two inches long. *Peduncles* axillary, solitary, one-flowered, shorter than the leaves, and three together. *Corolla* brilliant scarlet, with a blood-red throat: when expanded irregularly bent back at the sides^f.—Professor Jacquin received it from Ortega of Madrid. It was found in Peru by Domhey; and was introduced here from France by Mr. Williams^g.]

PROPAGATION AND CULTURE.

1. If the seeds are sown on a warm dry border as soon as they are ripe, the plants will often come up and live through the winter, if the soil be poor: in rich ground they are apt to grow rank, and then they are generally destroyed by the early frosts, or will rot with much wet: but if the plants should not rise the same autumn, there will be little hazard of their growing the following spring. They require no other care but to keep them clean from weeds, and thin them if they are too close; for they do not bear removing well, and should therefore be sown where they are intended to remain.

Sometimes, when the season proves warm, the plants sown in the spring produce ripe seeds, but these cannot be depended on.

[2, 3. The second and third species require the protection of the greenhouse.

4. May be propagated both by seeds and cuttings. It succeeds best in a moderate stove, but will bear to be treated as a tender green-house plant^h.

CELTIS (*Celtis*, Plin.)

Engl. *Lote* or *Nettle-tree*. Fr. *Micacoulier*.

Ital. *Loto*. Germ. *Lotus baum*.

Lin. gen. n. 1143. *Reich.* 1267. *Schreb.* 1591.
Tourn. 383. *Juss.* 408.

Class. 23. 1. Polygamia Monoecia.

Nat. order of *Scabridæ*. *Amentaceæ* Juss.

GENERIC CHARACTER.

* *Hermaphrodite* flowers solitary superior.

CAL. *Perianth* one-leaved, five-parted; *divisions* ovate, patulous, withering.

COR. none.

STAM. *Filaments* five, very short, concealed at first by the anthers, but after the shedding of the pollen growing longer. *Antbers* oblong, thickish, quadrangular, four-furrowed.

PIST. *Germ* ovate, acuminate, length of the calyx; *Styles* two, spreading, variously inflected, subulate, pubescent on every side, very long. *Stigmas* simple.

PER. *Drupe* globular, one-celled.

SEED. *Nut* roundish.

* *Male* flowers on the same plant, inferior.

CAL. *Perianth* six-parted, the rest as in the *Hermaphrodites*.

COR. none.

STAM. six, the rest as in the *Hermaphrodites*.

ESSENTIAL CHARACTER.

HERM. Cal. five-parted. Cor. none. Stam. five. Styles two. *Drupe* one-seeded.

MALE. Cal. six-parted. Cor. none. Stam. six.

SPECIES.

1. *Celtis australis*. *European Nettle-tree*.

Lin. spec. 1478. *Reich.* 4. 334. *hort. cliff.* 39.

Gouan. hort. monsp. 512. *Scop. carn. n.* 1232.

Hall. belv. n. 1619. *D'Alfo. arag. n.* 970.

Du Roi, barbecc. 1. 141. *Pallas, Ross.* 1. 19.

Villars, dauph. 3. 800.

Lotus. Baub. pin. 447. *Cam. epit.* 155. *Lob. ic.* 2. 186.

Leaves ovate-lanceolate.

^a Linn.

^c Hort. kew.

^f Jacq. collect.

^b Curtis.

^d Ibid.

^e Hort. kew.

^g Linn.

^h Hort. kew.

2. *Celtis occidentalis*. *American Nettle-tree*.
Lin. spec. 1478. 3. *Reich.* 4. 335. *Mill. fig.* t. 88.
Gron. virg. 2. 158.
Lotus virginiana, fr. rubro. *Raii hist.* 1917.
Leaves obliquely-ovate serrate acuminate.
3. *Celtis orientalis*. *Oriental Nettle-tree*.
Lin. spec. 1478. 2. *syfl.* 912. *Reich.* 4. 335.
fl. zeyl. n. 369. *hort. cliff.* 83. (*Ulmus* 1.)
Thunb. jap. 114.
Salvifolia arbor, &c. *Pluk. alm. t.* 221. f. 4.
Mallam-toddali. *Rheed. mal.* 4. 83. t. 40.
Papyrus spuria. *Kempf. amæn.* 474. t. 472. f. 2.
Leaves obliquely cordate serrate villose underneath.
4. *Celtis americana*.
Mill. dict. n. 4. *Plum. cat.* 18.
Leaves oblong-ovate obtuse nerved, smooth above, golden beneath.
5. *Celtis micrantha*. *Jamaica Nettle-tree*.
Swartz prodr. 53. *Ait. hort. kew.* 437.
Rhamnus micranthus. *Lin. spec.* 280. *Reich.* 1. 542.
Amoen. 5. 395. *Brown. jam.* 173. t. 12. f. 2.
Plum. ic. t. 206. f. 1.
Leaves obliquely cordate ovate-lanceolate serrulate somewhat rugged on the upper surface.
6. *Celtis aculeata*.
Swartz. prodr. 53. *obs.* 92.
Rhamnus iguaneus. *Jacqu. amer.* 74. 1.
Leaves cordate-ovate, blunt at the tip, almost entire, very smooth, branches prickly.
7. *Celtis lima*.
Swartz. prodr. 53.
Loti arboris folio angust. arbor baccifera. *Sloan. jam.* 2. 80. n. 9.
Muntingia fol. ulmi aspero. *Plum. gen.* 47?
Leaves ovate-lanceolate acuminate obliquely cordate serrate very rugged above.

DESCRIPTIONS, &c.

1. The European Nettle-tree, or Lote-tree with a black fruit rises with an upright stem to the height of forty or fifty feet, with many slender branches, which have a smooth dark-coloured bark, with some gray spots. Leaves alternate, near four inches long, and about two broad in the middle. Flowers axillary all along the branches; being composed of a green calyx without any corolla they make no appearance; they come out in the spring at the same time with the leaves, and generally decay before these are arrived at half their size. The fruit is the size of a pea and black. [According to Pallas, it is the size of a small cherry, first yellow, then livid, on a long peduncle.]

It grows naturally in the south of Europe, where it is one of the largest trees. [D'Affo mentions some of a prodigious height and girt in Spain: and Pallas says, that they attain the size of the Elm in the Cheronesus Taurica.] It is not so common in England as the second, nor do I remember to have seen but two large trees of this sort in the English gardens; one of which was formerly growing in the Bishop of London's garden at Fulham, but was cut down some years past, with many other curious exotic trees, which were there growing in great perfection: the other was in the garden of Dr. Uvedale at Enfield, which had frequently produced fruit, but was never propagated in this country, nor were any young plants in the gardens, till about 1751, when I procured a good quantity of the fruit from Italy, which I communicated to several of my friends.

[The wood of this tree is one of the hardest we are acquainted with. Evelyn says that it was anciently used for flutes and other musical instruments, and that hafts for knives and tools were made of the root. When it arrives at any size, its hardness, toughness and flexibility must entitle it to more important services. Its fine regular spreading head, of a chearful green colour, renders this tree extremely proper for clumps in parks, groves, single trees or avenues^a.

^a Boucher,

Of the branches are made hoops for casks, and fishing-rods. The berries are eaten by birds, and also by children in the south of Europe^b.]

2. The American Nettle tree rises with a straight stem, which in young trees is smooth and of a dark colour; but as they advance it becomes rougher and of a lighter green. The branches spread very much. The leaves are alternate, and on pretty long foot-stalks: [they are tender, ovate-lanceolate, a little pubescent; when full grown broad-ovate; acuminate, at the point and base quite entire, in the other parts serrate, naked, nerve-veined, the hinder side only half the size of the other.] The flowers come out opposite to the leaves upon long peduncles. The fruit is smaller than that of the first sort, and when ripe of a dark purple colour.

[It is very nearly related to the foregoing species^c; but the leaves are much broader and shorter.]

It grows naturally in North-America, and in a moist rich soil becomes a very large tree. [Evelyn says, that John Tradescant, junior, first brought it from Virginia.]

It flowers in may, and the seeds ripen in october. There are many large trees of this sort in the English gardens, some of which produce great quantities of fruit annually, which in favourable seasons come to maturity; and there are few years in which the fruit is not sent from America.

This tree comes out late in the spring, but it is the latest in fading of any deciduous tree; nor do the leaves alter their colour long before they fall, but continue in full verdure till within a few days of their dropping off; so that the litter occasioned by the falling leaves may be soon cleared away. There is little beauty in the flower or fruit; but the branches being well clothed with leaves of a fine green colour, the trees, when mixed with others in plantations, make a pleasing variety during the summer season.

The wood of this tree being tough and pliable, is esteemed by coachmakers for the frames of their carriages.

3. The Oriental Nettle-tree rises with a stem about ten or twelve feet high, dividing into many branches, which spread horizontally on every side, and have a smooth greenish bark. The leaves are about an inch and half long, and near an inch broad, inclining to a heart shape, but oblique, one side of the base being smaller and lower than the other; they are of a thicker texture than those of the common sort, and of a paler green, alternate as they are, and on short foot-stalks. [Linneus adds, that they are very finely serrate, and the nerves underneath smooth. The peduncles are axillary, very short and branching.] The fruit is oval and yellow, when fully ripe it turns to a darker colour. The wood of this tree is very white.

It is a native of the Levant, and was discovered by Tournefort in Armenia, whence he sent the fruit to the royal garden at Paris. The trees there raised produced fruit, and from them the other gardens in Europe have been furnished. [Mr. Miller cultivated it in 1748^d. It yields a gum like that of the Cherry^e: and have been found to be a native of the East-Indies, Japan, and the Society Isles.]

4. This rises with a straight trunk near twenty feet high, covered with a gray bark, and dividing at top into many branches. Leaves near four inches long, and two and a half broad, rounded at their extremity, of a thick texture, very smooth on their upper surface, and on their under of a lucid gold colour. The fruit is round and red.

It was first discovered by Father Plumier, in the French West India islands; and it was found in Jamaica by Dr. Houstoun, who sent the seeds to England.

[5. This shrubby tree seldom rises above ten or twelve feet, and throws out a great number of loose branches^f.

^b D'Affo.

^c Linn. spec.

^d Hort. kew.

^e Thunb.

^f Browne.

Native of Jamaica. Introduced in 1788, by Mr. Gilbert Alexander. It flowers in august and september⁶.

6. This is an inelegant little tree; the branches are pliant, very long, scarcely divided, reclining, and have frequently alternate, distich branchlets their whole length, the upper ones gradually shorter. There are axillary spines at the leaves and branchlets, which are subulate, very sharp, strong and short, recurved, solitary or in pairs. Leaves lanceolate, acuminate, slightly tooth-ferrate here and there, smooth, petioled, alternate, distich, commonly three or four inches in length, but sometimes eight. Racemes axillary, small, one, two or three together. Flowers monoecous, small, yellow: calyx divided into five ovate concave spreading segments, with hardly any tube, and no scales. The females have two patulous styles with bifid stigmas. Instead of the pistil in the males, is an oblong truncate body, only half the length of the calyx. Drupe roundish or ovate, crowned with the withering style, yellow, double the size of a Pea, containing a sweet pulp which is eaten by the natives and by children: the stone or nut is wrinkled, thick, bony, white, one-celled.

Native of the Caribbee islands, and the neighbouring continent^h.

It is remarked by Swartz, that the *Rhamnus ignaneus* of Linneus should be placed in this genus, on account of its monoecous flowers, its calyx without petal-like scales, its two styles, and its fruit: he doubts however whether this and that of Jacquin described above be the same plant.

It has the name of *Iguaneus*, because it grows in rocky places, such as are frequented by the Iguana.

7. Height fifteen feet, trunk straight, with a smooth reddish or light brown bark, and several branches spreading towards the top. Leaves alternate, half an inch distant from each other, two inches long, and half as broad near the base, dark green, petioled. Flowers axillary, small, greenish. Fruits orange-coloured, no bigger than a pin's head, oval, insipid, having an orange-coloured pulp, and one small black round stone or seed withinⁱ.

Native of the West Indies.]

PROPAGATION AND CULTURE.

These trees are all propagated by seeds, which should be sown soon after they are ripe, when they can be procured at that season, for these frequently come up the following spring: whereas, those which are sown in the spring, will not come up till a twelvemonth after: therefore it is the best way to sow them in pots or tubs, that they may be easily removed, for those which are sown in the spring should be placed in a shady situation in summer, and constantly kept clean from weeds; but in autumn they should be placed in a warm situation, plunging the pots into the ground; and if they are covered over with a little tan from a decayed hot-bed, it will prevent the frost from penetrating the earth to injure the seeds; and if these pots are placed on a gentle hot-bed in the spring, it will greatly forward the vegetation of the seeds, whereby the plants will have more time to get strength before the winter: but when the plants appear above ground they must have a large share of air admitted to them, otherwise they will draw up weak; and as soon as the weather is warm, they must be exposed to the open air, and in summer they must be constantly kept clean from weeds; if the season proves dry, they will require water two or three times a week. In autumn it will be proper to remove the pots, and place them under a hot-bed frame, to shelter them in winter from severe frost; or where there is not that convenience, the pots should be plunged into the ground near a wall or hedge; and as the plants, when young, are full of sap, and tender, the early frosts in autumn frequently kill the upper part of the shoots; therefore the plants should be either co-

vered with mats, or a little straw or Pease-haulm laid over them to protect them.

In the following spring the plants should be taken out of the seed-pots, and planted in the full ground: this should be done about the middle or latter end of march, when the danger of the frost is over: therefore a bed or two should be prepared (according to the number of plants raised) in a sheltered situation, and, if possible, in a gentle loamy soil. The ground must be well trenched, and cleared from the roots of bad weeds, and when levelled, should be marked out in lines at one foot distance; then the plants should be carefully turned out of the pots and separated, so as not to tear their roots, and planted in the lines at six inches asunder, pressing the earth down close to the roots. If the ground is very dry when they are planted, and there is no appearance of rain soon, it will be proper to water the beds, to settle the ground to the roots of the plants; and after this, if the surface of the ground is covered with some old tan or rotten dung, it will keep it moist, and prevent the drying winds from penetrating to the roots of the plants.

The following summer, the necessary care must be to keep them constantly clean from weeds; but after the plants are pretty well established in the ground, they will not require any water, especially toward the latter end of summer, for that will occasion their late growth, whereby they will be in great danger of suffering by the autumn frosts; for the more any of these young trees are stopped in their growth by drought towards autumn, the firmer will be their texture, so better able to bear the cold.

The plants may remain in these nursery-beds two years, by which time they will have obtained sufficient strength to be transplanted where they are designed to remain for good, because these plants extend their roots wide every way; so that if they stand long in the nursery, their roots will be cut in removing, which will be a great prejudice to their future growth.

These sorts are hardy enough to thrive in the open air in England, after they are become strong; but for the two first winters after they come up from seeds, they require a little protection, especially the third sort, which is tenderer than either of the former. The young plants of this sort frequently have variegated leaves, but those are more impatient of cold than the plain leaved.

4. The seeds of this sort rarely come up the first year, so they may be sowed in pots, and plunged into the tan-bed in the stove, where they should remain till the plants come up. These plants must be constantly kept in the bark-stove, and treated in the same manner as other tender exotics.

[Mr. Boucher recommends to sow the seeds of the common Nettle-tree in spring, soon after they are ripe, which is in January, in pots or boxes, a foot deep, with holes in the bottom, covered with oyster-shells or tile-herds, and three or four inches thick of rough gravel over them, to drain the moisture: then to fill them within an inch of the top with rich loose compost mould; sow the seeds, and sift over them half an inch more of the same earth. These pots or boxes ought not to be sunk into the earth, but to be raised six or eight inches by stones or logs of wood, and placed where they may receive the morning sun only, till autumn, when they should be removed under a south wall, and in severe weather be put under a covered frame, the covering being taken off in mild weather. About the beginning of April remove them to their first situation, loosen the earth gently, and sift on a little fresh mould. The end of April most of the plants will appear, when they must be frequently but moderately watered, kept clean in summer, and protected as before in severe weather.

If you would propagate them by layers, let them be layed as soon as the leaves begin to tarnish at the end of September, or beginning of October. The wood being extremely hard, they will not root sufficiently till the second year, unless the season is

^c Hort. kew.

^h Jacquin.

ⁱ Sloane.

wet, or you assist them with plentiful waterings. Take them up the end of march or beginning of april, and plant them in rows at two feet and a half distance, and a foot asunder, giving them frequent waterings, keep the ground clean, and let them remain here two years. They may then be planted out for good or removed again to greater distances, to stand three years more^a.

This tree will do in any ordinary land, but succeeds best in a deep moist soil, where it will soon become a stately tree.

CEMBRA. See *Pinus*.

CENCHRAMIDIA. See *Clusia* and *Theobroma*.

CENCHRUS. (Κένχρος, *Theoph.* & *Diosc.*)

Lin. gen. n. 1149. *Reich.* 1255. *Schreb.* 1574.

Gertn. t. 80. *Juss.* 30. *Panicastrella. Mich.* 31.

Class. 23. 1. Polygamia Monoecia.

Nat. order of Grasses.

GENERIC CHARACTER.

CAL. Involucres many, laciniate, echinate, gathered into a head, each sessile, including three calyxes; biflorous.

Perianth a bivalve-glume, lanceolate, concave, acuminate, biflorous, shorter than the corolla.

COR. one male, the other hermaphrodite.

Proper each bivalve; valves lanceolate, acuminate, concave, awnless; the interior one smaller.

STAM. to each three filaments, capillary, length of corolla. *Anthers* sagittate.

PIST. Germ of the hermaphrodite roundish. *Style* filiform, length of the stamens. *Stigmas*, two, oblong, hairy, spreading.

PER. none.

SEED roundish.

OBS. There is a species which has all the flowers hermaphrodite. *R.*

ESSENTIAL CHARACTER.

Invol. laciniate, echinate, two-flowered. *Cal.* Glume two-flowered, one male, the other hermaphrodite.

HERM. *Cor.* Glume awnless. *Stam.* three. *Seed* one.

MALE. *Cor.* Glume awnless. *Stam.* three.

SPECIES.

1. *Cenchrus racemosus.* *Branching Cenchrus.*

Lin. spec. 1487. *yst.* 906. *Reich.* 4. 312. *mant.*

501. *Gouan. hort. monsp.* 514. *Villars dauph.*

2. 178.

Agrostis. Lin. mant. 501. *Schreb. gram.* 45. *t.* 4.

Ger. prov. 83.

Tragus. Hall. belv. n. 1413.

Gramen caninum. Baub. pin. 2. 10. *prodr.* 2. *t.* 2.

Scheuch. gram. 76. *Barr. ic.* 718.

Panicle spiked, glumes muricated with ciliary bristles.

2. *Cenchrus lappaceus.* *Bur Cenchrus.*

Lin. spec. 1488. *Reich.* 4. 313.

Branches of the panicle very simple, corollas hispid backward, calyxes three-valved two-flowered.

3. *Cenchrus muricatus.*

Lin. syst. 907. *Reich.* 4. 313. *mant.* 302. *Schreb.*

gram. 2. 69. *t.* 34.

Spike muricated, scales various mucronated.

4. *Cenchrus capitatus.* *Oval-spiked Cenchrus.*

Lin. spec. 1488. *yst.* 907. *Reich.* 4. 314. *Ger.*

prov. 107. *Gouan. hort. monsp.* 515. *Loefl.*

it. 172. *Villars dauph.* 2. 178.

Gramen. Baub. pin. 7. *prodr.* 16. *Scheuch.* 74.

t. 2. *f.* 7. *Col. cephr.* 1. 340. *t.* 338. *f.* 1. *Barr.*

rar. 1176. *t.* 28. *f.* 1. & *t.* 862. *f.* 2. *Monti, ic.*

102. *Reliq. Rudb. t.* 7. *f.* 1.

Spike ovate simple.

5. *Cenchrus echinatus.* *Rough-spiked Cenchrus.*

Lin. spec. 1488. *Reich.* 4. 314. *Brown. jam.* 367.

n. 1. *Schreb. gram.* 2. 9. *t.* 23. *f.* 1. *Gertn.*

fruct. 2. 4.

Panicastrella. Mich. gen. 36. *t.* 31.

Gramen. Scheuch. 77. *Pluk. alm. t.* 92. *f.* 3. *Sloan.*

jam. 1. 108. 11. *Raii suppl.* 602. 13. *Mor.*

hist. 3. 195. *n.* 5.

Spike oblong conglomerate.

6. *Cenchrus tribuloides.*

Lin. spec. 1489. *Reich.* 4. 314. *Gron. virg.* 122.

160.

^a Boucher.

Panicastrella. Mich. gen. 37.

Gramen. Sloan. jam. 1. 108. *n.* 12. *t.* 65. *f.* 1. *Raii*

suppl. 602. 14. *Mor. hist.* 3. 195. *f.* 8. *t.* 5. *f.* 4.

Spike glomerate, female glumes globular muricate-spiny hirsute.

7. *Cenchrus ciliaris.* *Ciliated Cenchrus.*

Lin. syst. 907. *Reich.* 4. 315. *mant.* 302.

Spike with setaceous ciliated four-flowered involucls.

8. *Cenchrus granularis.*

Lin. syst. 907. *Reich.* 4. 315. *mant.* 575. *Retz.*

obs. 4. 14.

Manisuris granularis. Swartz prodr. 25. *Sloan.*

jam. 1. 128. *t.* 80.

Racemes double, fruits globular wrinkle-netted.

9. *Cenchrus frutescens.*

Lin. spec. 1489. *Reich.* 4. 315.

Arundo. Alp. exot. 105. *t.* 104.

Gr. orientale spic. frutic. &c. *Tourn. cor.* 39.

Heads lateral sessile, leaves mucronated, stem shrubby.

10. *Cenchrus setosus.*

Swartz prodr. 26.

Spike linear-oblong, involucre bristly, bristles unarmed, the interior ones villose at the base, hairs ciliate, glumes even.

11. *Cenchrus purpurascens.*

Thunb. in Linn. trans. 2. 329.

Panicum hordeiforme γ. Thunb. jap. 48.

Raceme spiked simple, florets surrounded with very long awns, culm erect.

DESCRIPTIONS, &c.

1. Calyx three-flowered, ovate-oblong, cartilaginous, echinate. Corolla membranaceous, sessile, the length of the calyx. The middle flower male, with a one-valved calyx, like the others, echinate and pedicelled. Culm reclining. Leaves ciliate^b. After the flowering is past the glumes grow red^c. Schreber and Gerard, finding no involucre, and all the flowers hermaphrodite, range this species under the genus *Agrostis*.—Native of the southern parts of Europe, on the coast of Egypt, and the East Indies.

Introduced in 1771 by Mons. Richard. It flowers in July and August^d.

2. Culm branching, even. Leaves cordate-lanceolate, rugged about the edge. Panicle spreading very much: branchlets horizontal, quite simple, capillary. Spikelets alternate, pedicelled, ovate-oblong. The upper flower barren or male. The outer glume of the corolla having the upper part of the sides muricated with short stiff reflected bristles, knotted at the base.—Native of the East Indies^e. Introduced 1773 by John Earl of Bute^f.

3. Culm procumbent, a short span in length, branching, leafy. Leaves soft, hairy especially underneath, sheathing. Peduncle terminal, filiform. Spike oblong, directed one way, naked: rachis membranaceous on both sides, jointed, flexuose. Flowers in little balls heaped at the joints of the rachis, crowded, sessile, squarrose, consisting of stiff, smooth, striated, expanded, mucronated, ovate-lanceolate and subulate scales mixed. Hence it has the appearance of *Tripsacum androgynum*.—Native of the East-Indies^g.

4. The culm is only three or four inches high, and has only one joint. Spike round, like a little ball set with prickles.—South of France^h and Italy. Introduced 1771 by Mons. Richardⁱ.

5. This is one of the most common sorts of grass in the open pastures of Jamaica, and is looked upon both as a wholesome and pleasant food for all sorts of cattle^k.—Native of the West Indies and the Society Isles. Cultivated 1691, by Mr. Doody^l.

6. Culms many trailing round yellowish crooked, a foot and half long, the joints an inch and half distant; leaves two or three inches long, harsh like those of the *Carex*, the sheaths covering the internodes. Spike an inch and half long, set at short intervals with small burs^m.—Native of Virginia and Jamaica.

^b Linn.

^c Gouan.

^d Hort. kew.

^e Linn. spec.

^f Hort. kew.

^g Linn. mant.

^h Gouan and Villars.

ⁱ Hort. kew.

^k Browne.

^l Hort. kew.

^m Sloane.

7. Culm ascending, glossy, the thickness of a thread, a short span in length, with inflected joints. A striated sheath to the leaves. Spike round, the thickness of a finger, but shorter: flowers alternate, scattered. Bristles or awns, forming the involucre, brown; the inner ones longer than the florets, which are sessile, oblong and bivalve; two of them hermaphrodites, and two males.

Observed at the Cape, by Koenig^a.—Introduced 1777 by Monf. Thouin^o.

8. Culms branching, naked, even, flat on one side. Leaves even: the sheaths rough with hairs at the base. Racemes axillary, often double. Fruits minute, scarcely so big as a Cabbage seed, globular, wrinklenetted.—Native of the East Indies^p.

Retzius says, that he has it both from Sumatra and Malabar: both have the leaves and sheaths clothed with longish white hairs. Small bractes separating the flowers in the racemes; more than two of which frequently issue from the same sheath.

9. Found by Tournefort in Armenia.

10. Native of the West Indies^q.

11. Culm two feet high. Leaves longer than the culm. Raceme loose, a span long, with peduncles the length of the florets, spreading in a double row. Awns purple, six times the length of the florets.—Native of Japan^r.]

CENTAUREA. (Κενταύρεος, or Κενταυρεία βοτάνη, called also Κενταύριον by Dioscorides. Theophrastus has an herb called Κενταύρις. All these names are from Κένταυρος, a Centaur; and supposed to be so named from Chiron.)

Lin. gen. n. 984. Reich. 1066. Schreb. 1331.

Juss. 174. Centaurium majus. Tourn. 256.

Jacea. Tourn. 254. Juss. 173. Dill. gen. 13.

Cyanus. Tourn. 254. Juss. 174. Vaill. Calcitrapa. Vaill. 1718. Juss. 173. Calcitrapoides.

Vaill. Rhaponticum. Vaill. Juss. 174. Rhaponticoides. Vaill. Jacea. Vaill. Amberboi.

Vaill. Crocodilium. Vaill. Juss. 173.

Class. 19. 3. Syngenesia Polygamia Frustranea.

Nat. order of Compound Flowers. Cinarocephalæ Juss.

GENERIC CHARACTER.

CAL. Common imbricate, roundish; scales often variously terminated.

COR. Compound flosculous, difform. Corollules hermaphrodite very many in the disk. Females fewer, larger, lax, in the ray.

Proper of the hermaphrodite monopetalous; tube filiform; border ventricose, oblong, erect, terminated by five divisions which are linear, erect.

Of the females monopetalous, funnel-form; tube slender, gradually enlarged, recurved; border oblong, oblique, unequally divided.

STAM. In the hermaphrodites; Filaments five, capillary, very short. Anthers cylindric, tubular, length of the corollule.

PIST. In the hermaphrodites; Germ small. Style filiform, length of the stamens. Stigma very obtuse, projecting in a point which in many is bifid.

In the females; Germ very small. Style scarce any. Stigma none.

PER. none. Calyx unchanged, converging.

SEEDS. In the hermaphrodites solitary. Down or egret in most plumose or pilose.

In the females none.

REC. bristly.

OBS. Calcitrapa. Vaill: has the calyx furnished with large straight solitary prickles. Seeds naked or crowned.

Calcitrapoides. Vaill: Calyx with small crowded prickles.

Rhaponticum. Vaill: Calyx with scariose entire membranes.

Rhaponticoides. Vaill: Calyx with lanceolate acuminate scales.

Amberboi. Vaill: Calyx with obtuse very simple scales.

Jacea. Vaill: Calyx with ciliated scales. Seeds with bristly down.

^a Linn. mant.

^o Hort. kew.

^p Linn. mant.

^q Swartz.

^r Thunberg.

Crocodilium. Vaill: Calyx with aculeated scales. Seeds with a feathered down.

ESSENTIAL CHARACTER.

Recept. bristly. Down simple. Cor. of the ray funnel-form, longer, irregular.

SPECIES.

* Jaceas: calyxes even unarmed.

[1. *Centaurea crupina*. Black-seeded Centaury; Bearded Creeper. Ray.

Lin. spec. 1285. syst. 784. Reich. 3. 896. hort.

cliff. 420. 1. upf. 271. Gouan. hort. monsp. 457.

Ger. prov. 184. n. 1. Allion. pedem. n. 572.

Mor. 7. 25. 3.

Jacea. Garid. aix. t. 52.

Chondrilla. Bauh. pin. 130. 3. Barr. ic. 1136.

Park. 786. f. 4. Ger. emac. 287. f. 4.

Cyanus. Bauh. hist. 3. 24. f. 1. Raii hist. 331.

Senecio-Carduus apulus. Col. ecphr. 1. 32. t. 34.

Scales lanceolate; leaves pinnate, serrate, subciliate.]

2. *Centaurea moschata*. Purple sweet Centaury, or Sweet Sultan.

Lin. spec. 1286. Reich. 3. 896. hort. cliff. 421. 4. upf. 271.

Cyanus. Mor. hist. 3. 135. f. 7. t. 25. f. 5. Park.

482. f. 3. parad. 327. n. 2. Raii hist. 322. n. 5.

β. C. Amberboi. Yellow Sweet Sultan.

Mill. diet. n. 9.

Cyanus. Mor. f. 9. Dodart. mem. 75. fig.

Calyxes roundish smooth, scales ovate; leaves lyrate-toothed—β. scales obtuse, leaves laciniate serrate.

[3. *Centaurea crucifolia*.

Lin. spec. 1286. Reich. 3. 897.

Jacea. Tourn. inst. 444. Pluk. t. 39. f. 3?

Stæbe. Bauh. pin. 273. n. 2.

Scales lanceolate; leaves lanceolate somewhat toothed.]

4. *Centaurea Lippii*. Egyptian Centaury.

Lin. spec. 1286. syst. 784. Reich. 3. 897. Gouan.

illustr. 72.

Amberboi. Isnard. aët. par. 1719. 169. t. 10.

Scales mucronate; leaves subdecurrent lyrate-toothed.

5. *Centaurea alpina*. Alpine Centaury.

Lin. spec. 1286. Reich. 3. 897.

Centaurium luteum alpinum. Bauh. pin. 117. 3.

prodr. 56. fig. Mor. hist. 3. 132. n. 4. f. 7. t. 25.

f. 5. bottom row.—majus. Corn. canad. 69. t. 70.

Raii hist. 330. n. 2. Park. 466. f. 4.

Scales ovate-obtuse; leaves pinnated smooth quite entire, the odd leaflet serrated.

6. *Centaurea Centaurium*. Great Centaury.

Lin. spec. 1287. Reich. 3. 898. Gmel. fib. 2. 89. t. 41.

Centaurium. Bauh. pin. 117. 1. Clus. hist. 2. 10.

f. 2. Blackw. t. 93. Raii hist. 329. 1. Ger. 436.

emac. 546. f. 1. Park. 466. f. 1.

Scales ovate; leaves pinnated, leaflets serrated decurrent.

** Cyani: with the scales of the calyx serrate-ciliated.

[7. *Centaurea phrygia*. Austrian Centaury.

Lin. spec. 1287. Reich. 3. 898. fl. suec. n. 775.

Villars dauph. 3. 49. Krock. filif. n. 1454.

Scop. carn. n. 1021. Neck. gallob. 362. Gouan.

illustr. 72. Fl. dan. t. 520. Lour. cochinch. 508.

Cyanus. Hall. helv. n. 188.

Jacea. Bauh. pin. 271. n. 7, 8. Clus. hist. 2. 7. f. 1.

Raii hist. 327. 19.

β. J. alba, hirsuto capite. Bauh. pin. 271. 9.

Calyxes recurve-plumose; leaves undivided, oblong scabrous.

8. *Centaurea capillata*. Feathered Centaury.

Lin. spec. 1287. syst. 785. Reich. 3. 898.

Cyanus. Aët. gott. 1. 202. 2. t. 6.

Calyxes recurve-plumose; bottom leaves pinnated toothed, upper lanceolate.

9. *Centaurea uniflora*. One-flowered Centaury.

Lin. syst. 785. Reich. 3. 896. mant. 118. Ger.

prov. 185. 3. Gouan. illustr. 172. Villars

dauph. 3. 50.

Cyanus. Hall. helv. n. 189. Bocc. mus. 2. 20. t. 2. f. 3.

Calyxes recurve-plumose; leaves lanceolate somewhat toothed tomentose.

10. *Centaurea*

10. *Centaurea linifolia*. Flax-leaved Centaury.
Lin. syst. 785. *Reich.* 3. 899. *mant.* 117. *Gouan. illustr.* 73. *Vahl. symb.* 1. 75.
Jacea. Tourn. inst. 445. *Barr. ic.* 162. (139. *Gouan.*)
Calyxes recurve-plumose; leaves linear scattered.
11. *Centaurea pectinata*.
Lin. spec. 1287. *syst.* 785. *Reich.* 3. 899. *Gouan. illustr.* 72. *D'Affo. arag. n.* 859. *Villars dauph.* 3. 48. *Krock. filef. n.* 1456.
Jacea. Baub. hist. 3. 29.
Calyxes recurve-plumose (erect-plumose. spec.); leaves lyrate-toothletted, branch-leaves lanceolate quite entire.
12. *Centaurea nigra*. Black Centaury or Knapweed.
Lin. spec. 1288. *syst.* 785. *Reich.* 3. 900. *Huds. angl.* 375. *With.* 943. *Lightf.* 498. *Fl. rust.* t. 130. *Pollich pal. n.* 822. *Villars dauph.* 3. 46. *Krock. filef. n.* 1455.
Jacea nigra laciniata. Baub. pin. 271. 1. *Raii hist.* 325. 12. (good descr.) *syn.* 199. *Ger. emac.* 727. f. 1. *Park.* 468. 1. *Petiv. t.* 22. f. 8, 9. *Mor. f.* 7. t. 28. f. 10.
Jacea. Hall. belv. n. 184. *Cyanus. n.* 185.
Calyxes ciliate, with the little scale ovate, cilia capillary erect; leaves lyrate-angular; flowers sifcular.
13. *Centaurea pullata*.
Lin. spec. 1288. *Reich.* 3. 900. *Sauv. monsp.* 288. *Gouan. hort.* 458. *flor.* 374. *Villars dauph.* 3. 51.
Jacea humilis alba, &c. Baub. pin. 271. 2. — *monspessulana, &c. Baub. hist.* 3. 29. f. 2. *Raii hist.* 327. 21. *Lob. ic.* 542. f. 2. *Mor. hist.* 3. 140. f. 7. t. 28. f. 18. *Mill. fig. t.* 152. f. 2.
Calyxes ciliate, verticil-leafy; leaves lyrate toothed obtuse.]
14. *Centaurea montana*. Mountain Centaury. Perennial Blue-bottle.
Lin. spec. 1289. *Reich.* 3. 900. *Gouan. hort.* 458. *flor.* 375. *Villars dauph.* 3. 51. *Krock. filef. n.* 1459. *Scop. carn. n.* 1022. *Jacqu. austr.* 4. t. 371. *Pollich pal. n.* 823. *Mill. fig. t.* 114. f. 1. *Curt. mag. t.* 77.
Cyanus. Baub. pin. 273. 1. *Hall. belv. n.* 190. *Lob. ic.* 548. 1. *Blackw. t.* 66. *Baub. hist.* 3. 23. f. 1. *Raii hist.* 322. n. 2. *Ger.* 592. f. 1. *emac.* 732. f. 1. *Park.* 482. f. 1.
β. Jacea integrifolia humilis. Baub. pin. 271. 4. *prodr.* 127. 2.
C. angustifolia. Mill. dict. n. 7. *fig. t.* 114. f. 2. *Hall. belv. γ.*
Calyxes ferrate; leaves lanceolate decurrent; stem quite simple.
15. *Centaurea Cyanus*. Corn Centaury. Annual Blue-bottle.
Lin. spec. 1289. *Reich.* 3. 901. *hort. cliff.* 422. *fl. succ.* 776. *mat. med.* 192. *Huds.* 375. *With.* 944. *Lightf.* 498. *Scop. carn. n.* 1023. *Pollich pal. n.* 824. *Ger. prov.* 186. 7. *Villars dauph.* 3. 53. *Krock. filef. n.* 1458.
Cyanus. Baub. pin. 273. 2. *Lob. ic.* 546. 2. *Hall. belv. n.* 191. *Blackw. t.* 270. *Ger.* 592. 2. *emac.* 732. 2. *Park.* 482. 2. *Pet.* 22. 4. *Baub. hist.* 3. 21. 3. *Mor. f.* 7. t. 25. f. 4. *Raii hist.* 321. 1. *Camer. epit.* 289.
Calyxes ferrate, leaves linear quite entire, the lowest toothed.
- [16. *Centaurea paniculata*. Panicked Centaury.
Lin. spec. 1289. *syst.* 785. *Reich.* 3. 901. *Scop. carn. n.* 1024. *Pollich pal. n.* 825. *Jacqu. austr.* 4. t. 320. *Gouan. hort.* 459. *flor.* 375. *D'Affo. aragon. n.* 863. *Villars dauph.* 3. 53. *Krock. filef. n.* 1460.
Cyanus. Hall. belv. n. 187. *Park.* 476. n. 4.
Jacea. Mor. hist. 3. 140. f. 7. t. 28. f. 15.
Calyxes ciliate, scales flat; leaves bipinnate, branch-leaves pinnatifid linear; stem panicked.
17. *Centaurea spinosa*. Prickly-branched Centaury.
Lin. spec. 1290. *Reich.* 3. 902. *hort. cliff.* 422. n. 15.
Cyanus spinosus. Alp. exot. 163. t. 162.
Calyxes subciliate, branches spinous.]

18. *Centaurea ragulina*. Cretan Centaury.
Lin. spec. 1290. *Reich.* 3. 902. *Mill. fig. t.* 152. f. 1. (*Jacea.*)
Jacea. Mor. 3. 141. f. 7. t. 27. f. 22. *Zan. hist.* 1. 107. t. 43. *Raii hist.* 321. n. 15.
Stoebe. Barr. ic. 309.
Calyxes ciliate; leaves tomentose pinnatifid, leaflets obtuse ovate quite entire, the outer ones larger.
19. *Centaurea Cineraria*. White-leaved Mountain Centaury.
Lin. spec. 1290. *Reich.* 3. 903.
Jacea montana, &c. Baub. pin. 271. 4. *prodr.* 128. 7. *fig. Mor. t.* 26. f. 20.
β. Triumph. obs. 72. *Mor.* 3. 141. n. 21. *Barr. ic.* 348, 347. *Jacqu. hort.* 1. t. 92.
Calyxes ciliate terminal-fessile; leaves tomentose bipinnatifid, lobes acute.
20. *Centaurea argentea*. Silvery Centaury.
Lin. spec. 1290. *syst.* 786. *Reich.* 3. 903. *Scop. carn. n.* 1025.
Jacea. Tourn. cor. 32. *Barr. ic.* 218.
Calyxes ferrate; leaves tomentose, root-leaves pinnatifid, leaflets carless.
- [21. *Centaurea sibirica*. Siberian Centaury.
Lin. spec. 1291. *Reich.* 3. 903. *Pallas. it.* 1. 43. *Gmel. sib.* 2. 96. t. 42. f. 2.
Calyxes ciliate; leaves tomentose undivided and pinnatifid quite entire; stem declined.]
22. *Centaurea sempervirens*. Evergreen Centaury.
Lin. spec. 1291. *syst.* 786. *Reich.* 3. 904. *hort. cliff.* 422. 13. *Bocc. sic.* 73. t. 39. f. 3.
Jacea lusitanica sempervirens. Mor. 139. t. 28. f. 9. *Dodart. mem.* 85. *fig.*
Calyxes ciliate; leaves lanceolate ferrate, substipuled at the lowest tooth; lower leaves hastate.
- [23. *Centaurea Scabiosa*. Scabious Centaury or Great Knapweed.
Lin. spec. 1291. *Reich.* 3. 904. *fl. succ. n.* 773. *Huds.* 376. *With.* 945. *Lightf.* 500. *Sowerby Engl. bot. t.* 56. *Scop. carn. n.* 1026. *Pollich pal. n.* 826. *Villars dauph.* 3. 47. *Krock. filef. n.* 1461.
Cyanus. Hall. belv. n. 186.
Scabiosa major. Matth. 969.
Jacea major. Baub. hist. 3. 32. 2. *Ger.* 588. 2. & 583. 5. *Raii hist.* 325. n. 11. *syn.* 198.
Calyxes ciliate; leaves pinnatifid, pinnae lanceolate.
24. *Centaurea tatarica*. Tartarian Centaury.
Lin. syst. 786. *suppl.* 383.
Calyxes ciliate; leaves pinnate, pinnae lanceolate undivided.]
25. *Centaurea Stoebe*.
Lin. spec. 1292. *Reich.* 3. 905.
Stoebe. Baub. pin. 273. 7.
Calyxes ciliate oblong, leaves pinnatifid linear quite entire.
- [26. *Centaurea acaulis*. Stemless Centaury.
Lin. spec. 1292. *Reich.* 3. 905. *Shaw. afr.* t. 342. (*Jacea.*)
Calyxes ciliate; leaves lyrate; stem scarcely any.
 *** *Rhapontica*: with the scales of the calyx dry and scariose.]
27. *Centaurea orientalis*. Oriental Centaury.
Lin. spec. 1291. *syst.* 786. *Reich.* 3. 905. *hort. upf.* 271.
Cyanus. Hall. ast. angl. 1744. v. 43. p. 94. t. 4.
Calyxes scariose-ciliate; leaves pinnatifid, pinnae lanceolate.
- [28. *Centaurea Behen*.
Lin. spec. 1292. *Reich.* 3. 905. *mat. med.* 192. *Gron. orient. n.* 273.
Behen album. Rauw. itin. 288. t. 40. *Baub. hist.* 3. 36. f. 37.
Serratulæ affinis, &c. Baub. pin. 235.
Calyxes scariose; radical leaves lyrate, lobes opposite, stem-leaves embracing.
29. *Centaurea repens*. Creeping Centaury.
Lin. spec. 1293. *Reich.* 3. 906.
Jacea. Tourn. cor. 32.
Calyxes scariose; leaves lanceolate subpetioled toothed, peduncles filiform leafless.
30. *Centaurea*

30. *Centaurea Jacea*. Common Centaury or Knapweed.
Lin. spec. 1293. *Reich.* 3. 906. *fl. suec. n.* 774.
Villars dauph. 3. 42. *Krock. filef. n.* 1465.
Pollich pal. n. 827. *Oed. dan. t.* 519. *Leers herb. n.* 674.
Rhaponticum. *Hall. helv. n.* 195.—*Jacea.* *Scop. carn. n.* 1017.
Calyxes scariose lacerate; leaves lanceolate, radical leaves sinuate-toothed; branches angular.
31. *Centaurea amara*. Bitter Centaury.
Lin. spec. 1292. *syf.* 786. *Reich.* 3. 906. *Gouan. illustr.* 73. *Krock. filef. n.* 1464.
Cyanus repens latifolius. *Baub. pin.* 274. *Lob. ic.* 348. f. 2.
β. Jacea. *Bocc. mus.* 31. t. 17.
Calyxes scariose; leaves lanceolate quite entire; stems decumbent.
32. *Centaurea alba*. White-flowered Centaury.
Lin. spec. 1293. *Reich.* 3. 907. *Krock. filef. n.* 1466.
Rhaponticum. *Hall. helv. n.* 196.
Stoebe. *Baub. pin.* 273. 6.
Calyxes scariose entire mucronated; leaves pinnate-toothed, stem-leaves linear toothed at the base.]
33. *Centaurea splendens*. Shining Centaury.
Lin. spec. 1293. *Reich.* 3. 907.
Rhaponticum. *Hall. helv. n.* 197.
Stoebe. *Baub. pin.* 273. n. 5. *Ger.* 590. f. 1.
Calyxes scariose obtuse; radical leaves bipinnatifid, stem-leaves pinnated, teeth lanceolate.
34. *Centaurea Rhapontica*. Swiss Centaury.
Lin. spec. 1294. *Reich.* 3. 907. *mant.* 478. *Villars dauph.* 3. 44. *Krock. filef. n.* 1467.
Centaureum. *Hall. helv. n.* 160. *Raii hist.* 331, 5, 6.
Rhaponticum. *Baub. pin.* 117. n. 4. *Lob. ic.* 288. *Dod. pempt.* 389.
Calyxes scariose; leaves ovate-oblong toothletted entire petioled, tomentose beneath.
- [35. *Centaurea babylonica*. Babylonian Centaury.
Lin. syf. 787. *mant.* 460. *Reich.* 3. 908.
Serratula babylonica. *Lin. spec.* 1148. *Gouan. hort.* 421. *illustr.* 61.
Jacea. *Baub. pin.* 272. n. 5. *prodr.* 129. n. 9.
Calyxes scariose; leaves subtomentose decurrent undivided, radical leaves lyrate.]
36. *Centaurea glastifolia*. Wood-leaved Centaury.
Lin. spec. 1294. *Reich.* 3. 908. *hort. cliff.* 421. 8. *Gouan. illustr.* 73. *Curt. mag. t.* 62.
Centaureum. *Comm. rar. t.* 39.
Calyxes scariose; leaves undivided quite entire decurrent.
37. *Centaurea conifera*. Cone Centaury.
Lin. spec. 1294. *Reich.* 3. 909. *Gouan. hort.* 459. f. 375. *Mill. fig. t.* 153. *D'Affo. arag. n.* 867. *Villars dauph.* 3. 45.
Calyxes scariose; leaves tomentose, next the root lanceolate, on the stem pinnatifid, stem simple.
- **** *Stoebeæ*: with the spines of the calyx palmated.
- [38. *Centaurea fonchifolia*. Sowthistle-leaved Centaury.
Lin. spec. 1294. *Reich.* 3. 909. *mant.* 478. *hort. cliff.* 423. 22. *Cyrill. rar. neap.* 24.
Jacea. *Baub. pin.* 272. 6. *prodr.* 128. 4. *Herm. lugdb.* 331. ult. t. 675. *Pluk. t.* 39. f. 1.
Calyxes palmate-spiny; leaves subdecurrent spinulous repand-toothed.
39. *Centaurea feridis*.
Lin. spec. 1294. *Reich.* 3. 909. *Gouan. hort.* 460.
Jacea. *Baub. pin.* 272. 5. *Raii hist.* 320. *Pluk. phyt. t.* 38. f. 1.
Calyxes palmate-spiny; leaves decurrent tomentose oblong, the lowest sinuate-toothed.]
40. *Centaurea romana*.
Lin. spec. 1295. *Reich.* 3. 910. *hort. cliff.* 423. n. 23.
Jacea. *Zan. hist.* 141. t. 42.
Cyanus. *Barr. rar. t.* 504.
Calyxes palmate-spiny; leaves decurrent unarmed, radical leaves pinnatifid, the end lobe largest.
41. *Centaurea sphærocephala*.
Lin. spec. 1295. *Reich.* 3. 910.

- Jacea.* *Herm. lugdb.* 332. 1. t. 333. *Mor. hist.* 3. 143. f. 7. t. 27. f. 9.
Calyxes palmate-spiny; leaves ovate-lanceolate petioled toothed.
- [42. *Centaurea Isnardi*.
Lin. spec. 1295. *Reich.* 3. 910.
Calcitrapoides. *Isn. aet. par.* 1719. 164, t. 9.
Calyxes palmate-spiny; leaves lyrate-toothed hispid almost stem-clasping; flowers sessile terminal.]
43. *Centaurea napifolia*. Turnep-leaved Centaury.
Lin. spec. 1295. *Reich.* 3. 910. *hort. upf.* 272.
Jacea. *Herm. par. t.* 189. (good). *Pluk. t.* 94. f. 2. *Mor.* 144. f. 7. t. 26. f. 20. lowest row.
Calyxes palmate-spiny; leaves decurrent sinuate spinulous, radical leaves lyrate.
- [44. *Centaurea aspera*. Rough Centaury.
Lin. spec. 1296. *syf.* 787. *Reich.* 3. 911. *Ger. prov.* 186. 16. *Gouan. hort.* 460. *flor.* 376. *Villars dauph.* 3. 54.
Stoebe. *Baub. pin.* 273. 9. *Raii hist.* 319.
Jacea spinosa. *Baub. hist.* 3. 33.
β. Carduus, &c. *Barr. rar.* 919.
Calyxes palmate-three-spined; leaves lanceolate-toothed.]
- ***** *Calcitrapæ*: with the spines of the calyx compound.
45. *Centaurea benedicta*. Blessed Thistle.
Lin. spec. 1296. *Reich.* 3. 911. *mat. med.* 192. *Blackw. t.* 476. *Woodv. med. bot.* 119. t. 42.
Cnicus. *Baub. pin.* 378.
Carduus benedictus. *Cam. epit.* 562. *Dod. pempt.* 725. *Baub. hist.* 3. 75. t. 2. *Raii hist.* 303. *Ger.* 1008. f. 2. *emac.* 1171. 2. *Park. parad.* 530.
Calyxes double-spiny woolly involucred; leaves semidecurrent toothletted-spiny.
46. *Centaurea eriophora*. Woolly-headed Centaury.
Lin. spec. 1296. *Reich.* 3. 911. *mant.* 478. *hort. upf.* 272.
Calyxes double-spiny woolly; leaves semidecurrent entire and sinuate; stem proliferous.
- [47. *Centaurea ægyptiaca*.
Lin. syf. 787. *Reich.* 3. 912. *mant.* 118.
Calyxes double-spiny somewhat woolly; leaves sessile lanceolate entire and toothed; stem proliferous.
48. *Centaurea Calcitrapa*. Star-thistle.
Lin. spec. 1297. *syf.* 787. *Reich.* 3. 912. *hort. upf.* 273. *cliff.* 423. *mat. med.* 193. *Huds.* 376. *With.* 946. *Ger. prov.* 189. 17. *Villars dauph.* 3. 54. *Pollich pal. n.* 828. *Krock. filef. n.* 1468.
Calcitrapa. *Hall. helv. n.* 194.
Rhaponticum Calcitrapa. *Scop. carn. n.* 1019.
Carduus stellatus. *Baub. pin.* 387. *Baub. hist.* 3. 89. *Dod. pempt.* 733. *Raii hist.* 317. *Ger.* 1003. 1. *emac.* 1166. 1. *Park.* 988. 1. *fig.* 989. 1.
Calyxes subdouble-spiny sessile; leaves pinnatifid linear toothed; stem hairy.
49. *Centaurea Calcitrapoides*. Phœnician Centaury.
Lin. spec. 1297. *Reich.* 3. 913. *amæn.* 4. 291. *Gouan. hort.* 461. *flor.* 377. *Villars dauph.* 3. 55. n. 17. *β.*
Card. stell. fol. integris serratis. *Magn. monf.* 293. *hort.* 44.
Calyxes subdouble-spiny; leaves stem-clasping lanceolate undivided serrate.
50. *Centaurea solstitialis*. St. Barnaby's Thistle.
Lin. spec. 1297. *syf.* 788. *Reich.* 3. 913. *hort. cliff.* 423. 21. *upf.* 272. *Scop. carn. n.* 1028. *Smith in Linn. transf.* 2. 236. *Ger. prov.* 189. 18. *Villars dauph.* 3. 56.
Calcitrapa. *Hall. helv. n.* 193.
Carduus solstitialis. *Ger. emac.* 1166. f. 2.
Card. stell. luteus, fol. Cyani. *Baub. pin.* 387. *Raii hist.* 317. n. 4.—*mitior apulus.* *Col. ecphr.* 1. 30. t. 31. *Raii hist.* 317. n. 3? or 4?
Spina solstitialis. *Dod. pempt.* 734. *Baub. hist.* 3. 90.
Calyxes double-spiny solitary; branch-leaves decurrent unarmed lanceolate, radical-leaves lyrate-pinnatifid.
51. *Centaurea melitenfis*. Cluster-headed Centaury.
Lin. spec. 1297. *Reich.* 3. 913. *Smith in Linn. transf.* 2. 236.
Jacea melit., capitulis conglobatis. *Bocc. sic.* 65. t. 35. *Mor. hist.* 3. 145. 28. *Raii hist.* 323.
7 G *Calyxes*

- Calyxes double-spiny crowded terminal; leaves decurrent lanceolate sinuous unarmed.*
52. *Centaurea ficula*.
Lin. spec. 1298. Reich. 3. 914.
Jacea. Magn. monsp. 138. Mor. 144. f. 7. t. 28. f. 26. Raii hist. 321. n. 14.
Calyxes ciliate-spiny terminal, leaves decurrent lyrate unarmed hoary.
53. *Centaurea centauroides*.
Lin. spec. 1298. syst. 788. Reich. 3. 914.
Jacea lutea, &c. Baub. pin. 272. 2. Col. ecphr. 1. 33. t. 35. Raii hist. 318. n. 2.
Calyxes ciliate-spiny, leaves lyrate-pinnate quite entire, the end division largest.
54. *Centaurea collina*.
Lin. spec. 1298. Reich. 3. 914. Gouan. monsp. 461. Scop. carn. 2. n. 1029. D'Asso. arag. n. 872.
Jacea lutea, &c. Baub. pin. 272. 3. Clus. hist. 2. 8. Raii hist. 318. n. 3.
Calyxes ciliate unarmed spiny; radical leaves bipinnatifid; stem acutangled.
55. *Centaurea rupestris*. *Rock Centaury.*
Lin. spec. 1298. Reich. 3. 914.
Jacea laciniata lutea. Baub. pin. 272. Col. ecphr. 1. 36. t. 35. f. 2. Raii hist. 319. n. 4?
Calyxes ciliate-spiny; leaves bipinnate linear.
- ***** *Crocodiloides: spines simple.*
56. *Centaurea Verutum*. *Dwarf Centaury.*
Lin. spec. 1299. Reich. 3. 915. mant. 478. amæn. 4. 292. Gouan. illustr. 73. Jacqu. ic. collect. 1. 90.
Calyxes most simply spiny; teeth two opposite: leaves lanceolate entire decurrent.
57. *Centaurea falmantica*. *Lyre-leaved Centaury.*
Lin. spec. 1299. Reich. 3. 915. mant. 478. hort. cliff. 421. 5. Jacqu. hort. t. 64. Gouan. monsp. 461. D'Asso. arag. n. 873. Mor. 143. t. 26. f. 14.
Stoebe. Baub. pin. 273. 1. Clus. hist. 2. t. 9. f. 1. Raii hist. 324. 8.
Calyxes smooth with a subspiny setule standing out; leaves lyrate-runcinate ferrate.
58. *Centaurea eichoracea*. *Succory-leaved Centaury.*
Lin. spec. 1299. Reich. 3. 915.
Jacea. Raii suppl. 203. Till. pis. t. 27.
Calyxes setaceous-spiny; leaves decurrent undivided ferrate-spiny.
59. *Centaurea muricata*.
Lin. spec. 1299. Reich. 3. 916.
Jacea. Baub. pin. 272. 4. Mor. hist. 3. 143. n. 18.
Calyxes very simply spiny; lower leaves pinnatifid, upper lanceolate; peduncles very long.]
60. *Centaurea peregrina*.
Lin. spec. 1299. Reich. 3. 916.
Centaureum. Boerb. lugdb. 1. 144.
Calyxes setaceous-spiny; leaves lanceolate petioled, toothed at bottom.
- [61. *Centaurea radiata*. *Rayed Centaury.*
Lin. syst. 788. Reich. 3. 916.
Xeranthemum erucifolium. Lin. spec. 1201. Gmel. fib. 2. 108. t. 47. f. 1.
Calyxes almost unarmed and awned radiate; leaves pinnatifid.
62. *Centaurea nudicaulis*. *Naked-stalked Centaury.*
Lin. spec. 1300. Reich. 3. 916. Ger. prov. 187. n. 11. t. 5. D'Asso. arag. n. 874.
Jacea. Herm. par. t. 190. Barr. ic. 1218. Bocc. mus. 2. 60. t. 48.
Calyxes setaceous-spiny; leaves undivided, the upper ones a little toothed; stem almost naked one-flowered simple.
63. *Centaurea Crocodilium*. *Bluish Centaury.*
Lin. spec. 1299. Reich. 3. 917.
Cyanus. Barr. ic. t. 503. (good.)
Calyxes scarious very simply spiny; leaves pinnatifid quite entire, the outmost division larger toothed.
64. *Centaurea pumila*. *Dwarf Centaury.*
Lin. spec. 1300. Reich. 3. 917. amæn. 4. 292.
Calyxes very simply spiny; leaves tooth-pinnate villose; stem none.

65. *Centaurea tingitana*. *Tangier Centaury.*
Lin. spec. 1300. Reich. 917.
Cyanus. Hall. goett. 370.
Cnicus. Herm. lugdb. t. 163.
Calyxes spiny at the edge; leaves lanceolate undivided ferrate-subspiny.
66. *Centaurea galactites*. *White-veined Centaury.*
Lin. spec. 1300. Reich. 3. 917. hort. cliff. 424.
Gouan. monsp. 461. Baub. hist. 3. 54. f. 1.
Carduus tomentosus, &c. Baub. pin. 382. 1. Raii hist. 313.
β. Card. creticus non maculatus, caule alato. Tourn. cor. 31.
Calyxes setaceous spiny; leaves decurrent sinuate spiny tomentose beneath.
Species from other authors.

67. *Centaurea Triumphetti*.
Allion. pedem. n. 579.
Cyanus alpinus major fol. incis. Triumph. obs. 26.
Calyxes ferrate, with white cilia; leaves deeply pinnatifid with two pinnae for the most part; decurrent.
68. *Centaurea Kartschiana*.
Scop. carn. n. 1027. t. 55.
Calyxes ciliate-spiny; leaves pinnate, pinnae sessile, lanceolate, decurrent, ending in a point.
69. *Centaurea alata*. *Upright wing-stalked Centaury.*
Ait. hort. kew. 3. 259. Lamarck. encycl. 1. 665.
C. femalata. L'Herit. stirp. nov. 2. t. 87.
Calyxes ciliate, scales flat appressed ciliate at the end; stem-leaves oblong decurrent.
70. *Centaurea intybacea*. *Succory-leaved Centaury.*
Ait. hort. kew. 3. 259. Lamarck. encycl. 1. 671.
Calyxes ciliate, scales flat obtuse ciliate at the end; leaves pinnatifid; disk equal to the ray.
71. *Centaurea diluta*. *Pale-flowered Centaury.*
Ait. hort. kew. 3. 261.
Calyxes ciliate, scales acuminate somewhat thorny; leaves oblong and pinnatifid; floscules of the ray longer than the disk.

72. *Centaurea strobilacea*.
Scop. insubr. 38. t. 17.
Calyxes scarious, spiny, ferrate-ciliated; leaves dotted beneath, pinnate, pinnae lanceolate, falcated, erect.

73. *Centaurea hybrida*.
Allion. pedem. n. 593.
Calyxes ciliated ending in a spine; leaves pinnate, branch-leaves linear-lanceolate undivided decurrent.
74. *Centaurea nicæensis*.
Allion. pedem. n. 594. t. 74. f. 1.
Calyxes ciliate-spiny, leaves ovate rough, radical leaves petioled toothed, stem-leaves embracing decurrent.

75. *Centaurea cæspitosa*.
Cyril. rar. neap. 24. t. 8.
Calyxes palmate-spiny, leaves sinuate-toothed, the lower ones petioled, the upper ones half-stem-clasping.

76. *Centaurea elegans*.
Allion. pedem. n. 599. t. 49. f. 1.
Stem simple, leaves undivided linear, axillas one-flowered, and one terminal flower.
77. *Centaurea aurea*. *Great Golden Centaury.]*
Ait. hort. kew. 3. 265.
Calyxes most simply thorned, thorns spreading; floscules equal; leaves hirt, the lower pinnatifid.
 DESCRIPTIONS, &c.
1. Stem striated, three feet high, almost quite simple. Leaflets linear, scabrous, subciliate, very entire; the lowest recurved. Calyxes ovate, acute; the scales purple at the end, and very smooth. Florets in the disk three; in the ray five, quadrifid. Usually one or two seeds in a flower, crowned with a black down, so stiff as to make the seeds creep when held in the hand; hence the trivial name *Crupina*, from the Dutch *crupen*, to creep. Receptacle chaffy, the chaff ending in an awn^a.
 Native of the South of France, Piedmont, Tuscany, and the Levant. Annual. Cultivated 1640^b.]
- ^a Linn. spec. & syst. Gouan & Allion. ^b Hort. kew.

2. The second sort is annual, and has been many years propagated in the English gardens, under the title of Sultan Flower, or Sweet Sultan. It was brought from the Levant, where it grows naturally in arable land among the corn. This sends up a round channelled stalk near three feet high, which divides into many branches, with jagged leaves, of a pale green, smooth, and close to the branches; from the side of the branches come out long naked peduncles, each sustaining a single head of flowers, which have a very strong odour, so as to be offensive to many people, but to others very grateful: they are purple, white, or flesh colour. There is also a variety with fistular flowers, and another with fringed flowers; but these degenerate in a few years, however carefully the seeds may be saved.

[Native of Persia, and cultivated 1629^c. It came to us first from Constantinople.

β. Differs from the common sort in having the corollules of the ray large: but the habit of the plant shows that one took its rise from the other^d.] The scales of the calyx are obtuse; and the leaves lacinate and ferrate. The flowers are of a bright colour, and have a very agreeable odour. It flowers in July and August, and the seeds ripen in October.

[Retzius, who examined the living plants, cannot discover any mark of difference between the red or *C. moschata* and the yellow or *C. Amberboi*.

3. Root annual. Stem a foot high, furrowed, rough with hairs. Branches erect, many, from top to bottom. Leaves pinnatifid, rough, resembling those of *Sisymb. Irio*; pinnules on each side about six, tooth-angular, the outmost and inmost shorter, but those in the middle larger: upper leaves lanceolate, tooth-angular. Peduncles axillary and terminating, long, rough with hairs, having two or three flowers; frequently there are also two or three subsessile flowers, in a kind of head, at the end of the peduncles. Calyxes pubescent. Corolla bright purple^e.

4. This, according to Linneus, bears some resemblance to the Blue-bottle (n. 15.). Stem very branching. Leaves generally sessile, seldom decurrent. Calyxes peduncled, scales imbricate with a scariose point at the end of each. Corollas purple, with a large ray. Florets of the ray nine to twelve, linear three or four-parted. Florets of the disk as many.—Native of Egypt between Alexandria and Rosetta^f. Cultivated in 1759, by Mr. Miller^g,] who received the seeds from Jussieu, and he had them from Dr. Lippi at Grand Cairo.

5. Root perennial, striking deep into the ground, and sending out a great number of long, smooth, pinnate leaves, of a glaucous hue. Stems near four feet high, dividing at top into many branches, having small leaves on them of the same form with the lower. Each stem is terminated by a single head of yellow flowers; which come out in June and July, and in dry seasons perfect their seeds in autumn.

It grows naturally upon the Alps [in Italy; and was cultivated in 1640^h.]

6. This has a strong perennial root like the foregoing sort, and a great number of long pinnate leaves, of a lucid green, spreading wide on every side, proceed from it. The peduncles are slender, but very stiff, and divide at top into many smaller peduncles. These, together with the stalks, rise five or six feet high; having at each joint one small pinnate leaf of the same form with the others. Each of the peduncles is terminated by a single head of purple flowers, considerably longer than the calyx. They come out in July, and in very warm seasons produce ripe seeds in England.

It grows naturally on the mountains of Italy, Spain [and Tartary; and was cultivated in 1596, by Gerardeⁱ.

This is supposed to be the *tristia Centaurea* of Lucretius, and the *graveolentia Centaurea* of Virgil, recommended by the latter in disorders of the Bees.

7. Stem somewhat shrubby, upright, from eight or ten inches to a cubit in height, often branched, furrowed, hispid but not tomentose. Leaves hispid, thick, ovate-lanceolate, not acute at the base; the lower and middle half-stem-clasping; sharply toothed, some to the middle, others to the end; one tooth at the base larger than the rest. The upper leaves resemble these, but are less clasping; they are toothed or quite entire. The root-leaves are petioled. At the end of the stem and each branch a single large flower, with a small leaf or two at the base putting out cilia from the end resembling the scales of the calyx; which are oblong, smooth, yellowish, ending in a brown lanceolate lamina twice or thrice as long as the scales themselves, with many long rufous cilia on the edge, having the appearance of a little reflected feather. Corolla a fine red^k. Native of Germany, Austria, Switzerland.

Haller has two varieties, one loftier in Germany, and the other about eighteen inches high, in the Swiss alps. Cultivated 1727, by Mr. Miller^l.

8. Stem four or five feet high, angular, hard, branching. Root-leaves with four or five pairs of pinnae; stem-leaves simply pinnate; uppermost tongue-shaped, simple^m.

Native of Spain and Siberia.

9. A palm or foot in height. Stem stiff, altogether leafy, tomentose-hoary, slightly striated. Leaves thickly tomentose, scarcely a quarter of an inch broad, an inch and half long, acuminate; the root-leaves sharply toothed, teeth small, distant; all the stem-leaves erect, neither stem-clasping nor decurrent, and scarcely toothed. Flower terminating, sessile, in the midst of from two to four leaves, the same size as in *C. nigra*. Corolla purple. Calyx as in *C. phrygia*; the lower hairs of the scales black, the upper whitish or pale yellowⁿ.

According to Linneus, it is nearly allied to *C. phrygia*, and an alienated progeny of it. Haller says that it is lower than *C. phrygia*, but the head of flowers larger. Leaves very narrow lanceolate, quite entire, covered with a very white pile. Native of the South of Europe.

10. Stem a palm in height, often decumbent, branching from the bottom, furrowed-angular, rough with stiff hairs. Branches equal, diffused. Leaves entire, rugged, much crowded, ciliate with rigid hairs, near two inches in length, a line or a line and half in breadth, ending in a very sharp point; those next the root dilated at the base and half-stem-clasping; on the stem and branches sessile. Flower the same size as in *C. phrygia*, protected with from three to six leaves, twice its length. Calyx at first pubescent, then smooth. Corollas purple. It varies with shorter thickish leaves, scarcely ciliate, and an almost simple erectish stem^o.

Native of Spain and Italy. Perennial.

11. Calyx as in *C. phrygia*, terminal, sessile. Branches more divaricated. Leaves oblong, stem-clasping, the teeth towards the base larger. Floral leaves lanceolate, quite entire, pubescent^p. Stems a short span in length and procumbent, tomentose, angular at the base, grooved at top, as are also the branches. Leaves short, sessile, lanceolate, cottony, with large deep divisions. Pinnae linear. Scales of the calyx the upper half black, with white, capillary, feathered cilia. Corollets pale purple or white, all equal^q.—Native of Spain, South of France and Silesia.

12. Stem from two to three feet in height, angular, scored, slightly downy, often tinged with purple: branches alternate, the uppermost in this, as well as the *Scabiosa*, rising above the stem, thickest towards the top, one-flowered. Leaves pinnatifid or toothed, sometimes entire, lanceolate, sessile, more or less downy, rough and hard. Outer scales of the calyx lanceolate, dark purple almost black, fringed with long cilia, and these hairy; the middle rows yellow, linear at the base, with a lanceolate fringed

^c Hort. kew. ^d Linn. ^e Gouan. ^f Linn. syst.
^g Hort. kew. ^h Ibid. ⁱ Ibid.

^k Gouan, Scop. Krock. ^l Hort. kew. ^m Hall. gott.
ⁿ Gouan. ^o Ibid. ^p Linn. spec. ^q D'Affo and Villars.

tip: the inner scales whitish, smooth, shining, linear, terminated by a broad, roundish purple scale, ragged not ciliate. Florets all alike, tube whitish, long, and narrow; border purple^r.

According to Linneus, it differs from *C. phrygia*, in the ciliary scales being ovate, and from upright spreading, not recurved and subulate. It resembles *C. Jacea*, which has been confounded with it, but has no neutral ray. This however is not always the case: both Hudson and Stokes mention its having sometimes neutral florets in the ray. Long before them, Ray had affirmed this variety to be no less frequent than the common sort in the west of England: and Dillenius afterwards observed it near Oxford. Nay Thomas Willifell showed Ray plants which had the flowers wholly composed of neutral florets. It varies also with white flowers: and with leaves entire, or jagged.

Dillenius observes, that Parkinson's figure only agrees with our English plant^s.

It has many provincial names, as Knap-weed, Knop-weed, Knob-weed, Horse-knops; all from Knob or Nob, a head. Also Hard-heads, Hard-irons and Matfellow. In Scotland, Horse-knot.

It is found in Germany, Austria, France, &c. With us in England it is a bad weed in meadows and pastures; being a harsh stubborn plant, seldom touched by cattle either green or in hay, and being with difficulty extirpated. Linneus marks it as biennial, but our plant is perennial, and increases much by the root.

13. Calyx surrounded with sessile leaves, and among these scales of the calyx linear-lanceolate with a black edge, and ciliate at top with yellow bristles. Leaves on the stem often lyrate. Corolla purplish with a large ray. It is a low plant^s.—Native of the South of France, Spain, and the Levant. Mr. Miller says the seeds were sent him from Portugal, by Robert Moore, Esq. and that it is biennial: the bottom-leaves oblong-oval, (rather lanceolate and toothed here and there, resembling those of *Arabis alpina*) but those which come out afterwards divided. Stalks upwards of two feet high, with long narrow pointed leaves, indented on their edges, and frequently growing in clusters: branches several, with leaves of the same shape, but smaller, each terminated by a single head of purple flowers, with barren florets in the ray. The scales of the calyx are edged with long hairs which turn downwards; and under it is a whorl of long leaves. It flowers in June and July, and the seeds ripen in the autumn^s.

14. Root perennial, running deep into the ground. Stem commonly single, upright, one-flowered; sometimes, especially in a cultivated state, it puts forth a branch or two. Leaves quite entire, tomentose. Flower large and specious. Calycine scales ovate, whitish, with black cilia round their edges. Corolllets in the ray very long, blue with a white tube, neuter: in the disk short, purple, fertile.

Scopoli, who mentions several varieties, describes the common sort as being a foot and half in height: leaves on the stem as far as sixteen, with one flower at the end. Florets in the ray twelve or thirteen, cut into segments from four to six. Fertile florets as far as thirty-six; filaments bearded, but smooth at the base, with a tooth on each side; receptacle subpaleaceous; the chaffs a little villose at top. On high mountains it is sometimes not more than two inches in height, very tomentose, the leaves longer than the stem, and a red flower. It is also found with two flowers on a stem, and as far as nineteen florets in the ray.

Native of the South of Europe. I found it on mount Grindelwald. Ray observed it about Spa, and on mount Jura, not far from Geneva: but it is common on many parts of the continent. It was cultivated in 1596, by Gerarde^s; and flowers in

May and June: it is commonly called Perennial Blue Bottle, and by some Batchelor's Button.

[Haller records varieties with a white flower, and with gashed leaves, besides n. 7. of Miller, differing, as he observes,] in having much longer and narrower leaves, which are not so white, the heads of flowers are also smaller; but whether this be only a variety, I cannot determine, having never raised either from seeds; for these plants spread very much by their creeping roots, which renders them barren, as is frequently the case with many other creeping rooted plants: however, this plant has always retained its difference from the year 1727, when I first brought it to England; and as it propagates so fast, it is now become almost as common in the gardens, as the broad leaved sort, and is equally hardy.

[According to Linneus this variety differs from the common sort, in having smaller leaves, less decurrent at the base, and not running down to the next leaf below. See n. 67.

15. Stem one to two feet high, angular, slightly tomentose, branched at top. Leaves numerous, white underneath, with three parallel ribs. Branches one-flowered. Scales of the calyx lanceolate, the outer ones green tinged with purple, tomentose, sharply serrate; the inner ones entire. Florets of the ray, with lanceolate irregular pointed segments, (six to eight) barren. Egret short, sessile, bristly^r.

Haller remarks that the root-leaves are toothed or even pinnatifid, with the extreme segment very large: and that the barren florets (nine) are very wide, two-lipped; divisions four or five at top, two or three at bottom. And Scopoli, that the filaments below the anther are surrounded with a villose ring; and the style beneath the stigma bearded.

It is a common weed among corn, flowering from June to August. The wild flower is usually blue, but sometimes white or purple.

Our old English writers, besides *Blue-bottle*, which has commonly obtained, have the names of *Blue-ball*, *Blue-blow*, *Corn-flower*, and *Hurt-fickle*. In the booke of Husbandrye ascribed to Fitzherbert, it seems to be called *Hadods* or *Haudod*². Some modern agriculturists speak of it under the name of *Buddle*, which is evidently nothing more than a corruption of Bottle. Dr. Stokes informs us, that it is called *Batchelor's-buttons* in Yorkshire and Derbyshire: but this is a name given to many other flowers. In Scotland it is called *Blue Bonnets*.

In German, Dutch, Swedish and Danish *Korn-blume*: in French *Bluet*: in Italian and Portuguese *Ciano*: in Spanish *Aciano*, *Azuleio*.

The expressed juice of the neutral florets makes a good ink; it also stains linen of a beautiful blue, but the colour is not permanent in any mode hitherto used. Mr. Boyle says that the juice of the central florets, with the addition of a very small quantity of alum, makes a lasting transparent blue, not inferior to ultramarine².

16. Stem almost woody, stiff, striated, or angular, whitish, branched, from a foot to eighteen inches and two feet in height. Leaves many, dry, hard, smooth or tomentose, bipinnate; pinnas slender, narrow, lanceolate, with a few teeth: upper leaves simple, linear. Many small flowers terminate the branches. Calyx swelling at bottom, contracted at top; scales triangular, black at the end, surrounded with hard white cilia. Florets flesh-coloured or pale purple^b.—Native of the South of France, Switzerland, Germany, Austria, Carniola, Italy, Spain. Annual.—Cultivated 1640^c.

There is a variety with larger flowers, the size of those in *C. Jacea*; the leaves hoary, and differing somewhat in its appearance^d.

17. The whole plant is tomentose; the small branches terminate in stiff thorns, and the calyx is very slightly ciliate^e.—Native of the island of Candia. Introduced 1788, by John Sibthorp, M. D.^f

^r Woodw. Mff. ^s Raii syn. ^t Linn. spec.
^u Miller's figures. ^x Hort. kew.

^y Woodw. Mff. ^z Fol. 14. edit. 1562.
^a Gentl. magaz. for 1748. See Withering and Lightfoot.
^b Haller. ^c Hort. kew. from Park. ^d Linn. spec.
^e Linn. cliff. ^f Hort. kew.

18. Leaves white as it were pappous, pinnated with rounded lobes. Flower solitary, peduncled. Ray small with long styles. Calyx large, with acute, ciliated, yellowish scales^z.] It seldom rises more than three feet high in this country, with a perennial stalk dividing into many branches. The flowers, which are produced from these, on short peduncles, are of a bright yellow. They appear in June and July, but the seeds seldom ripen in England. As this plant retains its leaves, which are extremely white, all the year, it makes a pretty variety in a garden. Native of the island of Candia, and of several places on the coasts of the Mediterranean, both in Europe and Africa.

[Cultivated 1714, by the Dutchess of Beaufort^h.]

19. Stems near three feet high, branching, from a perennial root. [Leaves white as it were pappous; stem-leaves bipinnate, with gashed, acute lobes, the outmost palmated: branch-leaves pinnatifid. Cilia of the calyx brown. Flower purple with white styles; ray scarcely longer than the rest of the corolla¹.]

These come out in June, and in favourable seasons the seeds are perfected in autumn. It retains its leaves through the year. This grows naturally in Italy, on the borders of the fields.—[Cultivated 1731, by Mr. Miller^k.

β. On monte Circello.

20. Stem next the root very tomentose. Radical leaves also closely tomentose; leaflets nearly equal, oval, with a small lobe only on the lower side of the base. Stem-leaves simple, wedge-form, with a small tooth at the base on one side. Flowers yellow. Leaves white, as in the last species. ¹ Native of Candia or Crete. Perennial, flowering in July.—Cultivated 1768, by Mr. Miller^m.

21. Leaves tomentose, lanceolate, most of the radical ones pinnatifid; the lobes turned upward, lanceolate, quite entire, decurrent, the outmost larger. Stem-leaves mostly six or seven, the upper ones undivided. Stem quite simple, sometimes, but rarely, having one small branch, pubescent, somewhat grooved. Usually one flower. Calyx swelling: leaflets augmented with an ovate scalelet, the size of a leaflet of the calyx; they are sharply ciliate and pale. Corolla purple, sometimes flesh-coloured, with a large barren ray. Found in Siberia by Gmelinⁿ.—Introduced 1782, by Mr. John Bush^o.

22. Stem round, pubescent, gray at bottom. Leaves pubescent, soft; the lower hastate. Stipules lanceolate, toward the stem generally sickle-form. Peduncles growing thick at the top. Cilia of the calyx gray. Flowers flosculous. The leaves have an elongated tooth at the base; whence the stem is as it were furnished with stipules^p.]

It is a perennial plant, and the leaves continue in verdure through the year, for which it is chiefly valued, for the flower has little more beauty than the common Knapweed. It flowers in June and July, and in warm seasons the seeds ripen in September. It grows naturally in Spain and Portugal; [and was cultivated 1683, by Mr. James Sutherland^q.

23. Stem nearly cylindric, upright, alternately branched, leafy, striated, two feet high. Leaves roughish, and slightly hairy. Root-leaves on long petioles, with a winged midrib; pinnae ovate, toothed, frequently with pinnatifid appendages at the base; the terminating pinna very large, confluent with the next pair. Stem-leaves also pinnatifid, with confluent pinnae mostly entire. Flowers solitary, terminating. Calyx bellying, globular, closely imbricate, scales triangular, acute, and ciliate or rather pectinate at the edge, tip and edged with black, almost smooth. Florets of the ray barren, reddish purple, striated, deeply divided into four, sometimes five linear segments: those of the disk deeply divided into five linear purple segments, and

marked on the outside with five dark purple lines. Seeds oval, brown, compressed, shining, viewed with a glass slightly hairy: crowned with a sessile, yellowish, bristly egret, as long as the seed^r.

It varies frequently with white flowers; Haller mentions several other variations in the colour; as flesh-coloured, variegated with that and white, pale yellow and full yellow. Native of most countries of Europe, except the very southern parts, in meadows, on the borders of corn-fields, among corn, and by road sides. Perennial, flowering in July and August. Called in Yorkshire Great Horse-knobs.

24. It has altogether the flower and calyx of *C. Scabiosa*. The first leaves are broad-lanceolate, undivided, quite entire; the rest are pinnatifid, the divisions absolutely without lobes. Native of Siberia. Perennial^s.]

25. Root perennial. Stems near three feet high, branched, with a single leaf at each joint. Flowers solitary, terminating. They appear in June, and the seeds ripen in August.

[26. The flower is yellow. Cilia of the scales white. The root is sweet and esculent. It is called *Toff* by the Arabs^t.]

27. The stems rise near five feet high, dividing at top into many smaller branches. Flowers solitary, terminating, yellow. They come out from June to August, and the seeds ripen in autumn.

[It differs from *C. Scabiosa*, which it resembles very much, not only in the corolla being of a brimstone colour, but particularly in the calyx, the leaflets of which are terminated by an ovate, ferruginous, ciliate scale, with pectinated cilia, the length of the scale itself; whereas in *C. Scabiosa* the edge of the leaves of the calyx is black and ciliate-torn, not lengthened out into a scale^u.—Native of Siberia. It was cultivated in 1759, by Mr. Miller^v, to whom the seeds were sent from Petersburg.

28. Leaves large, like those of Docks, sharp, and stiff like Pear leaves, with two pairs of smaller ones at the base, which make them lyrate. Stems eighteen inches high. Flowers oblong, yellow.

At the foot of Mount Libanus in shady watery places^w.

29. Stem angular, branched, even. Leaves attenuated at the base, of an even surface but rugged about the edge. Peduncles filiform, the length of the leaves, naked. Scales of the calyx acute, quite entire.—Native of the Levant. Perennial.

30. Lower leaves pinnatifid, with one, two or three pairs of lobes, the last lobe very large with a few teeth: upper leaves elliptic, lanceolate, and even linear: all of them dry, nerved, hirsute and whitish, most so in warmer climates. Stem from two to eighteen inches in height, (sometimes, according to others, attaining the human stature) little branched, with a large flower terminating each branch. Upper part of the scales of the calyx brown or whitish, shining, dry. Florets of the ray long, two-lipped, the two inner divisions erect, the three lower pendulous: colour bright purple. Florets of the disk unequally cut. Down on the receptacle much, on the seeds very little^x. Linnaeus says none. Leers affirms that it consists of a few very short bristles, which soon fall off.

According to Scopoli, the branches are angular, leafy. One leaf below the calyx, the scales of which are terminated by a brown, lacerated, ciliate lamina. He makes two varieties, 1. with the lower leaves pinnatifid at the base, the upper ones entire. This has the stature of *C. Scabiosa*; scarce any nap on the leaves; the lamina of the scales brown, with a ferruginous edge.—2. With all the leaves entire, and loosely toothed. This is more tomentose; the scales of the calyx are yellowish and terminated by a brown ciliate lamina. It is very like *C. nigra*^y. Villars says that it varies very much; in general the leaves are hard and villose, more or less white,

^z Linn. spec.

^h Hort. kew.

¹ Linn. spec.

^k Hort. kew.

^l Linn.

^m Hort. kew.

ⁿ Linn. spec.

^o Hort. kew.

^p Linn. spec. & syst.

^q Hort. kew.

^r Woodw. Mss. & Withering.

^s Linn. suppl.

^t Shaw.

^u Linn. spec.

^x Hort. kew.

^y Gronovius.

^z Haller.

^a Scop. carn.

and more or less toothed at the base; the stems are hard, angular, terminated by one or more flowers; the scales of the calyx are membranous and dry, often white, and a little torn at the end.

The first variety has the root-leaves pinnatifid and much toothed, more white, and the stem many-flowered, as described by Haller, Scopoli, &c.

The second is straight and green, the leaves lanceolate and entire. It grows in moist mountainous pastures.

The third is low, creeping and one-flowered. It is the *C. amara* of Linneus, and grows in dry places.

The fourth is like it, but is a little higher, cottony and more white. Well figured by Ambrosini, phytogr. 295.

The fifth has very narrow, very white and toothed leaves; the calyx is whiter and only half the size, the scales are drier and russet-coloured. Perhaps *Rhaponticum eriophorum* of Scopoli, and approaches to *C. alba* of Linneus. It often varies, like many other of the species, with a white flower.—Native of the North of Europe, and of the South of France, &c. Perennial. Cultivated 1748, by Mr. Miller^b.

31. Stems two or three from the same root, divaricate, decumbent or erect, stiffish, very simple, one-flowered, tomentose-hoary, angular. Root-leaves tomentose, mucronate, petioled, lanceolate, entire, toothed and pinnatifid: all the stem-leaves sessile, usually falcate, linear, quite entire. Flower of *C. Facea*, but only half the size: scales from ferruginous becoming whitish, the edge membranous, scariose, torn, whitish.

There is a variety of *C. Facea*, which much resembles this, and which gave Gerard (*in Fl. gallopr.*) occasion to suppose that the *amara* is nothing more than a variety of the *Facea*: it may be distinguished however by its branching stem, and its three-nerved half-stem-clasping leaves, which are generally hastate and have one tooth at the base^c.

32. Very nearly allied to *C. Facea*. Stem panicled. Leaves acuminate, the upper ones only toothed, the uppermost quite simple. Calyxes terminal, ovate, small; scales membranaceous, loose, mucronate, snow-white^d.

Haller seems to look upon this as not specifically different from *C. Facea*, though he sets it down as a distinct species.—Native of Spain and Switzerland.

Introduced 1773, by Monf. Richard^e.

33. Stems three feet high, angular, hard, smooth, branched, many-flowered. Leaves minutely divided, smooth or slightly tomentose. Flowers purple, with a beautiful silvery calyx, consisting of dry, round scales ending in a harmless awn^f.] Biennial, flowering in July; the seeds ripen in September. [In transalpine Switzerland, Spain, Siberia.—Cultivated 1597, by Gerard^g.

34. This is a handsome plant. The root is thick, round, black, wrinkled and irregular, strikes deep in the ground, and when dry is aromatic. Radical leaves many, having a white nap underneath, on long petioles, subcordate, shaped like those of the docks, (or Elecampane). Stem eighteen inches high, (sometimes three or four feet). Stem-leaves few, on short petioles, sometimes pinnatifid. Flower solitary, large. Floscules purple, very numerous, without any neuters^h.

Switzerland and about Verona, whence Mr. Miller received the seeds.—Cultivated 1656, by Mr. John Tradescant, junⁱ. It flowers in July.

The roots of this, and several of the species allied to it, are bitter and astringent, and formerly were much given in cases wherein we now give Jesuit's bark. The plants also will dye yellow.

35. It seems very nearly allied to *C. glastifolia*. Branches angular. Radical leaves lanceolate-ovate, with a few small teeth, having frequently two teeth at the base, roughish, petioled, the size of those of

Deadly Night-shade (*Atropa Belladonna*.) Stem-leaves lanceolate, decurrent (as in *C. glastifolia*). Calyx slightly scariose. Corolla yellow. Flowers in a thyrse subsessile, the pedicels four-flowered or thereabouts. Native of the Levant. Perennial^k. Cultivated 1748, by Mr. Miller: dict. edit. 5. Jacea 14^l.]

36. Root perennial, striking deep into the ground; from this springs a great tuft of long entire leaves, shaped like those of Woad, growing upright, with many upright stalks, near five feet high, having a single leaf at each joint, of the same shape, but smaller and decurrent; and dividing at top into two or three branches, each terminated by a single head of yellow flowers, in a silvery calyx.

[The ray is less than the disk^m.—The leaves have veins prominent on both their sidesⁿ. Native of the Levant and Siberia.

Cultivated 1731 by Mr. Miller. Flowering from June to August^o,] but rarely producing good seeds in England.

37. Root perennial, single, sending out in the spring several entire leaves, and afterwards a single stalk, more than a foot high, having one divided hoary leaf at each joint; at the top comes out a single, large, scaly head, shaped like a Pine cone, very taper at the top, where it closely surrounds the florets, which just emerge from the calyx, are of a bright purple colour, and appear in June. [Scarcely a palm high, tomentose. Root-leaves quite entire. Calyxine scales shining, pellucid, the upper ones purplish^p.

Native of the South of Europe. Cultivated 1757, by Mr. Miller^q.] who received the seeds from Verona.

[38. Lower leaves petioled, undivided, lanceolate-ovate; the upper ones sessile, toothed towards the base; the upper ones subdecurrent, lanceolate. Stem simple, angular. Branch longer than the stem. Flower solitary, large, often bending the stem to the ground. Calyx ovate, green with yellowish spines, the middle one longest, generally recurved. Ray five-cleft, larger, purple: disk whitish, purplish at top. On the coast of the Mediterranean^r. Introduced about 1780, by Monf. Thouin^s.

39. A tomentose plant, hardly a foot high, with the stems branching a little. Leaves broad-lanceolate, with the serratures somewhat spiny. Calyxes terminal, ovate; the scales palmate at the end with nine or more setaceous spines. Ray of the flower purple, disk whitish with few flowers. Native of Spain. Perennial^t.]

40. Root biennial. Stems three feet in height. Flowers large, red; the calyxes strongly armed with spines. It flowers in July, and the seeds ripen in September. It is a native of the Campania of Rome.

41. Root annual. Leaves woolly. The stem rises two feet high, dividing at top into three or four branches, which are terminated by pretty large heads of flowers, with woolly calyxes strongly armed with spines. It flowers in July, and in warm seasons sometimes ripens the seeds in September. Native of Spain and Barbary. This, and the foregoing sort, were cultivated by Mr. Miller in 1768.

[42. Root perennial. Stems several, ascending, about a foot in length, commonly square, hairy, furrowed; the angles reddish brown. Lower leaves four or five inches long, resembling those of Succory; the other leaves of the same form, but smaller and less divided as they are higher on the stem or branches; those immediately under the flower (from four to seven), an inch long, either entire or having only a few teeth. The flowers are purple, solitary, and appear in June and July: they are composed of from forty to forty-five regular florets in the disk, and fifteen to eighteen neuter florets in the ray, comprised in a conic calyx.—Cultivated in 1717, in the royal garden at Paris: the seeds came from Holland^u.

^b Hort. kew.

^c Hort. kew.

^e Gouan.

^f Haller.

^h Haller.

^d Linn. spec.

^g Hort. kew.

ⁱ Hort. kew.

^k Linn. mant.

ⁿ Curt. magaz.

^q Hort. kew.

^l Hort. kew.

^o Hort. kew.

^r Linn. spec. & mant.

^s Linn. spec.

^m Linn.

^p Gouan.

^t Hort. kew.

^u Isnard.

Perhaps this is only a variety of *C. pullata* (n. 13.), or a hybridous offspring of it^{*}.]

43. Root annual. Stem branching, three feet high. Lower leaves not much unlike those of the Turnep, rounded at the end, and the base cut into many segments, diminishing gradually to the top of the stem and winged. Flowers terminating.

[Corolla radiate purple; the neuters five-cleft, the two inner divisions of the calyx smaller than the others[†]. Native of the Archipelago.—Cultivated 1759, by Mr. Miller[‡].

44. The winged stems, dark-coloured though villose leaves, and bushy habit of the plant, distinguish this from all others. Spines of the calyx three or five fold. About Montpellier, in Tuscany and Portugal[§].—Introduced 1772, by Mons. Richard[¶].

45. Root annual. Stem erect, roundish, channelled, rough, from one to two feet high, often branched towards the top. Leaves long, elliptical, rough, runcinate or variously serrate, and barbed with sharp points, bright green above, underneath whitish and reticulated; upper ones sessile, and on one side extending along the stem, but the lower ones petioled. Flowers inclosed in an involucre of ten leaves, of which the five outer are larger: calyx oval, woolly; scales terminated by rigid, pinnate, spinous points: florets yellow; those of the ray small and trifid. Seeds oblong, brown, striated, bent, with a hairy down similar to that of the receptacle. Native of Spain and the Levant; flowering from June to September.

Cultivated in 1597, as appears from Gerarde.

This plant obtained the appellation of *benedictus* from its being supposed to possess extraordinary medical powers; for exclusive of those qualities usually ascribed to bitters, it was thought to be a powerful alexipharmic, and capable of curing the plague, and other malignant febrile disorders. It was also reputed to be good against worms, as well as against all sorts of poison. Simon Paulli declares that it has no equal in consolidating putrid and stubborn ulcers, and even cancers. He relates the case of a woman whose breasts were wasted by a cancer to the very ribs, and yet was cured by washing them with the distilled water of this plant, and sprinkling them with the powder of its leaves: and Arnoldus de Villa nova relates that he saw the putrid and hollow ulcers of a man, who had all the flesh of his legs consumed to the very bone, and who had tried all other medicines in vain, cured by the following receipt: Take the bruised leaves of this plant, and boil them with some generous wine; then add some melted hog's lard; let them boil a little more, and then put in some wheat-flour, stirring it about all the while with a spatula, till it comes to the consistence of an ointment. Lay this warm on the ulcers twice a day.

In spite however of all these high commendations, we do not find this plant considered as of any great importance in the modern materia medica. In loss of appetite however, where the stomach has been injured by irregularities, it is allowed that the good effects of the infusion of Card. benedictus have been often experienced. The decoction of it also in water or posset-drink still maintains its popular reputation as a gentle vomit, for which purpose it is to be drank in pretty large quantities.

46. Stem proliferous. Leaves unarmed; those next the root lanceolate, on the stem lacinated, on the branches linear. Calyx large, much interwoven with wool. Corolla small, yellow. Neuter florets quadrifid shorter than the hermaphrodites. Native of Portugal. Flowering in July[¶].—Cultivated 1768, by Mr. Miller[§].

47. Stem a foot high, diffused, proliferous-branched, spreading. Branches from the axillas of the upper leaves, alternate, terminated by a flower. Leaves alternate, sessile or half-stem-clasping, sub-

scabrous; the lowest pinnatifid, the middle lyrate, the upper lanceolate. Flowers subsessile, of a middling size. Calyx ovate, somewhat woolly with a thin pile; the scales having a slender, purplish spine, with two bristly spinules on each side at the base. Corolla white: florets of the ray less, quadrifid. Anthers yellow, reddish at the tip. Native of Egypt. Annual[¶].

48. Root annual. Stem from a foot to eighteen inches and two feet in height, hairy, light green, very much branched, with thorns or prickles: branches alternate, spreading. Leaves alternate, half-stem-clasping, soft, unarmed, smooth or very slightly pubescent. The scales of the calyx end in long white spines, diverging like the points of a star, very sharp, convex on the outside, and channelled within, at the base next the calyx armed with a pair or two of shorter spines. Corollets usually purple, sometimes white. The flowers are axillary and sessile. Seeds naked. Receptacle villose[¶]. Native of England, Switzerland, and the southern parts of Europe.

Linneus (hort. cliff.) affirms that it grows abundantly about London, and in the very city itself. I have never found it there; it is extremely common about Cambridge, and is said to have been used by the brewers instead of hops. The plant and root are both very bitter, and are sometimes administered abroad in agues, &c.

49. The whole plant resembles *C. Calcitrapa*, but the stem and leaves are less hirsute; the leaves are very finely serrate, acuminate, stem-clasping. Calyxes axillary, sessile, like those of *C. C.*, but lanuginous at the base[¶].

Mons. Villars is of opinion, that it scarcely deserves to be reckoned a distinct species.

Linneus calls it the daughter of the foregoing, but with undivided leaves. Near Nisines, and in Palestine[¶].—Cultivated 1683, by Mr. James Sutherland[§].

50. Radical leaves lyrate, acuminate. Flowers terminal, solitary. Peduncles very long, leafy; no leaflet at the calyx. Spines of the calyx white, longer under the calyx, toothed only at the base[¶]. It may be distinguished from *melitenensis*, by having the lobes of the leaves acute, especially the terminating one, which is perfectly deltoid. Each scale of the calyx ends in a very strong pale-yellow spine, half an inch in length, accompanied by several smaller ones. *C. melitenensis* on the contrary has all the lobes of the leaves rounded, the end one remarkably so, and perfectly blunt, even retuse. Calyx fringed with small brownish spines, of which the longest is not above one third of the length of those in *C. folstitialis*. Both have bright yellow flowers[¶]. Annual. South of Europe.

Discovered by Mr. Crowe, in a grassy field at Arminghall, two miles from Norwich.

51. Radical leaves lyrate, obtuse. Flowers two or three together, on very short peduncles. Spines not longer than the calyx, toothed above the base. One leaf or two to each calyx, the length of the calyx itself. About Montpellier, and in the isle of Malta. Annual[¶].—Cultivated 1739, by Mr. Miller[§].

What we commonly call the *folstitialis* is this sort.

52. Radical leaves lyrate, obtuse, toothletted, scabrous, stem-leaves lanceolate, decurrent. Calyxes large ovate; the scales having a large brown spine. Native of Sicily. Perennial[¶].

53. Scales of the calyx ciliate, with a spine at the end; but the inner scales scarious, spineless. Native of Italy, Spain, and Montpellier.

54. Stem scabrous, angular. Bottom leaves twice, upper once pinnate, with linear pinnae. Calyxes rounded at the base, yellowish green; cilia ferruginous. Florets yellow. Seeds villose. Down composed of unequal bristles, twice as long as the seed. *Scopoli* mentions several varieties.

^{*} Linn. spec.
[†] Linn.

[‡] Ibid.
[§] Hort. kew.
[¶] Hort. kew.

[‡] Hort. kew.
[¶] Linn.

[¶] Linn. mant.

[¶] Linn.

[¶] Linn. spec.

[¶] Pollich.

[¶] Hort. kew.

[¶] Hort. kew.

[¶] Linn. amoen.

[¶] Smith.

[¶] Linn. spec.

D'Affo observes, that the divisions of the leaves end in a harmless spine; and that the neuter florets in the ray are quadrifid. Native of Montpellier, Spain, Carniola, Italy, Messina. Perennial.

55. This is allied to the foregoing species in having the scales of the calyx brown ciliate, terminated by a weak, simple spine, shorter than the scale itself; but the inmost scales are scariose. The stem is little branched, and scarcely angular. Almost all the leaves are bipinnate, linear, and except about the edge even; but by no means lanceolate, with the pinnae branched like a stag's horn. Native of Italy. Perennial^p.

56. Root annual. Stem erect, eighteen inches high and upwards, angular, having axillary branches, usually simple and one-flowered. Leaves somewhat scabrous; the lowest on the stem pinnatifid, (lyrate, Linn.) all the rest simple, narrow lanceolate, quite entire. Flowers solitary, terminating. Calyxes round-ovate, tomentose; spines long, stout, subulate, spreading, straw-coloured, emitting erectish nearly opposite spinules about the middle, and sometimes one or two similar ones. Corolla yellow. Seeds oblong, shining, cinereous.—Native of Palestine^q. Introduced 1780, by Mr. William Hudson^r.

57. Stem panicled, with the branches rather simple. Flowers terminal. Radical leaves lanceolate, serrate, rough with hairs, the serratures mucronate; stem-leaves runcinate, hispid-scabrous, the serratures subspiny. Calyxes very smooth, ovate. Spines of the calyx so small as to be scarcely apparent. Corollas white or purple: the males four-parted, not larger than the others.—Native of the South of Europe. Perennial^s. Cultivated 1596, by Gerarde^t.

58. Radical leaves a short span in length, three or four inches over in the widest part, entire, with only a few irregular toothlets or small spines. Stem-leaves smaller, narrower, with toothlets or short spinules round the edge, acuminate. Stem clothed to the top with leaves, and terminated by a small head, the scales of which finish in oblong, recurved spinules^u. Native of Italy, in monte Argentario.

59. Stems tender, dividing into many branches, with very small leaves on them. Lower leaves divided into five or seven lobes. Spines of the calyx small. Florets purple. Native of Spain. Annual^x.]

60. The lower leaves spread flat on the ground, they are soft, hairy, and end in sharp points, but towards the base are cut into several narrow segments. The stems rise near three feet high, with entire leaves at each joint; they are terminated by single large heads of flowers, of a gold colour, inclosed in a prickly calyx; appearing in July and August, but never producing seeds in this country. It grows naturally in Austria and Hungary, from both which countries Mr. Miller received the seeds before 1759.

[61. Calyx narrow with the inner scales longer^y. Native of Siberia.

62. The first leaves obovate, quite entire; the rest ovate-lanceolate, toothed at the base. Stem almost naked^z: erect, striated, smooth. Leaves smooth; the bottom ones petioled, the petioles and bases of the leaves vilose at the side. Scales of the calyx lanceolate, naked, blackish at the end; the upper ones pellucid, yellowish. Corollas purplish^a. According to D'Affo, the lower leaves are ovate, toothed: the upper linear: and one or two small leaves on the stem. Native of Provence, Spain, Italy. Perennial.

63. Stem with striated, scabrous branches. Leaves lyrate-pinnate or undivided. Peduncles long, one-flowered. Scales of the calyx ovate, gibbous, with white membranaceous edges, and ending in a simple spine. Neutral flowers very large, five-cleft, nearly

equal, purplish: fertile flowers whitish, with purplish tips; the length of the ray.—Native of Syria: Annual^b.—Introduced 1777, by John Earl of Bute^c.

64. It resembles *C. acaulis* (n. 26.) but the scales of the calyx are not ciliated. There are generally three flowers growing close to the root; the calyxes ovate-oblong, smooth; the scales membranous at the edge, entire; ending in a short, subulate, yellowish spine. Corolla oblong: the neuter floscules hardly longer than the others. Found in Egypt, by Hasselquist^d.

65. Having a barren ray it is distinct from *Carthamus tingitanus* and *ceruleus*. Native of Tangier. Perennial^e.

66. Calyx scarcely villose. Receptacle hairy. Down feathery. Seeds smooth. Ray but little exceeding the disk. Neuter corollules almost equal, border five-parted, linear. It has the appearance of a Thistle; but the neuter florets determine it to be a *Centaurea*.—Observed by Ray in Sicily, Malta, Italy, and about Montpellier^f.

Cultivated 1739, by Mr. Miller^g.

67. It differs from *C. montana* (n. 14.) not only in having the leaves constantly lacinate, but the ciliae of the scales white. However it may be nothing more than a remarkable variety: Mont Cenis, &c. Perennial^h.

68. Smooth, branching. Stem angular. All the leaves pinnate, with two or three pairs of pinnae, and an odd one longer and larger than the rest. One simple leaf beneath the calyx. Each branch is terminated by an oval head: scales yellowish-green, striated, ovate, smooth, not ending in a brown scale, but having ciliae like spines about the edge above the middle. Florets reddish. It differs from *C. Scabiosa* (n. 23.) in its habit, and other marksⁱ. See Villars dauph. 3. 47. n. 5.

69. Root perennial. This species has much affinity to *C. babylonica*, but yet differs considerably from it. Stems four feet high, smooth, a little angular, and branched at top. Root-leaves lyrate, much smaller than in the *babylonica*, nerved, and with little down on them. Stem-leaves narrow and entire. The flowers are of a fine yellow, and grow in a sort of panicle at top; the calyx smooth, green. Native of Tartary as supposed. Cultivated many years in the Paris garden^k, and introduced 1781, into the royal garden at Kew^l.

70. Stem two feet high, upright, hard, striated, branched. Leaves large, almost smooth, or with short hairs, rough to the touch, and cut almost to the midrib, into oblong pinnules, some entire, others having a few teeth or deep cuts. Flowers terminating, purple, flesh-coloured, or white. This sort is perennial, and native of the South of Europe, on the borders of fields and in dry pastures^m. It was introduced here in 1778ⁿ.

71. Introduced 1781. This also is a native of the South of Europe: these with the 69th were introduced by Monf. Thouin^o.

72. It agrees in some characters with *C. orientalis* (n. 27.); but differs in having the radical leaves entire, the calyxes twice as large, the scales not at all tomentose at the base, and their laminae lacinated all round. The down also is very apparent, whereas in *C. orientalis* there is hardly any. The calyx closes during the night. The flowers are pale yellow. The plant has no smell. The taste is bitterish. Perennial^p.

73. This seems to be a mule between *C. foliolialis* (n. 50.) and *paniculata* (n. 16.). It has the habit of the latter, and the same height; the leaves are pinnated like that, but the branch-leaves are linear-lanceolate, undivided and decurrent. A flower terminates each branch, somewhat larger than in *C. paniculata*. The florets are of a beautiful yellow,

^p Linn. spec.

^q Linn. mant.

^r Morison.

^s Jacquin.

^t Hort. kew.

^u Linn. syst.

^v Ger. prov.

^w Hort. kew.

^x Ray.

^y Linn. spec.

^b Linn. spec.

^c Linn. spec.

^d Allioni.

^e Hort. kew.

^f Hort. kew.

^g Linn. cliff.

^h Scopoli.

ⁱ Lamarck.

^j Ibid.

^k Linn. amoen.

^l Hort. kew.

^m Lamarck.

ⁿ Hort. kew.

^o Scop. infubr.

but have sometimes purple ones mixed with them. The scales of the calyx are surrounded with weak yellow spinules or cilia, but end in a long, stout, yellow spine. This species perfects its seeds. On the hills about Turin. Biennial^a.

74. Stems striate-angular, eighteen inches high, alternately branched. Radical leaves ovate, a little toothed, roughish; stem-leaves ovate tongue-form, sinuated. Flower terminal, yellow: fertile florets with five lanceolate segments; barren or ray florets with five linear ones. Spines of the calyx yellow, the end one much the strongest. Seed crowned with bristles. The whole plant dark green, and roughish. About Nice. Biennial^a.

75. Roots perennial, woody, dry, perpendicular, black on the outside. Stems dividing from the very bottom into numerous, procumbent branches; they are thickish, round, pubescent, streaked longitudinally, from a foot to two feet in length. Leaves all sinuate-toothed, with the end-lobe broader and toothletted, slightly pubescent, all the teeth mucronate but not pungent. Flowers solitary, terminating. Calyx ovate, ferruginous. Corollas both of disk and ray uniformly purple. At the base of the common calyx is a sort of involucre of four or six unequal, concave, inflex leaves, irregularly toothed, lanceolate-ovate at the tip. The flowers have a strong, disagreeable smell. It resembles the *C. sonchifolia*, but on comparison they are very different.

Native of Italy, on the sea shore near Naples, forming very thick tufts in the sand^a.

76. Height eighteen inches. Stem round. Leaves linear-elliptic, hoary beneath, with small teeth ending in a little spine. The lower leaves are opposite, the others alternate. Axillary flowers on a peduncle shorter than the leaf. Flower blue. Head oblong: scales of the calyx imbricate, subulate-spiny. Neuter florets in the ray. Annual.—Found in the vineyards of Unelia by Dana^a.

77. Native of the South of Europe. Cultivated 1758, by Mr. Miller^a.

There are more species of this extensive genus in Vahl and other authors.]

PROPAGATION AND CULTURE.

The numerous species of this genus may be increased without great difficulty, those which are annual by seeds, and such as are perennial both that way and by parting the roots.—The seeds of the greater part may be sown either in spring or autumn in a bed of light earth, either to remain where they are, and in that case only to be thinned and kept clean from weeds; or to be pricked out, when of a proper size, into a bed of fresh earth about six inches asunder, there to remain till autumn, when they should be planted where they are to continue. Most of the species are hardy, and none of them are very tender. Some however require a little protection in this climate.

2. The seeds of *Sweet Sultan* are commonly sown upon a hot-bed in the spring, to bring the plants forward, and in may they are transplanted into the borders of the flower-garden; but if the seeds are sown in a warm border in autumn, they will live through the winter; and these plants may be removed in the spring into the flower-garden; will be stronger, and come earlier to flower than those which are raised in the spring. The seeds may also be sown in the spring on a common warm border, where the plants will rise very well, but these will be later in flowering than either of the other. The autumnal plants will begin to flower the middle of June, and will continue flowering till September; and the spring plants will flower a month later, and continue till the frost stops them. Their seeds ripen in autumn.

β. The *yellow Sweet Sultan* is much tenderer than the former, and the seeds must be sown upon

a hot-bed in the spring; when the plants are fit to remove, they should be transplanted on a fresh hot-bed to bring them forward: when they have taken root in this bed, they must have air admitted to them every day, to prevent their drawing up weak, and be refreshed with water sparingly, because they are very apt to rot with much wet. When the plants have obtained strength, they must be carefully taken up, and planted in separate pots filled with light earth, and some of them placed in the shade till they have taken root; then they may be placed with other annual plants in the pleasure-garden, where they will continue long in beauty. But as these plants which are placed in the open air rarely produce good seeds, there should be two or three plants kept in a moderate hot-bed under a deep frame, where they will come earlier to flower; and being protected from wet and cold, they will ripen their seeds every year, which is the surest method to preserve the sort.

6. *Great Centaury* may be propagated by parting the roots. As it requires much room, it is not proper for small gardens; but in large open borders, or on the verges of plantations, with other tall-growing plants, it makes a good figure.

14. *Perennial Blue-bottle* is now become a common plant in large gardens, from the facility with which it is increased. The roots indeed creep so much, that it is apt to become troublesome. It will grow in any soil and situation.

15. There are great varieties of colours in the flowers of the common *annual Blue-bottle*, and some of them are finely variegated. The seeds are sold under the name of Bottles of all colours. They will rise in any common border, and require no other care but to be kept clean from weeds, and thinned where they are too close; for they do not thrive well when they are transplanted. If the seeds be sown in autumn, they will succeed better, and the plants will flower stronger than those which are sown in the spring.

18, 19, 20. May be propagated by slips, or by planting the young branches, which do not shoot up to flower, in a shady border, any time during the summer. In the autumn they may be removed into warm borders, or put into pots to be sheltered in winter.—The 18th will resist the cold of our ordinary winters in the open air, if it be planted in dry lime rubbish.—The 19th may also be propagated by seeds, and will live abroad in moderate winters, if it have a warm situation and dry soil: but since both this and the 20th are frequently destroyed by frost, it will be proper to keep a plant or two under a common frame, to preserve the species.

22. Is propagated by seeds, sown in April in a bed of light earth. In a dry soil, and sheltered situation, it will live in the open air in mild winters; but is frequently destroyed by severe frost.

27. May be propagated by seeds, or parting the roots. As the plants require a large share of room, they should not be placed too near other plants, nor are they proper furniture for small gardens.

34, 37. Not perfecting their seeds in England, good seeds must be procured from their native countries. They are hardy; and being perennial, may be increased, when once obtained, by the root.

36. May be increased and treated like the 6th sort. It is equally hardy, and not spreading so much, may be allowed a place in smaller gardens.

43. This sort may be increased and treated in the same manner as the common *annual Blue-bottle* (n. 15.). Seeds sown in the spring do not always perfect seeds.

45. The surest method of cultivating the *Carduus Benedictus* is to sow the seeds in autumn; and when the plants come up, to hoe the ground, to cut up the weeds, and thin the plants; and in the following spring to hoe it a second time, leaving the plants a foot asunder; they will ripen their seeds in autumn, and soon after decay.

^a Allioni.

^a Ibid.

^a Cyrill.

^a Allioni.

^a Hort. kew.

60. May be easily propagated by off-sets from the roots of the old plants, taken off in autumn. It is very hardy, but should have a dry soil.

[72. May be raised from seeds sown in the spring on a gentle hot-bed: in autumn the plants must be removed under shelter of a glass case. It may be propagated by parting the roots.

CENTAUREA. See *Cnicus*, and *Stabelina*,

CENTAURIUM. See *Ageratum*, *Centaurea*, *Chironia*, *Cnicus*, *Eranthemum*, *Serratula*.

Centaureum luteum. See *Chlora*, *Thesium*.]

Centaureum minus. See *Achyranthes*, *Chironia*, *Gentiana*, *Eranthemum*, *Exacum*, *Sarothra*.

[CENTAURY. See *Chlora*, *Gentiana*.

CENTEELLA. See *Hydrocotyle*.

CENTUNCULUS. (The name of a plant in Pliny.)

Lin. gen. n. 145. Reich. 151. Schreb. 189.
Gertn. t. 50. Juss. 95. Dill. gen. 5. *Anagallidastrum*. Mich. 10.

Class. 4. 1. Tetrandria Monogynia.

Nat. order of *Rotaceæ*. *Lyfimachieæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* four-cleft, spreading, permanent; divisions acute, lanceolate, longer than the corolla.

COR. Monopetalous, rotated. Tube subglobular; border four-cleft, flat; divisions subovate.

STAM. Filaments four, almost the length of the corolla. Anthers simple.

PIST. Germ roundish, within the tube of the corolla. Style filiform, length of the corolla, permanent. Stigma simple.

PER. Capsule globular, unilocular, opening horizontally.

SEEDS very many, very small.

ESSENTIAL CHARACTER.

Cal. four-cleft. Cor. four-cleft, spreading. Stam. short. Caps. one-celled, opening horizontally.

SPECIES.

1. *Centunculus minimus*. Bastard Pimpernel.

Lin. spec. 169. Reich. 326. fl. suec. n. 136.
Huds. angl. 63. With. 141. Lightf. 119.
Curt. lond. 3. 11. Berg. phyt. 2. 133. Dill.
gifs. 161. & app. 111. t. 5. Raii syn. 1. Hall.
helv. n. 627. Pölich pal. n. 163. Fl. dan.
t. 177. Villars, dauph. 2. 313. Gertn. fruct.
1. 228.

Anagallis. Vaill. par. 12. n. 3. t. 4. f. 2.

Anagallidastrum. Mich. gen. 14. t. 18. 2.

Alfina palustris minima, fl. alb. fructu coriandri exiguo. Mentz. pug. t. 7. f. 5.

DESCRIPTIONS, &c.

Root annual. Stem from half an inch to an inch in height or more, simple or branched at bottom, rather upright, round and smooth. Leaves alternate, sessile, ovate, pointed, entire, smooth, somewhat fleshy, spreading; sometimes opposite towards the bottom, pellucid at the edge, brownish underneath. Flowers very minute, solitary, axillary, sessile. Calyx divided sometimes into four, but generally into five narrow segments to the base. The whole corolla is only one line in diameter, and hyaline or of a clear water or glass colour: the segments equal and much pointed, very thin and transparent. The yellow anthers close the mouth of the tube; and the border does not expand, unless the sun shines strongly on it. The globular capsules are like small Coriander seeds, and sessile in the axils; they open into two hemispheres, and contain seven or eight seeds attached to a receptacle. These capsules contribute most to discovering this minute plant*.

Italy, France, Germany, Britain, Denmark, Scania; in sandy and gravelly places, that are a little moist.—With us on Hounslow heath, Ashford common, near Hampton-court, Chislehurst, &c.—From June to August.

CENTUNCULUS. See *Cerastium*.

CEPA. See *Allium* and *Pancratium*.

CEPCEA. See *Sedum*.

CEPHEALIS. See *Collocoeca*.

* Withering, Curtis, Vaillant.

CEPHALANTHUS. (Κεφαλος and ανθος, Head-flower) Button-wood, Button-tree, Pond-Dogwood. Fr. Bois à boutons.

Lin. gen. n. 113. Reich. 119. Schreb. 147.

Gertn. t. 86. Juss. 209. *Platanoccephalus* Vaill.

A. G. 1722.

Class. 4. 1. Tetrandria Monogynia.

Nat. order of *Aggregateæ*. *Rubiaceæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* common none, but the receptacle collecting many floscules into a globose head.

Perianth proper one-leafed, funnel-form, angular, border quadrifid.

COR. Universal equal. Proper monopetalous, funnel-form, acute, quadrifid.

STAM. Filaments four, inserted into the corolla; shorter than the border. Anthers globose.

PIST. Germ inferior. Style longer than the corolla. Stigma globose.

PER. none. (Capsule quadripartite. G.)

SEEDS solitary, long, attenuated at the base, pyramidal and lanuginous.

REC. Common globular, villose.

ESSENTIAL CHARACTER.

Calyx common none. Proper superior, funnel-form.

Receptacle globular, naked. Seed one, lanuginous.

SPECIES.

1. *Cephalanthus occidentalis*. American Button-wood.

Lin. spec. 138. Reich. 274. hort. cliff. 73.

Gron. virg. 15. 17. Duham. arb. 1. t. 54.

Gertn. fruct. 2. 41. Lour. cochinch. 67.

Scabiosa. Pluk. alm. 336. t. 77. f. 4.

Leaves in pairs or in threes.

[2. *Cephalanthus angustifolius*.

Lour. cochinch. 67.

Leaves lanceolate-linear opposite.

3. *Cephalanthus procumbens*.

Lour. cochinch. 67.

Stem procumbent, leaves ovate-lanceolate alternate.

4. *Cephalanthus montanus*.

Lour. cochinch. 67.

Leaves ovate crenate alternate.

5. *Cephalanthus stellatus*.

Lour. cochinch. 68.

Leaves stellate, lanceolate-linear.]

DESCRIPTIONS, &c.

1. This shrub seldom rises higher than six or seven feet in this country. The branches come out by pairs, opposite at each joint. The leaves are either in pairs opposite, or there are three at the same joint, standing round the branch; these are near three inches long, and one and a quarter broad, having a strong vein running longitudinally through the middle, and some small transverse veins from that to the borders; they are of a light green, and their foot-stalks change to a reddish colour next the branches; the ends of the branches are terminated by loose spikes of spherical heads, about the size of a marble, each of which is composed of many small flowers, of a whitish yellow colour, fastened to an axis in the middle; these appear in July, and, in warm seasons, are succeeded by seeds, which have sometimes ripened in England.

[Gærtner describes the fruit as an inferior capsule, crowned with the permanent calyx, inversely pyramidal, smooth, coriaceous, reddish-straw or brick colour, four-celled, and divisible into four parts, two of the cells commonly abortive, but all valveless and never opening spontaneously. Seeds four or two, one in each cell, oblong, flattish or angular on one side, convex on the other, thicker at top and terminated by a callous epiphysis, acuminate at bottom, and of a ferruginous red colour. Linneus says that the seeds are lanuginose; and Miller affirms that the capsules are globular and villose; whereas those which he sent to Gærtner himself were quite smooth and agreed with the figure described above.

Introduced 1735, by Peter Collinson, esq^r.

* Hort. kew.

2. This is a middle-sized tree, with ascending branches. Leaves quite entire. Flowers pale, in small terminating heads; with an oblong villose common receptacle collecting the florets into a ball: segments of the calyx subulate, hairy, set with shining coloured peduncled glands. The fruit a small compound berry; the *acini* or component parts roundish, crowned, flaccid, two-celled, one-seeded, inferior.

3. This is a thick shrub, with many long funicular branches. Leaves large, quite entire, tomentose, petioled. Flowers violet-coloured, dioecous, in long interrupted terminating racemes. The females on a naked globular receptacle, without any perianth either proper or common. Corollas five-cleft, inferior, very many, on long peduncles, forming a ball or head. Style capillary, equal to the corolla, with a simple stigma. Seed one ovate compressed naked.

4. This is a large tree, with a hempen bark, and spreading branches. Leaves acuminate crenate petioled, rough above and tomentose beneath. Flowers dioecous, green, on solitary axillary peduncles, forming roundish heads, on a naked globular receptacle. The females have no corolla: proper perianth almost closed, four-cleft, superior. Seed one compressed, crowned with a subpappose wing, perhaps from the lacinated tube of the calyx.

5. This is a middle-sized tree with ascending branches. Leaves by threes, quite entire, smooth. Florets white, terminating, collected into a ball; with a small ovate receptacle, and no common perianth: the proper one is inferior, with four subulate segments. Corolla superior, with a four-cleft reflex border, four subsessile anthers, a long style, and one naked seed^b.

Father Loureiro examined the living plants of all the species in their native soil; the first and fourth in China, the others in Cochinchina; and found them to differ very much, both from each other and Linneus's generic character.]

PROPAGATION AND CULTURE.

1. The first sort is propagated chiefly by seeds (though some have been raised from cuttings and layers;) these should be sown in pots, for the greater conveniency of removing them either into a shady situation, or where they may have shelter. If the seeds can be procured so early as to sow them before christmas, the plants will come up the following summer; but if they are sown in the spring, they generally remain a year in the ground; therefore in such case, the pots should be placed in the shade that summer, and in the autumn following removed under a common frame to shelter them from frost, and the spring following the plants will come up.

The first year, it will be necessary to shade the plants in hot dry weather, while they are young, at which time they are often destroyed by being too much exposed; nor should the watering be neglected; for these plants naturally grow on moist ground.

The next autumn, when the leaves begin to drop, the young plants may be transplanted into nursery-beds, which should be a little defended from the cold winds; and, if the soil be moist, they will succeed much better than in dry ground.

In these nursery-beds the plants may remain a year or two, according to the progress they may have made, or the distance at which they were planted; then they may be taken up in october, and transplanted where they are to remain. It may also be performed in the spring, especially if the ground be moist into which they are removed, or that the plants be duly watered, if the spring should prove dry, otherwise there will be more hazard of their growing when removed at this season.

These plants make a pretty variety among other hardy trees and shrubs, being extreme hardy in re-

^b Loureiro.

spect to cold; but they delight in a moist light soil, where they will grow very fast, and their leaves will be larger than in dry land.

[The other sorts are not at present known in Europe.

CEPHALANTHUS. See *Nauclea*.

CEPHALOTUS. See *Thymus*.

CERANTHUS. See *Chionanthus*.]

CERASTIUM. (From *Κερατιον*, a little horn: the capsules being generally long, and somewhat in that shape.)

Engl. *Mouse-ear*, or *Mouse-ear Chickweed*.

Fr. *Oreille de Souris*.

Lin. gen. n. 585. Reich. 637. Schreb. 797.

Gertn. t. 130. Juss. 301. Myosotis. Tourn. 126.

Class. 10. 5. Decandria Pentagynia.

Nat. order of *Caryophyllei*.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved; *leaflets* ovate-lanceolate, acute, spreading, permanent.

COR. *Petals* five, bifid, obtuse, erect-expanding, length of the calyx.

STAM. *Filaments* ten, filiform, shorter than the corolla, the alternate ones shorter. *Anthers* roundish.

PIST. *Germ* ovate. *Styles* five, capillary, erect, length of the stamens. *Stigmas* obtuse.

PER. *Capsule* ovate-cylindric, or globular, obtuse, unilocular, gaping with a five-toothed tip.

SEEDS. Very many, roundish.

OBS. *Species* 4. 5. are furnished with only five stamens.

The primary division of the species is to be taken from the oblong or globular form of the capsule.

ESSENTIAL CHARACTER.

Cal. five-leaved. *Petals* bifid. *Caps.* unilocular, gaping at the tip.

SPECIES.

* *With oblong capsules.*

1. *Cerastium perfoliatum*. *Perfoliate Mouse-ear*.

Lin. spec. 627. Reich. 2. 398. hort. cliff. 173. 1.

Gmel. fib. 4. 148. n. 49. t. 62. f. 1. (Alfine).

Myosotis orientalis perfoliata, lychnidis folio. Tourn. cor. 18. Dill. elth. 295. t. 217. f. 284.

Leaves connate.

[2. *Cerastium vulgatum*. *Common or narrow-leaved Mouse-ear*.

Lin. spec. 627. Reich. 2. 398. fl. suec. n. 415.

Huds. angl. 200. With. 476. Curt. lond. 2. 34.

Lightf. scot. 240. Neck. gallob. 204. Pollich

pal. n. 441. Berg. phyt. 117. Villars dauph. 3. 642.

Myosotis. Hall. belv. n. 893. Vaill. par. 142. t. 30. f. 3.

Leaves ovate; petals equal to the calyx; stems diffused.

3. *Cerastium viscosum*. *Clammy, or broad-leaved Mouse-ear*.

Lin. spec. 627. Reich. 2. 399. hort. cliff. 174. 4.

fl. suec. n. 414. lapp. n. 193. Huds. angl. 200.

With. 477. Curt. lond. 2. 35. Lightf. 240.

Neck. gallob. 205. Pollich pal. n. 442. Villars dauph. 3. 642.

Myosotis. Hall. belv. n. 895. Vaill. par. t. 30. f. 1.

Alfine viscosa. Park. 764. Raii hist. 1029.

Erect villose-viscous.

4. *Cerastium semidecandrum*. *Least Mouse-ear*.

Lin. spec. 627. Reich. 2. 399. hort. cliff. 173. 2.

fl. suec. n. 416. Huds. angl. 200. With. 477.

Curt. lond. 2. 33. Lightf. 241. Neck. gallob. 205.

Pollich pal. n. 443. Raii syn. 348. t. 15. f. 1. Villars dauph. 3. 642.

Myosotis. Hall. belv. n. 894. Vaill. par. t. 30. f. 2.

Centunculus. Scop. carn. n. 549.

Flowers five-stamened, petals emarginate.]

5. *Cerastium pentandrum*. *Five-stamened Mouse-ear*.

Lin. spec. 627. Reich. 2. 400. Loeffl. it. 142.

edit. angl. 2. 140.

Flowers five-stamened, petals entire.

[6. *Cerastium arvense*. *Corn Mouse-ear*.

Lin. spec. 628. Reich. 2. 400. fl. suec. n. 417.

Huds. angl. 201. With. 478. Curt. lond. 62.

Lightf. 241. Sowerby engl. bot. t. 93. Relb.

cant. n. 341. Neck. gallob. 204. Pollich pal.

n. 444.

- n. 444. *Fl. dan.* t. 626. *Berg. phyt.* 159.
Villars dauph. 3. 643.
Myosotis. *Hall. belv.* n. 889. *Vaill. par.* t. 30. f. 4.
Centunculus arvensis. *Scop. carn.* n. 548.
Caryophyllus holosteus. *Ger.* 477. 11. *emac.* 595.
 15, 16. *Park.* 1339. 7. *Raii hist.* 1027.
Leaves linear-lanceolate obtuse smooth, corollas larger than the calyx.]
7. *Cerastium dichotomum.* *Forked Mouse-ear.*
Lin. spec. 628. *Reich.* 2. 400. *Murr. prodr.* 155.
Alfine corniculata. *Clus. hist.* 2. 184.
Leaves lanceolate; stem dichotomous very much branched; capsules erect.
8. *Cerastium alpinum.* *Alpine Mouse-ear.*
Lin. spec. 628. *Reich.* 2. 400. *fl. suec.* n. 418.
lapp. n. 192. *Huds. angl.* 201. *With.* 478.
Fl. dan. t. 6. *Villars dauph.* 3. 647.
Myosotis. *Hall. belv.* n. 888.
Centunculus alpinus. *Scop. carn.* n. 550.
Alfine. *Raii syn.* 349. 5. t. 15. f. 2.
Leaves ovate-lanceolate; stem divided; capsules oblong.]
 ** *With roundish capsules.*
9. *Cerastium repens.* *Creeping Mouse-ear, or Sea-Pink.*
Lin. spec. 628. *synt.* 436. *Reich.* 2. 401.
Stellaria repens. *Scop. carn.* n. 547.
Myosotis. *Vaill. par.* t. 30. f. 5?
Ocymoides. *Col. phytob.* 115. t. 31. *Raii hist.* 1031. 23.
Leaves lanceolate; peduncles branching; capsules roundish.
10. *Cerastium strictum.*
Lin. spec. 629. *Reich.* 2. 401. *Allion. pedem.* n. 1729? *Villars dauph.* 3. 643.
Myosotis. *Hall. belv.* n. 892. t. 14. f. 1.
Caryophyllus. *Baub. prodr.* 104. n. 7.
Centunculus angustifolius. *Scop. carn.* n. 551. t. 19?
Leaves linear acuminate smooth; peduncles one-flowered subtomtose; capsules globular.
11. *Cerastium suffruticosum.*
Lin. spec. 629. *Reich.* 2. 401.
Myosotis tenuissimo fol. rigido. *Tourn. inst.* 205.
Stem perennial procumbent; leaves linear-lanceolate subhirsute.
12. *Cerastium maximum.*
Lin. spec. 629. *Reich.* 2. 402. *Gmel. fib.* 4. 150. n. 51. t. 62. f. 2.
Leaves lanceolate scabrous; petals crenated; capsules globular.
13. *Cerastium aquaticum.* *Water Mouse-ear.*
Lin. spec. 629. *Reich.* 2. 402. *fl. suec.* n. 413.
Huds. angl. 202. *With.* 480. *Curt. lond.* 1. 34. *abr.* t. 22. *Lightf.* 242. *Relb. n.* 342. *Pollich pal.* n. 445. *Leers herb. n.* 347. *Berg. phyt.* 157.
Stellaria aquatica. *Scop. carn.* n. 546.
Alfine. *Baub. pin.* 250. 10. *Camer. epit.* 851.
Mentz. pug. t. 2. *Dod.* 29. 1. *Ger.* 488. 1. *emac.* 611. 1. & 613. 10? *Raii hist.* 1030. 19. *Hall. belv.* n. 885.
Leaves cordate sessile; flowers solitary; fruits pendulous.
14. *Cerastium latifolium.* *Broad-leaved Mouse-ear.*
Lin. spec. 629. *synt.* 436. *Reich.* 2. 402. *Huds. angl.* 202. *With.* 478. *Lightf.* 242. *Villars dauph.* 3. 646.
Myosotis. *Hall. belv.* n. 887.
Caryophyllus. *Baub. pin.* 104. n. 5.
Herba facie auriculæ muris. *Mart. spitzb. t. G.* f. d.
Leaves ovate subtomtose; branches one-flowered; capsules globular.]
15. *Cerastium tomentosum.* *Woolly Mouse-ear.*
Lin. spec. 629. *Reich.* 2. 402. *With.* 481. *Berg. phyt.* 69.
Myosotis. *Hall. belv.* n. 891.
Caryophyllus. *Baub. prodr.* 104. n. 9, 10. *Raii hist.* 1028. 7, 13.
Leaves oblong tomentose; peduncles branching; capsules globular.
16. *Cerastium manticum.*
Lin. spec. 629. *synt.* 436. *Reich.* 2. 403. *amæn.* 4. 315.

Alfine. *Hall. belv.* n. 883. *Segu. veron.* 3. 178. t. 4. f. 2.
Smooth; stem striated; leaves lanceolate; peduncles very long; capsules globular.

17. *Cerastium refractum.*
Allion. pedem. n. 1728.
C. trigynum. *Villars dauph.* 3. 645.
Myosotis. *Hall. belv.* n. 890.
Leaves lanceolate smooth; petioles broken.
18. *Cerastium dioicum.* *Spanish Mouse-ear.*
Ait. hort. kew. 2. 121.
Hirt, viscid; leaves lanceolate; flowers dioecous, petals three times larger than the calyx.

DESCRIPTIONS, &c.

None of the *Mouse-ear Chickweeds* make much appearance, and therefore they are only cultivated in botanic gardens. Some of them are common weeds in most parts of Europe: the smoother sorts however are not disagreeable to cattle,] and the seeds are useful to the small birds.

1. The first sort was discovered by Tournefort in the Levant, from whence he sent the seeds to the royal garden at Paris: this is an annual plant, which rises with an upright stalk a foot high; the lower leaves have so much resemblance to those of Lobel's Catchfly, that when the plants are young, it is not easy to distinguish them. The stem-leaves are of the same shape, but smaller, placed by pairs, and embracing the stalks. The flowers come out at the top of the stalks, and also from the wings of the leaves, on the upper part of the stalks; they are white, and shaped like those of Chickweed: appear in may and june, and are succeeded by beaked capsules, containing many roundish seeds.

[Linneus observes that the pistils are shorter than in the other sorts.

Native of Greece. Cultivated in 1731, by Mr. Miller^a.

2. This species may be distinguished from the third and fourth by the following circumstances:—

1. It is perennial. 2. The hairs on the stalks, leaves and calyx are much longer and coarser, nor are they terminated by a viscous globule. 3. It is a larger, more spreading plant, and more common. Sometimes it is but thinly covered with hairs, and has been found quite smooth. It varies in height from an inch to two feet, also in the breadth of its leaves, and the size of its corolla. The stronger the plant the smaller the petals, and *vice versa*^b.

According to Linneus the capsules are smaller than in *C. viscosum*; the leaves less lanceolate and more ovate (the reverse is generally observable with us). The peduncles are not viscid. Stems more copious, more decumbent, flowering later, continuing longer. The outer leaflets of the calyx not membranous at the edge. Linneus marks it as annual, in which he is followed by Hudson and Lightfoot: others make it perennial.

It flowers during the whole summer from may, on walls, by road sides, among rubbish, and in meadows.

3. This also is annual. It is distinguished by its upright growth, its broad hoary leaves, the narrowness of its petals, and the crowded or clustered appearance of its flowers before they blow; its leaves also are in general paler. Stem branched at bottom, covered with hairs, each of which is terminated by a gland exuding a viscid juice.—In meadows, on walls, dry banks and ant-hills, varying in size from three inches to a foot; flowering in april and may^c.

4. Stamens sometimes only five, according to Haller. Linneus says there are always ten stamens. Petals shorter than the calyx, acutely cut in at top, and frequently irregularly jagged or gnawed, much broader than in the foregoing. Calyx thickly covered with hairs, having glands at their extremities; membrane terminating the leaflets remarkably long. Stems from two to six inches high, purplish,

^a Hort. kew.

^b Curtis.

^c Ibid.

covered with glandulous hairs. Annual.—Walls, heaths; flowering early and soon disappearing^d.

Linneus says, that there are five fertile stamens, and five interior ones without anthers; and that there are five nectareous points between the fertile stamens, and the petals; according to others, the number of stamens is uncertain (five or more): Gerard says, from five to ten; Haller affirms that there are five only; Scopoli and Pollich, that there are ten. Germ. ovate; styles five, according to Linneus: Gerard says, that there are three or five; and Haller confines the number to three.

5. Very small, resembling the foregoing; from which it differs in the colour being green not hoary, in having only five fertile stamens without any barren ones, five styles, the petals much shorter than the calyx, lanceolate and acute, not acutely emarginate.—Spain^e.

6. Root perennial, creeping. Stems numerous, four or five inches high, forming thick tufts, hirsute, decumbent. Leaves and calyx hairy. Branches terminated by one, two or three large flowers, axillary, solitary, on long peduncles. Corolla very large, white, like that of Stichwort (*Stellaria holostea*); petals heart-shaped striated. Anthers pale yellow. Germ. globular. Capsule cylindrical, slender, shorter than the calyx, splitting into five narrow valves, pellucid and almost membranous^f. The whole plant is often very hairy^g.—May and June to September, in corn-fields, dry pastures and heaths, banks, &c.—Near Croydon in Surry, about Newmarket, Bury, and Norwich; in Cambridgeshire frequent.]

7. Stems about six inches high, dichotomous; the flowers come out in the middle of the divisions, and are shaped like those of Chickweed. The whole plant is clammy. It grows on arable land in Spain, is annual, flowers in May, and the seeds ripen in July. [Cultivated 1731, by Mr. Miller^h.

According to Murray, it is tender, hairy, viscid. Stem decumbent, with swelling joints; the dichotomy scarcely visible in many specimens, in others plain enough. Leaves lanceolate, sessile. Calyx four times longer than the corolla.

8. Leaves sometimes pubescent, sometimes quite smoothⁱ. Root creeping. Stems many, six or eight inches high, somewhat hairy. Flowers in a terminal umbel, six or eight together; peduncles erect, somewhat hairy, as is the calyx. Corolla striated, larger than the calyx^k.—On high mountains in many parts of Europe. Snowdon, and other parts of Wales.]

9. This sends out many weak stalks which trail upon the ground, and put out roots at their joints; the leaves are about two inches long, and little more than half an inch broad, very hoary; those next the root are much smaller than the upper ones. The flowers come out from the side of the stalks upon slender peduncles, which branch out into several smaller, each supporting a white flower. [The petals are often quadrifid or quinquefid.]

It grows naturally in France and Italy, and was formerly cultivated in the English gardens, under the name of Sea Pink, as an edging for borders; for which use it was by no means fit on account of its creeping.

[It is doubted by some whether this be really different from the *arvense*; they are certainly very much alike.]

It is supposed to increase the milk of kine and sheep very much; whence the Neapolitans call it *Erba lattaria*^l. Cultivated 1759, by Mr. Miller^m.

10. It has the appearance of *Auricula muris pulchro flore*, fol. tenuissimo. Bauh. hist. 3. 360. but the flower of *Arenaria montana*. Leaves stiff, very much acuminate. Stems smooth, procumbent. Peduncle one or two-flowered, with two short, lanceolate, broader bractes in the middle: this and the calyx are somewhat tomentoseⁿ.

Allioni has given a long description, and

doubts whether his plant be the same with Linneus and Haller's since the capsule is cylindric. Scopoli's and Haller's figures are widely different.—Mountains of Switzerland, Austria, the Vaudois; M. Cenis, &c. Perennial.

11. In the southern countries of Europe.

12. Found in Siberia, near the river Jenisea; by Gmelin. Annual.

13. Nearly allied to *Stellaria nemorum*. Accordingly Scopoli has ranged it with the *Stellarias*.—Haller makes it an *Alfine*, and Mr. Curtis observes that it has the greatest natural affinity with *A. media* or common Chickweed. They are distinguishable however (according to Dr. Stokes) by the lower stem-leaves of *A. media* having petioles, and one edge of the stem only being set with hairs; while in *C. aquaticum* the hairiness is general.

Root perennial. Stems from one to two feet high, weak, round or scarce perceptibly ancipital, smooth, jointed: the joints reddish at the base. Branches rather few, solitary, alternate, simple, often as long as the stem, hairy above. Leaves stem-clasping, waved at the edge, acute, smooth, with a sharpish keel; the uppermost somewhat hairy; the first leaves of the branches smaller, cordate, with ciliate petioles. Flowers from the bosoms of the upper leaves and the forks of the stem: the peduncles and calyxes hairy, viscid. Corollas white, twice as large as the calyx, with the petals divided almost to the bottom. Capsule ovate, obtusely pentangular, scarcely longer than the calyx, five-valved, hollow above; one-celled. Seeds roundish, reddish brown^o.

The five stamens placed between the petals are a little longer than the others, and have a gland at bottom. Anthers white, bilocular^p.—Moist places and banks of ditches and rivers; flowering in July and August.

14. The whole plant, except the petals and capsules, is covered with long, soft, shining hairs. The lower leaves ovate; the upper ovate-lanceolate. Branches terminated by one or two flowers, on separate peduncles, each furnished with two opposite lanceolate leaves or bractes. Capsules first roundish, afterwards lengthened into a horn. Stems prostrate, branching, divaricated at right angles. Flowers large. Calyxes campanulate^q.

According to Haller, the stems are scarcely ever more than three inches high. One flower, seldom two, erect, an inch in diameter, on the top of the plant; petals white, deeply bifid. Capsule roundish, as it ripens lengthening into a straight and very broad horn.—On the high mountains of the Valais, next the glaciers. On the highest rocks in Wales and Scotland; flowering in May and June. Perennial.

15. The whole plant white with a thick down. Stems in a thickly matted tuft, dichotomous, with sometimes a single flower on a long peduncle from the division; the divisions branched but spreading, each branch bearing a sort of umbel. Leaves gradually narrower downwards, the pair below the forks of the stem about three lines and a half broad and ten long. Peduncles single, of various lengths. Bractes lanceolate, with membranaceous edges, in pairs at each division of the stem. Corolla as long again as the calyx, cloven not half way down, segments blunt^r.—Native of Granada, Istria, France, Switzerland. Ripton-wood in Huntingdonshire. Flowers in May and June. Perennial.

It varies with broader and narrower leaves.

16. Root, slender, annual. Stem upright, round, half a foot high, commonly single, but sometimes branched: it has five or six joints, farther from each other as they recede from the root. Two upright peduncles, two or three inches in length come out from the top; they are dichotomous, with a simple peduncle between them. Petals twice as long as the calyx, white and roundish. Capsule ten-toothed at the edge, containing subrufous, kidney-shaped,

^d Curtis.

^e Linn.

^f Engl. bot.

^g Ray.

^h Hort. kew.

ⁱ Linn.

^k Haller.

^l Columna.

^m Hort. kew.

ⁿ Linn.

^o Linn. succ.

^p Curtis.

^q Linn. syst.

^r Woodw. Mss.

wrinkled seeds*. The petals being entire, it probably rather belongs to the genus *Spergula*.

Linneus says, that it has the stem and stature of *Stellaria graminea*, the whole smooth, and a foot high. Panicle trifid, with small lanceolate bractes. Styles three.

It is an annual plant; native of the neighbourhood of Verona (in sylvula Mantica) and the Grisons.

17. Stems many, a finger's length, smooth or somewhat hairy, two-flowered; peduncles long, one broken or jointed, with two stipules at the joint, they are evidently hairy. Corolla larger than the calyx, the petals cleft to one-third of the length, segments linear. Styles sometimes four. Capsule conic-polygon, transparent, opening by seven valves parting as far as the middle. Perennial†. Haller says, that the stems are prostrate, changing their direction at every pair of leaves, and that the capsule has six valves.—On the higher Alps, mont St. Bernard.

18. Native of Spain. Perennial. Cultivated 1766, in the botanic garden at Oxford‡.]

PROPAGATION AND CULTURE.

1. If the seeds of this, or the other annual sorts be sown in autumn, they will more certainly grow than those which are sown in the spring; or if the seeds be permitted to scatter, the plants will come up and live through the winter, and will require no other care but to keep them clean from weeds.

9. It propagates too fast by its creeping roots and trailing branches, when admitted into gardens; but it is very proper to be planted on rock-work, where it will spread and thrive without care.

[This and the other perennial sorts may easily be increased by parting the plants, which put out roots at the joints of the branches, and run so much, as to overpower most other weak vegetables: they should be introduced therefore with caution, unless where it is wished to have a bank, wall, or heap of stones entirely covered.]

CERASTIUM umbellatum. See *Holosteum*.

CERASA. See *Cordia* and *Prunus*.

CERASO AFFINIS. See *Cordia*, *Ebretia*, and *Prunus*.

CERASUS. See *Cassine*, *Malpighia*, and *Prunus*.

CERATIA. See *Cercis*, *Dentaria*, and *Erythrina*.

CERATIAE AFFINIS. See *Mimosa*.]

[CERATOCARPUS. (From *κερας* and *καρπος*, horned fruit.)

Lin. gen. n. 1035. Reich. 1125. Schreb. 1392.

Buxb. act. petrop. 1. 241. t. 9. Gmel. fib. 3. 14.

Gueldenstaedt nov. act. petrop. 16. 553. t. 17.

f. 7-12. Gært. t. 127. Juss. 86.

Class. 21. 1. Monoecia Monandria.

Nat. order of *Holoraceae*. *Atriplices* Juss.

GENERIC CHARACTER.

* Male flowers.

CAL. Perianth one-leafed, tubular, wider at top, thin, coloured, bifid: the upper segments sharp, the lower emarginate.

COR. none.

STAM. Filament single, capillary, scarce longer than the calyx, inserted into the receptacle. Anther twin, oval, upright.

Female flowers on the same plant.

CAL. Perianth one-leafed, obovate, compressed, keeled on both sides, permanent, two horned: horns straight, subulate, divaricate.

COR. none.

PIST. Germ oblong, superior. Styles two, capillary. Stigmas simple, standing out between the horns of the calyx.

PER. none: but the calyx grown larger.

SEED oblong, attenuated at bottom, compressed.

ESSENTIAL CHARACTER.

MALE. Cal. one-leafed, bifid. (two-leafed, G.) Cor. none.

FEM. Cal. one-leafed, keeled, permanent, two-horned. Styles two. Seeds single, compressed, inclosed in and covered by the calyx.

SPECIES.

1. *Ceratocarpus arenarius*.

Lin. spec. 1375. Reich. 4. 88. amœn. 1. 412. 139.

hort. upf. 281. Gært. fruct. 2. 209. Buxb.

act. petrop. 1. 244. t. 9. Gmel. fib. 3. 14.

DESCRIPTION, &c.

It is an annual, branching plant, with very narrow, sharp, grassy leaves. Three male flowers sessile in each division of the stem; females solitary, sessile in each axilla of the leaves‡.

It has no proper pericarp, but the calyx when ripe becomes a sort of oblong-triangular compressed sheath, with a ridge on each side, and two innocuous spines diverging almost horizontally at the end. Within this is a single obovate seed, compressed, and at bottom very sharp-pointed, which does not drop from its covering^b.

It is a native of the rude deserts of Tartary.

CERATOCEPHALOIDES, } See *Bidens*, *Coreopsis*, *Cotula*,
CERATOCEPHALUS. } *Spilanthus*.

CERATOIDES. See *Axyris*, *Ceratocarpus*, *Diotis*.]

CERATONIA. (Κερατωνία, Theophr, from Κερατιον, a horn or pod.)

Engl. Carob-tree. St. John's bread. Fr. Caroubier.

Lin. gen. n. 1167. Reich. 1282. Schreb. 1612.

Juss. 347. Fasano. t. 14. f. 2. Gært. t. 146.

Silique. Tourn. 344.

Class. 23. 3. Polygamia Trioecia.

Natural order of *Lomentaceae*. *Leguminosae*, Juss. &c.

GENERIC CHARACTER.

* Male.

CAL. Perianth five-parted, very large.

COR. none.

STAM. Filaments five, subulate, very long, spreading. Anthers large, twin.

* Female. Dill.

CAL. Perianth one-leafed, divided by five tubercles.

COR. none.

PIST. Germ lying concealed within a fleshy receptacle.

Style long, filiform. Stigma headed.

PER. Legume very large, obtuse, compressed, coriaceous, with a great many transverse partitions, the interstices filled with pulp.

SEED solitary, roundish, compressed, hard, glossy.

Hermaphrodite flowers on a distinct tree.

ESSENTIAL CHARACTER.

Hermaphrodite. Calyx five-parted. Cor. none.

Stamens five. Style filiform. Legume coriaceous, many-seeded.

Diocous. Male and female separate.

SPECIES.

1. *Ceratonia Siliqua*. The Carob tree.

Lin. spec. 1513. Reich. 4. 364. hort. upf. 296.

mat. med. 455. Fasano in act. neap. 1787.

p. 248. t. 18. f. 2. Gært. fruct. 2. 310. Dod.

pempt. 787. f. 1.

Silique edulis. Bauh. pin. 402. Raii hist. 1718.

Ger. 1241. emac. 1429. Park. 236. 1. Camer.

epit. 139. Blackw. t. 209.

DESCRIPTION, &c.

The Carob-tree sometimes grows to a considerable size. Leaves pinnate; leaflets roundish, entire, thick, rigid, nerved, dark green above paler beneath, three inches in breadth and somewhat more in length.

[Legume four inches or more in length, very little bent, compressed, becoming four-cornered when dry, of a dusky ferruginous colour, smooth, fleshy, many-celled, valveless; cells eight or more, each invested with a papery lamina, and containing one obovate, swelling lens-shaped, smooth seed of a ferruginous chestnut colour^c.

The hermaphrodite flowers have a one-leafed perianth, deeply five-cleft, coloured; the segments unequal and blunt. Corolla one-petalled, wheel-shaped, entire, waved about the edge, coriaceous, permanent. Filaments five, fixed to the margin of the corolla, and scarcely longer than it. Anthers large. Pistil in the middle of the corolla, pedicelled: germ linear, compressed, somewhat sickle-shaped: style none: stigma sessile, orbicular, flat,

* Allioni.

† Hort. kew.

‡ Linn. upf. & amœn.

§ Gærtner.

¶ Ibid.

marked with a groove from the middle running into the germ.

The male flowers have also a one-leaved perianth deeply six-cleft; the segments unequal, ovate, concave. Corolla waved or obscurely crenate, in other respects like that of the hermaphrodite. Filaments six, three times as long as the corolla, spreading, fixed to the angles of the notches under the margin of the corolla: anthers large, four-celled. Pistil none, but a mere rudiment^d.

Native of Syria, Palestine, Egypt, Cyprus, Candia, Sicily, Apulia, Spain, &c. Cultivated 1570^e.

Ignorance of Eastern manners and natural history, induced some persons to fancy that the locusts on which John the baptist fed, were the tender shoots of plants, and that the wild honey was the pulp in the pod of the Carob, whence it had the name of St. John's-bread: there is better reason to suppose that the shells of the Carob pod might be the husks which the prodigal son desired to partake of with the swine.]

PROPAGATION AND CULTURE.

This tree is propagated from seeds, which, when brought over fresh in the pods, will grow very well, if they are sown in the spring upon a moderate hot-bed; and when the plants are come up they should be carefully transplanted each into a separate small pot filled with light rich earth, and plunged into another moderate hot-bed, observing to water and shade them until they have taken root; after which you must let them have air, in proportion to the heat of the weather. In june you must inure them to the open air by degrees; and in july they should be removed out of the hot-bed, and placed in a warm situation, where they may remain until the beginning of october, when they should be removed into the greenhouse, placing them where they may have free air in mild weather; for they are pretty hardy, and require only to be sheltered from hard frosts. When the plants have remained in the pots, three or four years, and have gotten strength, some of them may be turned out of the pots in the spring, and planted into the full ground, in a warm situation, near a south wall, where they will endure the cold of our ordinary winters very well, but must have some shelter in very hard weather.

I have not as yet seen any of these trees produce flowers, though from some which have been planted some time against walls, it is probable there may be flowers and fruit in a few years; but it cannot be expected that the fruit will ever ripen in this country.

The leaves always continue green, and being different in shape from those of most other plants, afford an agreeable variety when intermixed with Oranges, Myrtles, &c. in the greenhouse.

[CERATONIA. See *Mimosa*.

CERATOPHYLLUM. (κέρας & φύλλον, horned leaf.)

Lin. gen. n. 1065. Reich. 1162. Schreb. 1439.

Juss. 18. Hydroceratophyllum. Vaill. A. G.

1719. t. 2. f. 2. Dichotophyllum. Dill. gen. 3. giff. 149. t. 7.

Class. 21. 8. Monoecia Polyandria.

Natural order of *Inundatæ*. *Naiades* Juss.

GENERIC CHARACTER.

* Male flowers.

CAL. Perianth many-parted; divisions subulate, equal.

COR. none.

STAM. Filaments double the number of divisions of the calyx (sixteen to twenty), hardly conspicuous. Anthers oblong, erect, longer than the calyx.

* Female flowers, on the same plant with the males.

CAL. Perianth many-parted; divisions subulate, equal.

COR. none.

PIST. Germ ovate, compressed. Style none. Stigma obtuse, oblique.

PER. none.

SEED. Nut ovate, unilocular, acuminate.

^d Fesano.

^e Hort. kew from Lobel.

ESSENTIAL CHARACTER.

MALE. Cal. many-parted. Cor. none. Stam. sixteen to twenty.

FEMALE. Cal. many-parted. Cor. none. Pist. one. Style none. Seed one, naked.

SPECIES.

1. *Ceratophyllum demersum*. Prickly-seeded Hornwort.

Lin. spec. 1409. Reich. 4. 153. hort. cliff. 446.

fl. suec. 866. Hudf. angl. 419. With. 1076.

Lightf. 580. Hall. herb. n. 1599. Fl. dan.

t. 510. Pollich pal. n. 904. Brown. jam. 345.

Villars dauph. 3. 758.

Hydroceratophyllum. Vaill. aet. par. 1719. t. 2. f. 2. right.

Equisetum. Læf. pruss. 67. t. 12.

Leaves two-fold dichotomous; fruits three-thorned.

2. *Ceratophyllum submersum*. Smooth-seeded Hornwort.

Lin. spec. 1409. Reich. 4. 153. Hudf. angl. 419.

1. β. With. 1077. β. Vaill. aet. t. 2. f. 2. left.

Leers herb. n. 735. Villars dauph. 3. 758.

Leaves three-fold dichotomous; fruits thornless.

DESCRIPTIONS, &c.

1. Root perennial, striking deep in the mud. Stem much branched. Leaves in whorls, about eight in a whorl, the lower whorls about half an inch distant, but closer upwards, and extremely crowded towards the top, setaceous, harsh, and somewhat brittle, semi-transparent, green with short purple lines, and the extreme forks toothed on the outside only, those on the lower part of the stem in the mud, short, dichotomous, much thicker than those above, and appearing as if broken or bitten. Flowers few, in the bosoms of the leaves. Seed-vessel with one long thorn at the extremity, and two shorter on the opposite sides near the base^f.

Ditches and slow streams, flowering in august and september, in Europe. Also in Japan. Common in Jamaica, called there Morafs-weed, and used to cover fish, &c. when carried to any distance.

2. Linneus allows this to be so nearly allied to the foregoing, as to be little else than a variety. Haller would scarcely separate it, and even doubts of its existence, specimens sent him from Paris under the name of *Hydroceratophyllum folio laevi octo cornubus armato* of Vaillant having the leaves twice dichotomous like the other. Hudson and Withering give it as a variety only, and if it exist at all, it is probably no more than a trifling variety. Mr. Woodward says, that he has never found any other than the one above described, and that the figure in *Flora Danica*, t. 412. referred in *syft. veg.* and *Reichard* to *C. submersum* of Linneus has leaves twice divided into two, and consequently answering to the specific character of *demersum*, not of *submersum*; though this figure be called *submersum*, Linn. by the author, yet it is referred to Haller (n. 1599.) who describes *demersum*^g.

Monf. Villars says, that it is thicker than the other, that it seems to creep wholly at the bottom of the water, and that it is whiter by means of a varnish of mud that covers it.

In the ditches on the side of the road from Chichester to the isle of Selfey.

PROPAGATION AND CULTURE.

These plants can be cultivated in gardens, no other way than by sowing the seeds or planting them in ponds, muddy streams, pots or boxes, with earth at bottom and filled with water.]

CERBERA. (From Cerberus; so named on account of its poisonous qualities.)

Lin. gen. n. 294. Reich. 319. Schreb. 415.

Jacqu. amer. 48. Juss. 149. Ahouai. Tourn.

434. Jacqu. amer. 48.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Contortæ*. *Apocineæ* Juss.

GENERIC CHARACTER.

CAL. Perianth five-leaved, acuminate, spreading; leaflets ovate-lanceolate.

COR. monopetalous, funnel-form. Tube clavated; border large, five-parted; divisions oblique, obtuse,

^f Woodw. Mss.

^g Ibid.

more gibbous on one side than the other; mouth of the tube pentagonal, five-toothed, converging in the form of a star.

STAM. *Filaments* five, tubulate in the middle of the tube. *Anthers* erect, converging.

PIST. *Germ* roundish. *Style* filiform; short. *Stigma* headed, bilobate.

PER. *Drupe* very large, roundish, fleshy; excavated on the side by a longitudinal furrow, and with two specks or points.

SEED. *Nut* two-celled, four-valved, retuse.

ESSENTIAL CHARACTER.

Contorted. *Drupe* one-seeded.

SPECIES.

1. *Cerbera Ahouai*. *Oval-leaved Cerbera*.
Lin. spec. 303. *Reich.* 590.
Thevetia. *Lin. hort. cliff.* 75.
Ahouai. *Thev. antarct.* 66. *Raii hist.* 1676.
Leaves ovate.
2. *Cerbera Manghas*.
Lin. spec. 303. *Reich.* 591. *Fl. zeyl. n.* 106.
Osbeck. *it.* 91. *Pet. gaz.* t. 16. f. 4.
Manghas. *Burm. zeyl.* 151. t. 70. f. 1. *Raii hist.* 1552.
Arbor lactaria. *Rumph. amb.* 2. 243. t. 81.
Odallam. *Rheed. mal.* 1. 71. t. 39.
Leaves lanceolate, nerves transverse.
3. *Cerbera Thevetia*. *Linear-leaved Cerbera*.
Lin. spec. 304. *Reich.* 591. *Jacqu. amer.* 48.
t. 34. *piet.* 20. t. 47. *Swartz obs.* 102.
Plumeria. *Brown. jam.* 181. 1.
Ahouai. *Plum. ic.* 18.
Nerio-affinis. *Pluk. alm.* t. 207. f. 3.
Yccotli. *Hern. mex.* 443. f. 1.
Leaves linear, very long, crowded.
- [4. *Cerbera parviflora*.
Forst. fl. austral. n. 121.
Leaves stellate obovate.
5. *Cerbera salutaris*.
Lour. cochinch. 136.
Lactaria salubris. *Rumph. amb.* 3. 255. t. 84.
Leaves and fruits oval.]

DESCRIPTIONS, &c.

1. The first sort grows naturally in the Brazils, and also in the Spanish West Indies in plenty; and there are some of the trees growing in the British islands of America; this rises with an irregular stem to the height of eight or ten feet, sending out many crooked diffused branches, which toward their tops have thick succulent leaves about three inches long, and near two broad, of a lucid green, smooth, and very full of a milky juice, as is every part of the shrub. The flowers come out in loose bunches at the end of the branches; they are of a cream colour, having long narrow tubes cut into five obtuse segments, which seem twisted, so as to stand oblique to the tube; these when they spread open have the appearance of the flowers of Oleander. It flowers in July and August, but never produces fruit in England. The wood of this tree stinks most abominably, and the kernels of the nuts are a most deadly poison. The Indians are not acquainted with any antidote to it; nor will they use the wood for fuel. They put small stones into the empty nuts, string them, and fasten them about their legs when they dance.

[Cultivated 1739, by Mr. Miller^a.

2. A milky tree. Leaves alternate, scattered at the tops of the branches, broad-lanceolate, petioled, smooth, quite entire, a foot in length. Flowers in terminal, branched, unequal racemes. Calyx coloured, deciduous. Corolla white; tube longer than the calyx, angular within; divisions ovate, shorter than the tube. Filaments very short, in the upper part of the tube: anthers ovate, quadrangular, covered with the down of the tube. Germ bifid: style rather shorter than the tube: stigma ovate, cleft. Drupe ovate, the size of a goose's egg, green with very minute white dots, compressed

on one side and with an obscure suture, inclosing two seeds resembling two large chestnuts, poisonous and vomiting^b.]

According to Mr. Miller, it rises to the height of twenty feet, sending out many branches toward the top. Leaves rounded at the ends, thick, succulent, on their upper side of a lucid green, but paler underneath.—Native of the East Indies, some parts of the Spanish West Indies, [and of the Society islands^c.

3. this is an elegant shrub or small tree, about twelve feet in height. The stem is round, unarmed, abounding in a poisonous milky juice, dividing at top into many weak branches, which are generally simple, loose, round, smooth, covered with scars from the leaves which have dropped,] and covered with a green smooth bark, which as they grow older becomes rough, and changes to a gray or ash-colour. [Leaves on very short petioles, scattered at the ends of the branchlets, acuminate, very entire, spreading, of a firm consistence, smooth on both sides, of a shining green, but paler underneath,] four or five inches long, and half an inch broad in the middle, full of a milky juice, which flows out when they are broken. [Stipules none. Peduncles terminating (axillary, *Jacq.*) shorter than the leaves, three or four crowded together, round, usually one-flowered. Flowers large, specious, nodding, yellow, smelling very sweet. Corolla contorted. Nectary in the throat of the tube, five-cornered, five-toothed, converging into a star, and ciliate between the rays. Filaments very short, below the star, fastened to the tube, prominent towards the angles of the stigma. Anthers ovate, acute. Germ five-streaked, surrounded by a yellow fleshy nectareous navel. Stigma five-cornered, bifid at the tip. Fruit a green oblate-spheroidal drupe, containing an obscurely four-cornered nut, with a single kernel in it^d.

Native of the West Indies, in woods or coppices near the coast.] Mr. Miller says, that he received it from our islands there by the name of French Physic nut; that it flowers here in July and August, but never produces fruit in England.

[It was introduced in 1735, by Mr. Robert Millar^e.

Swartz observes, that this species with *C. Ahouai*, would form a genus distinct from *C. Manghas*, if it were not for multiplying genera too much.

4. Native of the Friendly islands, and Savage island, in the South Seas^f.

5. This is a middle-sized tree, with a milky juice, and spreading branches. Leaves oblong-oval, obtuse, quite entire, shining, crowded at the ends of the branches, subpetioled. Flowers white, inodorous, in small subterminating racemes. Calyx five-cleft, segments tubulate long erect. Corolla salver-shaped, with a long curved tube, the segments of the border oblong fleshy spreading, not contorted. Germ ovate, very small: style longer than the stamens, thick, curved, always bursting the tube of the corolla: stigma turbinate, vertically compressed, truncate. Drupe oval, large, with a smooth skin, yellow on one side, red on the other, containing a fibrous-woody nut, with a single kernel in it not poisonous.

Native of CochinChina, near the coast^g.]

PROPAGATION AND CULTURE.

These plants may be propagated from their nuts, which must be procured from the countries where they grow naturally; these should be put into small pots filled with light earth, and plunged into a hot-bed of tanners bark in the spring, and treated in the same manner as other tender exotic seeds, giving them now and then a little water to promote their vegetation. When the plants are come up about two inches high, they should be transplanted each into a separate pot, filled with light sandy earth, and plunged again into a hot-bed of tanners bark, observing to shade the glasses in the heat of the day,

^b Osbeck in Linn. spec.

^c Hort. kew.

^e Forster.

^f Forster.

^g Swartz and Jacquin.

^h Loureiro.

^a Hort. kew.

until the plants have taken new root; they must also be frequently refreshed with water, but it must not be given in too large quantities. As the summer advances, these plants should have air admitted to them in proportion to the warmth of the season; and when they have filled these small pots with their roots, they should be turned out and transplanted into other pots of a larger size, but they must not be too large; for the roots of these plants should be confined, nor should the earth in which they are planted be rich, but a light sandy soil is best for them; after they are new potted they should be plunged into the hot-bed again, observing to water them now and then, as also to admit air under the glasses every day in proportion to the warmth of the season. When the plants are grown about a foot high, they should have a larger share of air, in order to harden them before the winter, but they should not be wholly exposed to the open air. In the winter these plants should be placed in a warm stove, and during that season they should have very little water given to them, especially in cold weather, lest it should rot their roots. In the following spring these plants should be shifted again into other pots, at which time you should take away as much as you conveniently can of the old earth from their roots, and afterwards cut off the decayed fibres; then put them into pots filled with the same light sandy earth, and plunge them into the bark-bed again, for these plants will not thrive well unless they are constantly kept in tan: and as they abound with milky juice, they should be sparingly watered, for they are impatient of moisture, especially during the winter season.

When by any accident the tops of these plants are injured, they frequently put out shoots from their roots, which, if carefully taken up and potted, will make good plants.

CERCIS. (*Κερκίς*, *spathula*. A name of *Theophrastus*'s.)
Engl. *Judas-tree*. Fr. *Gainier*. *Arbre de Judée*.
Lin. gen. n. 510. Reich. 553. Schreb. 696.
Juss. 351. Siliquastrum. Tourn. 414.
Class. 10. 1. Decandria Monogynia.
Nat. order of *Lomentaceæ*. *Leguminosæ* Juss. &c.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, very short, bell-shaped, gibbous below, melliferous; mouth five-toothed, erect, obtuse.

COR. pentapetalous, inserted into the calyx, resembling a papilionaceous corolla.

Wings: Petals two, bent upwards, affixed by long claws.

Standard: Petal one, roundish, clawed beneath the wings, and shorter than the wings.

Keel: Petals two, converging into a cordate figure, including the organs of generation, affixed by claws.

Nectary, a style-shaped gland, below the germ.

STAM. *Filaments* ten, distinct, subulate, bent downwards, of which four are longer than the rest, covered. *Anthers* oblong, incumbent, rising upwards.

PIST. *Germ* linear-lanceolate, pedicelled. *Style* of the length and situation of the stamens. *Stigma* obtuse, ascending.

PER. *Legume* oblong, obliquely acuminate, unilocular.
SEEDS some, roundish, connected to the superior suture.

ESSENTIAL CHARACTER.

Cal. five-toothed, gibbous below. *Cor.* papilionaceous. *Standard* short, beneath the wings. *Legume*.

SPECIES.

1. *Cercis Siliquastrum.* Common *Judas-tree*.

Lin. spec. 534. Reich. 2. 245. hort. cliff. 156. 1.
Thunb. jap. 178. Gron. orient. 131. Mill. fig. t. 253.

Arbor judæ. Dod. pempt. 786. Raii hist. 1717.
Baub. hist. 1. 433.

Leaves cordate-orbicular smooth.

2. *Cercis canadensis.* Canada *Judas-tree*. Red Bud-tree.

Lin. spec. 535. Reich. 2. 245. hort. cliff. 156. 2.
Gron. virg. 47. 64. Duham. arb. 2. 264. 3.
(*Siliquastrum*.)

Arbor judæ americana. Raii hist. 1718.—Ceratia. dendr. 100.

Leaves cordate pubescent, (ovate, acute.)

DESCRIPTIONS, &c.

1. The first sort is by the Spaniards and Portuguese called the Tree of Love: this rises with an upright trunk to the height of twenty feet, covered with a dark brown bark, dividing upwards into many irregular branches, with leaves placed irregularly on the branches, on long foot-stalks; they are of a pale green on their upper, and of a grayish colour on their under side, and fall off in autumn. The flowers come out on every side the branches, and many times from the stem of the tree in large clusters, arising from the same point, on short peduncles; they are of a very bright purple colour, and make a fine appearance, especially when the branches are covered pretty thick with them: they come out in the spring with the leaves, and are in full beauty before the leaves have attained half their size. The flower is papilionaceous, and having an agreeable poignancy, is frequently eaten in salads. When the flowers fall off, the germ becomes a long flat pod, containing one row of roundish seeds, a little compressed; but these do not often succeed the flowers in this country upon standard trees, for the birds pick off the flowers when fully open; but where they have been planted against good aspected walls, I have seen great plenty of the pods, which, in warm seasons, have ripened very well.

These trees are usually planted with other flowering trees and shrubs for ornaments to pleasure-gardens, and for their singular beauty, deserve a place as well as most other sorts; for when they are arrived to a good size, they are productive of flowers, so as that the branches are often closely covered with them; and the singular shape of their leaves makes a very pretty variety in the summer, and they are seldom damaged by insects. This tree flowers in May, when planted in the full air, but against warm walls it is a fortnight or three weeks earlier.

The wood of this tree is very beautifully veined with black and green, and taking a fine polish, may be converted to many uses.

There are two varieties of this tree, one with a white, and the other hath a flesh-coloured flower, but these have not half the beauty of the first.—Tournefort also mentions one with broader pods and pointed leaves, which I believe is only a variety of this.

[Native of the Levant, Spain, South of France, Italy near Rome, and on the Apennines, Japan, &c. Cultivated 1596, by Gerard^a.]

2. The second sort grows naturally in most parts of North America, where it is called Red Bud, I suppose from the red flower-buds appearing in the spring before the leaves come out; this grows to a middling stature in the places where it is a native, but in England rarely rises with a stem more than twelve feet high, but branches out near the root. The branches of this are weaker than those of the first sort; the leaves are downy, and terminate in points; whereas those of the first are smooth, and round at the end, where they are indented. The flowers of this are also smaller, and do not make so fine appearance as those of the first; but the trees are equally hardy, and will thrive in the open air very well.

The flowers of this sort are frequently put into salads by the inhabitants of America: and the French in Canada pickle the flowers, but these have little flavour. The wood of this tree is of the same colour and texture as that of the first.

[The young branches die wool of a very fine Nankin colour.—Cultivated 1730¹.]

^a Hort. kew.

¹ Ibid.

PROPAGATION AND CULTURE.

These plants may be propagated by sowing their seeds upon a bed of light earth, towards the latter end of march, or the beginning of april (and if you put a little hot dung under the bed, it will greatly facilitate the growth of the seeds;) when the seeds are sown, sift the earth over them about half an inch thick; and, if the season prove wet, it will be proper to cover the bed with mats, to preserve it from great rains, which will sometimes burst the seeds, and cause them to rot; the seeds will often remain till the spring following before they come up, so the ground must not be disturbed till you are convinced that the plants are all come up; for some few may rise the first year, and a greater number the second.

When the plants are come up they should be carefully cleared from weeds, and in very dry weather must be now and then refreshed with water, which will greatly promote their growth. The winter following, if the weather is very cold, it will be proper to shelter the plants, by covering them either with mats or dry straw in hard frosts, but they should constantly be opened in mild weather, otherwise they will grow mouldy and decay.

About the beginning of april, you should prepare a spot of good fresh ground, to transplant these out (for the best season to remove them is just before they begin to shoot;) then you should carefully take up the plants, being careful not to break their roots, and plant them as soon as possible, because if their roots are dried by the air, it will greatly prejudice them.

The distance these should be planted, must be proportionable to the time they are to remain before they are again transplanted; but commonly they are planted two feet row from row, and a foot asunder in the rows, which is full room enough for them to grow two or three years, by which time they should be transplanted where they are designed to remain; for if they are too old when removed, they seldom succeed so well as younger plants.

The ground between the plants should be carefully kept clean from weeds in summer, and in the spring should be well dug to loosen the earth, that their roots may extend themselves every way; at that season prune off all strong side branches (especially if you intend to train them up for standard trees,) that their top branches may not be checked by their side shoots, which often attract the greatest part of the nourishment from the roots; and if their stems are crooked, you must place a strong stake down by the side of each plant, and fasten the stem to it in several places, so as to bring it straight, which direction it will soon take as it grows larger, and thereby the plants will be rendered beautiful.

When they have remained in this nursery two or three years, they should be transplanted in the spring where they are designed to remain, which may be in wilderness quarters among other flowering trees, observing to place them with trees of the same growth, so as they may not be overhung, which is a great prejudice to most plants.

[CERCODIA. See *Haloragis*.]

CEREFOLIUM. See *Chærophyllum*, [and *Scandix*.

CERETIA. See *Hymenæa*.

CEREUS. See *Cactus*.]

CERINTHE. (From *κερίς*, wax, or *κερίον*, a honeycomb.—*Κερίνθος* is reckoned among summer flowers by *Theophrastus*.)

Engl. *Honeywort*. Fr. *Melinet*.

Lin. gen. n. 186. Reich. 198. Schreb. 246. Tourn. 56. Juss. 130.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Asperifolia*. *Borraginæ* Juss.

GENERIC CHARACTER.

CAL. Perianth five-parted; divisions oblong, equal, permanent.

COR. monopetalous, bell-form. Tube short, thick. Border tube-bellied, rather thicker than the tube; mouth five-cleft; throat naked, pervious.

STAM. Filaments five, subulate, very short. Anthers acute, erect.

PIST. Germ four-parted. Style filiform, length of the stamens. Stigma obtuse.

PER. none. Calyx unchanged.

SEEDS two, bony, glossy, subovate, outwardly gibbous, bilocular.

ESSENTIAL CHARACTER.

Border of the corolla tube-bellied. Throat pervious. Seeds two, bilocular.

SPECIES.

1. *Cerinthe major*. *Great Honeywort*.

Lin. spec. 195. Reich. 395. hort. cliff. 48. 2. Krock. fl. silf. n. 284. Sabb. hort. 1. 1. 12. Hall. herb. n. 602. Ger. 431. f. 1. emac. 538. f. 1. Park. 520.

C. glabra. Mill. dict. n. 2. fig. t. 91.

C. fl. ex rubro purpurascens. Baub. pin. 258.

β. C. major. Mill. dict. n. 1.

C. flavo fl. asperior. Baub. pin. 258. Ger. emac. 538. f. 2. Park. 521. f. 1. Mart. virg. 332. fig.

Leaves stem-clasping, corollas bluntly spreading.

2. *Cerinthe minor*. *Small Honeywort*.

Lin. spec. 196. Reich. 396. Jacqu. austr. 2. t. 124. Villars dauph. 2. 448.

C. minor. Baub. pin. 258. Raii hist. 506. Ger. 431. f. 2. emac. 538. f. 3. Park. 521. f. 2. Clus. hist. 2. 168.

β. Lin. spec. edit. 1. 137.—fol. emarginatis.

C. maculata. Allion. pedem. n. 178.

Leaves stem-clasping entire, corollas acute closed.

DESCRIPTIONS, &c.

1. [Stems eighteen inches high and more, round, smooth, branching and leafy. Leaves glaucous, becoming blue by age, smooth, without prickles, but ciliated about the edge, dotted with white. Branches leafy, nodding; with flowers among the leaves, hanging on long peduncles. The tube of the corolla is yellow, but the border is purple: the toothlets very short and revolute^a.]

β. Leaves prickly. Corolla yellow.—This is in general a smaller plant than the purple-flowering sort, and the leaves are also smaller. Annual, flowering in June and July. [Haller says it is perennial. There are several other varieties.

This is one of the most common herbs all over Italy—hence Virgil's expression of—*Cerinthæ ignobile gramin*. It is no less common in Sicily; and is found also in the South of France, Switzerland, Germany, and Siberia. Cultivated in 1596, by Gerard^b.

There is abundance of honey-juice in the tube of the flower, for which reason it is much resorted to by bees; this plant therefore is peculiarly proper to be planted near Apiaries.

2. Very nearly allied to the foregoing, but the corolla five-cleft to one-third of the length, whereas that is only five-lobed at the edge. Scopoli makes but one species of them, (*carn. n. 198*.) under the title of *C. giabra*.

Root-leaves narrowed into a petiole and obovate: all the leaves obtuse, entire, glaucous underneath, usually spotted with white on the upper surface, never ciliated about the edge, or hairy underneath. Flowers solitary; axillary, all turned the same way, and hanging down. Leaflets of the calyx erect, acute, converging into a long tube, growing after the corolla is dropped off, very unequal, the outer broader, ovate and even subcordate, the inner lanceolate or more oblong. Corolla yellow without any spot, contracted at top and bottom, obscurely five-furrowed, deciduous, cleft to the middle; segments oblong-lanceolate, acuminate; throat naked, pervious. The whole plant smooth, and flowering the whole summer. Annual, when sown in the spring, but biennial when sown in autumn; in the wild state therefore biennial^c.

Italy, Germany, Austria, Syria, Switzerland.—Cultivated 1570, by Mr. Hugh Morgan^d.

^a Haller.

^b Hort. kew.

^c Jacquin.

^d Hort. kew.

β. Differs

β. Differs from the *minor* in ovate, emarginate, wider leaves, constantly spotted, of a deeper glaucous colour; stem erect; corolla yellow, but towards the toothlets purple. Perennial^c.]

PROPAGATION AND CULTURE.

The species of this plant are propagated by seeds, which should be sown soon after they are ripe; for, if they are kept till spring, the growing quality of them is often lost; or at least they lie some months in the ground before they grow; the plants are hardy, and if the seeds are sown in a warm situation, they will endure the winter's cold very well without shelter; these autumnal plants are also much surer to produce ripe seeds than those which are sown in the spring, which are generally late in the season before they flower; and consequently if the autumn should not prove very warm, their seeds would not be perfected.

The plants make a pretty variety for large borders in gardens, where, if they are suffered to drop their seeds, the plants will arise without any farther care; so that when a person is once furnished with the several varieties, he need be at no more trouble than to allow each of them a respective place where it may remain, and sow itself; and with this culture, there is a greater certainty of preserving the sorts than in any other management; nor will they perhaps be entirely lost in this way, if it should happen that the season should prevent their ripening seed (as it sometimes proves;) for when great quantities of the seeds have scattered upon the ground, some of them will be buried so deep, in stirring the earth, as not to grow the first year; which, upon being turned up to the air the succeeding year, will come up as well as new seeds.

If the seeds are not taken as soon as they change black, they drop out of the calyx in a short time, and vegetate with the first warm weather.

[CERINTHE. See *Onosma* and *Pulmonaria*.

CERINTHOIDES. See *Pulmonaria*.

CEROPEGIA. (From *κηροπηγίον*, a candelabre, or lamp-stand.)

Lin. gen. n. 302. Reich. 328. Schreb. 431. Juss. 146.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Contortæ*. *Apocineæ* Juss.

GENERIC CHARACTER.

CAL. Perianth very small, five-toothed, acute, permanent.

COR. monopetalous, with a large globose base which is terminated by a cylindrical oblong tube. Border very small, five-toothed, acuminate, with the tip converging, gaping at the sides.

STAM. Filaments five, in the base of the corolla, very small, incurved, converging. Anthers small.

PIST. Germ very small. Style scarce any. Stigmas two.

PER. Follicles two, cylindric, acuminate, very long, erect, unilocular, univalve.

SEEDS numerous, imbricated, oblong, crowned with a pappus.

ESSENTIAL CHARACTER.

Contorted. Follicles two, erect. Seeds plumose. Border of the corolla converging.

SPECIES.

1. *Ceropegia Candelabrum*.

Lin. spec. 309. Reich. 601. Rheed. mal. 9. 27. t. 16. Lour. cochinch. 114.

Umbels pendulous, flowers erect.

2. *Ceropegia biflora*.

Lin. spec. 309. Reich. 601. fl. zeyl. n. 110. Peduncles two-flowered.

3. *Ceropegia sagittata*. Arrow-leaved *Ceropegia*.

Lin. syst. 255. Reich. 601. mant. 215. Umbels sessile, leaves sagittate.

4. *Ceropegia tenuifolia*.

Lin. syst. 255. Reich. 602.

Periploca tenuifolia. Lin. spec. 310.

^c Allioni.

Apocynum frutescens, &c. Pluk. mant. 17. t. 335. f. 1.

Cynanchum. Burm. afr. t. 15. & t. 16. f. 1.

Naru-nundi. Rheed. mal. 10. 67. t. 34.

Leaves linear-lanceolate.

5. *Ceropegia obtusa*.

Lour. cochinch. 114.

Leaves blunt, stem twining.

6. *Ceropegia cordata*.

Lour. cochinch. 114.

Leaves cordate, umbels pendulous.

DESCRIPTIONS, &c.

1. A twining plant. Stems slender, round, green or reddish. Leaves opposite, ovate, thick, soft, smooth. The peduncle, and at first the flowers hang down, but when open they erect themselves, and being placed in a circle, have the appearance of a set of lamps hanging up. The follicles or seed-vessels hang down^f. Native of the East-Indies.

2. Stem twining. Leaves opposite, ovate, quite entire. Peduncles axillary, generally two-flowered. Flowers opposite to the peduncle, not reflected, but extended straight out. Native of the isle of Ceylon. Perennial^g.

3. Stem twining, filiform, tomentose. Leaves opposite, on very short petioles, sagittate or cordate-linear, the edges revolute, tomentose on both sides but paler underneath. Umbels axillary, many-flowered, the peduncle shorter than the umbel. Calyx five-parted, linear, tomentose, half the length of the corolla, which is scarlet, subcylindric but less swelling at the base; the divisions very short, mucronate, converging. Native of the Cape. Perennial^h.—Introduced 1775, by Mr. Fr. Massonⁱ.

4. Stems slender, milky, red, bay or green. Petioles very short, opposite. Flowers axillary, from two to four together, on short peduncles. Within reddish, or reddish brown, on the outside yellowish green.—Native of the East Indies^k.

5. Stem perennial, filiform, smooth. Leaves oblong, quite entire, flat, few, opposite. Flowers pale, like those of the first sort, but on shorter peduncles. Fruits more slender, broken at a right angle as they are, smooth.

Native of Cochinchina with the first, from which it differs more in the leaves than flowers.

6. Stem long, round, climbing, branched, perennial. Leaves quite entire, smooth, opposite, on long petioles. Flowers greenish-yellow, in large hemispherical axillary umbels, on long peduncles. Calyx inferior, five-leaved; leaflets ovate acute small spreading. Corolla five-parted; parts ovate converging. Nectary fleshy upright five-cleft; with ten oblong glands standing round the pistil. Filaments none. Anthers five oblong converging. Germ longish, bifid. Style thick very short. Stigma blunt emarginate.—Native of Cochinchina, climbing in the hedges^l.

CERRI GLANS and CERRIS. See *Quercus*.

CERVARIA. See *Athamanta* and *Trachelium*.

CERUCHIS. See *Spilanthes*.

CERVIANA. See *Pharnaceum*.

CERVICARIA. See *Campanula*.

CERVISPINA. See *Rhamnus*.]

CESTRUM. (Κέστρον, a hammer. Κέστρον, Dioscor.)

Engl. Bastard Jasmin. Fr. Cestreau.

Lin. gen. n. 261. Reich. 272. Schreb. 342.

Juss. 126. Gertn. t. 77.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Luridæ*. *Solaneæ* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, tubular, columnar, obtuse, very short: mouth five-cleft, erect, obscure.

COR. monopetalous, funnel-form. Tube cylindric, very long, slender; throat roundish; border flat, plaited, five-cleft; divisions ovate, equal.

STAM. Filaments five, filiform, attached longitudinally to the tube, emitting a toothlet inwards at the

^f Hort. malab.

ⁱ Hort. kew.

^g Linn. zeyl.

^h Hort. malab.

^k Linn. mant.

^l Loureiro.

middle. *Anthems* roundish, quadrangular, within the throat.

Pist. *Germ* cylindric-ovate, length of the calyx. *Style* filiform, length of the *stamens*. *Stigma* thickish, obtuse, scarcely emarginate.

Per. *Berry* ovate, unilocular, oblong.

SEEDS very many, roundish.

OBS. *The genus differs from Lycium in having a unilocular berry.*

C. vespertinum differs in some points.

ESSENTIAL CHARACTER.

Cor. funnel-form. *Stamens* emitting a toothlet from their middle. *Berry* unilocular.

SPECIES.

1. *Cestrum nocturnum*. *Night-smelling Cestrum*.

Lin. spec. 277. *syft.* 227. *Reich.* 523. *hort. cliff.*

491. *Murr. in comm. gott.* 1774. *vol. v. p.* 44.

L'Herit. stirp. nov. 70. *Ait. hort. kew.* 1. 254.

Gertn. fruct. 1. 378.

Jasminoides. *Dill. elth.* 183. *t.* 153. *f.* 185.

Syringa. *Pluk. alm.* *t.* 64. *f.* 3.

Parxu. *Feuill. peruv.* 2. 32. *t.* 32. *f.* 1.

Filaments toothed; *peduncles* subracemed equal to the leaf.

2. *Cestrum vespertinum*. *Cluster-flowered Cestrum*.

Lin. syft. 227. *Reich.* 524. *mant.* 206. *Murr.*

in comm. gott. 5. *p.* 41. *t.* 8. *L'Herit. stirp.*

nov. 72. *Ait. hort. kew.* 1. 255. *Swartz obs.* 85.

C. confertum. *Mill. dict.* *n.* 5.

Ixora alternifolia. *Jacqu. amer. pict.* 16. *t.* 177. *f.* 8.

Jasminum. *Plum. amer.* 17. *icon.* 150. *t.* 157. *f.* 1.

Sloan. jam. 2. 96. *n.* 16. *Raii dendr.* 63. *n.* 11.

Brown. jam. 173.

Filaments toothless, *tube* filiform, *peduncles* very short.

3. *Cestrum diurnum*. *Day-smelling Cestrum*.

Lin. spec. 277. *syft.* 227. *Reich.* 525. *hort. cliff.*

491. *Murr. nov. comm. gott.* 5. 44. *L'Herit.*

stirp. nov. 74. *Ait. hort. kew.* 1. 255.

Jasminoides. *Dill. elth.* 186. *t.* 154. *f.* 186.

Filaments toothless, *segments of the corolla* roundish reflected; *leaves* lanceolate.

[4. *Cestrum tomentosum*.

Lin. syft. 228. *suppl.* 150.

Flowers crowded, *sessile*, *terminal*; *branches*, *leaves* and *calyxes* tomentose.]

5. *Cestrum laurifolium*. *Laurel-leaved Cestrum*.

L'Herit. stirp. nov. 69. *t.* 34. *Ait. hort. kew.* 1. 255.

Smith spicil. *t.* 2. *Mill. dict.* *n.* 6. (*venenatum*.)

Laureola. *Pluk. alm.* 209. *t.* 95. *f.* 1. *Raii dendr.* 53. *n.* 1.

Filaments toothletted or naked; *leaves* elliptic coriaceous shining very much, *peduncles* shorter than the petiole.

[6. *Cestrum auriculatum*. *Ear-leaved Cestrum*.

L'Herit. stirp. nov. 71. *t.* 35. *Ait. hort. kew.* 1. 255.

Hediunda jasminiano flore. *Feuill. it.* 3. 25. *t.* 20. *f.* 3.

Filaments toothless, *stipules* lunate.

7. *Cestrum Parqui*.

L'Herit. stirp. nov. 73. *t.* 36.

Parqui. *Feuill. obs.* 3. 52. *t.* 32.

Filaments toothletted or naked; *floriferous stem* panicled; *stipules* linear.

8. *Cestrum hirtum*.

Swartz prodr. 49.

Flowers subspliked axillary, *leaves* subcordate ovate acute, underneath with the branchlets rough with hairs.]

9. *Cestrum nervosum*.

Mill. dict. *n.* 3.

Jasminoides americanum, *lauri folio*, *fl.* albo odorato. *Houft. M.S.S.*

Leaves lanceolate, opposite, with transverse nerves; *peduncles* branching.

DESCRIPTIONS, &c.

1. It rises with an upright stalk about six or seven feet high, covered with a grayish bark, and divides upward into many slender branches, which generally incline to one side; and are garnished with leaves placed alternate, near four inches long, and one and

a half broad, smooth on their upper side, of a pale green, and on their under side they have several transverse veins, and are of a sea-green colour, having short foot-stalks. The flowers are produced at the wings of the leaves, in small clusters, standing upon short peduncles, each sustaining four or five flowers, of an herbaceous colour. They appear in august, but are not succeeded by berries in this country: those which come from America are small, and of a dark brown colour.

It is a native of the island of Cuba, whence Mr. Miller received the seeds by the title of *Dama de Noche*, or *Lady of the Night*. It is probably so called, from the flowers sending out a strong odour after sun-set.

It was raised many years past in the curious garden of the Dukes of Beaufort at Badminton, and was thence communicated to several gardens in England and Holland, where it passed by the name of *Badminton Jasmin*.

Mr. Miller has another sort (*C. spicatum*, *n.* 4.) which he says was sent him from Carthage; [it is probably not different from this; and if so it is found not only in the islands of the West Indies, but on the continent of South America.]

2. A tree twelve feet in height. Stem not very strong. Branches round, obscurely tomentose. Leaves alternate, on short petioles, length double the breadth, sharp, quite entire, green on both sides, with cross veins underneath, almost parallel, convex. Spikes axillary, short, subpeduncled; with flowers six to nine, alternate, diverging, subsessile, crowded, separated by an ovate-oblong bracte, a little longer than the calyx which is small and ovate. Corolla longer than the spike, green; tube filiform; border expanding, five-parted; divisions subulate, sharp, one-third shorter than the tube, equal, greenish white. Stamens and pistil the length of the throat*. The flowers grow by twos, threes and fours, according to Murray; by fours and fives, according to Swartz. They have no toothlet in the middle of the filaments. The berries are blue. The bark and fruit are fetid^b. It is a native of the West-Indies, and was cultivated in 1759, by Mr. Miller^c.]

3. This rises with an upright stalk to the height of ten or twelve feet, covered with a smooth light green bark, dividing at top into many smaller branches, with smooth leaves near three inches long, and one and a half broad, of a lively green colour, and the consistence of those of the Spurge Laurel; these are ranged alternately on the branches. Towards the upper part of the shoots come out the flowers from the wings of the leaves, standing in clusters close to the branches; they are very white, shaped like those of the first sort, and smell sweet in the day time, whence it had the appellation of *Lady of the Day*. The berries of this are smaller than those of the first sort. It flowers in september, october and november.

[According to Murray, the tube of the corolla is funnel-form, and the divisions of the border roundish.]

Monf. L'Heritier observes, that it differs from *C. laurifolium* in having longer peduncles, the border of the corolla broader, the filaments naked, the leaves lanceolate not oval, and the flowers white not yellow.]

It is a native of the Havanna, whence the seeds were sent to Mr. Miller by the name of *Dama di Dio*: [but it had been cultivated before in 1732, by Dr. Sherard at Eltham^d.]

4. The form of the leaves and flowers is the same as in the third species; but the calyxes, branches, and under surface of the leaves are tomentose; the calyxes are larger; the corollas coloured, with a shorter tube, and a more enlarged border. It was found in South America, by Mutis^e.

5. Stem shrubby, erect, round, with a rugged ash-coloured bark: branches alternate, in the upper

* *Linn. spec.*

^b Murray and Swartz.

^c *Hort. kew.*

^d *Ibid.*

^e *Linn. suppl.*

part somewhat angular, leafy, many-flowered. Leaves alternate, on short foot-stalks, spreading, elliptic-oblong, a little pointed, entire, obscurely veined, very smooth and shining, paler beneath, evergreen: foot-stalks smooth, dark purple, flat above. Stipules none. Peduncles axillary on the upper part of the branches, in a sort of corymb, erect, shorter than the foot-stalks, many-flowered. Bractes solitary under each flower, ovate, obtuse, hairy, small, deciduous. Calyx bell-shaped, five-toothed, minutely ciliate on the margin, permanent. Corolla four times longer than the calyx; segments of the rim obtuse, spreading, pale yellow marked with a gold-coloured streak. Filaments nearly as long as the tube, attached to it by more than half their length, and jointed where they separate from it, frequently also furnished with a little tooth-like protuberance. Anthers roundish, two-lobed, incumbent, half within the tube. Germ superior; ovate, five-channelled, smooth, placed on a pretty large five-cornered receptacle. Style a little thickened at the top, somewhat shorter than the stamens. Stigma obtuse, impressed^f.]

According to Miller, the stem is eight or nine feet high; the leaves are five inches long, and two broad; the flowers emit a disagreeable odour, and are succeeded by oval berries of a violet colour, full of juice; they are reckoned very poisonous, and have the appellation of Poison-berries in Jamaica, whence it was sent him by Dr. Houstoun.

[Mr. Miller has well determined and described it under the name of *C. venenatum*, n. 6. Its fetid smell seems to imply that poisonous nature, which he and Sloane attribute to it, and which other plants of this genus possess^g.

It was cultivated in 1691, in the royal garden at Hampton-court, and flowers in august^h.

6. This is a very fetid shrub, two fathoms in height. Stems usually several from the same root, upright, round, somewhat branched, cinereous: branches alternate, upright, warted: shoots pubescent, green. Leaves alternate, petioled, oblong-lanceolate, acuminate, sharp at the base, entire, smooth, flat or slightly waved, green but paler underneath, spreading, five inches long, twenty lines broad: petioles one-fourth only of the length of the leaves, rounded on one side, flat on the other. Stipules axillary, surrounding the branchlets, of the same form with the leaves. Panicles terminating, consisting of axillary spikes at the base, erect, leafy, bracted, villose, three inches long: peduncles alternate, axillary, patulous, many-flowered. Flowers crowded at the top of the peduncle, sessile or scarcely pedicelled, herbaceous, eight lines long, and four or five broad. Bractes few, linear, here and there. Calyx five-toothed, sharp, upright, pressed close, somewhat villose, permanent, one line in length. Corolla also somewhat villose on the outside, inserted into the receptacle: tube from six to eight lines long, swelling at top; divisions of the border linear-lanceolate, very sharp, two-furrowed, spreading. Filaments capillary, very short, without any toothlet, nearly as high as the tube: anthers two-celled, peltate, herbaceous. Germ superior, ovate, obtuse: stigma oblate-spheroidal, umbilicate, rolled back at the edge, within the throat or scarcely appearing out of it. The berry contains only about five seeds.

It differs from *C. vespertinum*, in having the flowers in panicles, the leaves flat and not converging at the edge, the stipules eared, whereas that has none. It differs from the next species, in having the stem less paniced, the stipules crescent-shaped not linear, the tube of the corolla cylindric not club-shaped, and the border linear-lanceolate not truly lanceolate; the filaments also are very short and toothless.

The natives of Lima in Peru use it externally to cleanse foul ulcers, and internally in the venereal disease; they look upon it as a pectoral, but it seems to be a plant of suspicious character.

^f Smith.

^g Ibid.

^h Hort. kew.

Dombey observed it in wet places about Lima. It has been cultivated many years in the Paris garden. It flowers in winter, but seldom, and has never borne fruitⁱ. Introduced here about 1774^k.

7. This is a fetid shrub, one fathom in height. Stems several, upright, round, with a cinereous cloven bark: branches alternate, patulous, round, with a few tubercles: shoots green, smooth. Leaves alternate, lanceolate, acuminate, or very sharp at each end, entire, somewhat waved, smooth, bright green, the same on both surfaces, spreading, four inches long and one broad: petioles very short, round on one side, flattish on the other. Stipules axillary, linear-lanceolate, acute, like nascent leaves. Panicles from the ends of the twigs, upright, leafy, bracted, smooth, composed of axillary spikes, simple or compound, patulous, two inches long. Flowers sessile or subsessile, heaped, dusky yellow, odorous in the night, eight lines long and six broad. Bractes linear, acute, under the calyx, spreading. Calyx five-toothed, acute, erect, smoothish, permanent, two lines long. Corolla inserted into the receptacle, almost naked: tube club-shaped at the top, eight lines long; segments of the border lanceolate, acuminate, spreading, and finally turned back. Filaments subulate, closing the tube with their toothlets, pubescent at the base, the length of the tube: anthers two-celled, peltate, yellow. Germ superior, roundish: stigma oblate-spheroidal, excavated, large, standing out a little, green. Berry placed upon the calyx, standing far out, oval, two-celled, of a dusky violet colour, four or five lines in length, and three in breadth; containing three or four obscurely angular, black seeds.

Introduced at Paris from seeds sent by Dombey from Chili, where it grows naturally^l.

The foregoing species are thus distinguished by Monf. L'Heritier. The leaves are evergreen, one-nerved and lucid in *C. laurifolium* and *diurnum*; reclining and converging upwards on the sides in *C. auriculatum* and *Parqui*. These two last have stipules. The peduncles are subracemed and elongated in *C. nocturnum*, *auriculatum*, and *Parqui*; shorter in *C. diurnum*; shorter still in *C. laurifolium*; and in *C. vespertinum* scarcely any. The segments of the corolla are roundish in *C. diurnum*; ovate in *C. laurifolium*; lanceolate in *C. Parqui* and *nocturnum*; linear in *C. vespertinum* and *auriculatum*. The genitals are inclosed in *C. laurifolium*, in the rest the stigma is prominent beyond the throat, except in *C. Parqui*, which has it scarcely standing out, or but very little. The filaments are toothed in *C. nocturnum*, *laurifolium* and *Parqui*; but not in *C. diurnum*, *vespertinum* and *auriculatum*.

8. Native of the West-Indies; Jamaica, &c.^m

9. Stem shrubby, five or six inches high, covered with a brown bark, and dividing at top into very small branches. Leaves about four inches long, and little more than one broad, smooth, of a light green. Flowers axillary, towards the ends of the branches, four or five on each peduncle. Tube of the corolla swelling at the base, just above the calyx, but contracting upwards to the mouth, where the border is cut into five broad, flat segments; it is white, but without scent.

Native of Carthagenia in New Spain, whence it was sent to Mr. Miller.

PROPAGATION AND CULTURE.

The first and second sorts produce their flowers every year in England, the others seldom flower here; but as they retain their leaves all the year, they make a pretty variety in the stove, during the winter season; and when they flower, the branches are commonly well furnished at their joints with bunches of flowers.

All these plants growing naturally in very hot countries, require to be placed in a warm stove, especially in the winter. The first and third are hardier than the others; these I have kept several

ⁱ L'Heritier.

^k Hort. kew.

^l L'Heritier.

^m Swartz.

years in a dry stove, with a moderate share of heat in winter, and in the middle of summer have set them in the open air, in a warm situation. With this management I have found them thrive, and produce flowers much better than when they have been placed in a greater heat; I have often endeavoured to keep these plants through the winter, in a green-house, or a glass case, without fire, but could never succeed; for by the end of January they commonly decayed.

The other sorts require a larger share of heat, especially when the plants are young; therefore they should be plunged in the tan-bed of the bark-stove, otherwise they will lose their leaves in winter, if they are not quite destroyed; but after three or four years growth, they will bear to be treated more hardily, provided they are inured to it gradually.

These plants may be propagated from seeds, or by cuttings. Those which come from seeds are always the most vigorous, and straightest plants; but as they do not produce seeds in England, the other method is generally practised, because their seeds are rarely brought hither.

The best time to plant these cuttings is about the end of May, by which time the shoots will have had time to recover their strength, after their confinement during the winter season. The shoots which come out from the lower part of the stalks, should always be chosen for this purpose. These should be cut about four inches long, and five or six of them may be planted in each halfpenny pot; for the cuttings of most sorts of exotic plants will succeed better when they are planted in the small pots, than they do in larger, as I have many years experienced. The earth should be fresh and light, but not full of dung: it must be pressed pretty close to the cuttings, and then they must be gently watered; after which the pots must be plunged into a moderate hot-bed of tanners bark, and every day shaded from the sun. They must also have fresh air admitted to them in warm weather, and two or three times a week must be refreshed with water. With this management the cuttings will put out roots in five or six weeks, when they should be gradually exposed to the sun; and when they begin to put out shoots, they must have a greater share of fresh air admitted to them, to prevent their drawing up weak; and their waterings should be oftener repeated, but given in small quantities, for their young tender fibres will not endure much wet. When they have made good roots, they should be carefully shaken out of the pots, and each put into a separate small pot, filled with the same sort of earth as before; then give them some water, to settle the earth to their roots, and plunge them again into the tan-bed; observing if any of their leaves hang down, to shade them from the sun in the middle of the day, until they have taken fresh root; after which they should have a large share of air in warm weather, to strengthen them before winter. Their waterings in the summer should be frequent; and if they are sprinkled all over their leaves, it will wash and cleanse them from filth, which will greatly promote their growth; but their roots must not be kept too moist.

In the autumn the plants of the second and fifth sorts must be removed into the bark-stove, and plunged into the tan-bed, where they must be treated in the same manner as other tender exotic plants; but the first and third sorts may be treated otherwise, especially when they have obtained strength; yet the first winter they may be managed in the same way as the others. There must be great care had in watering these plants in winter, for they are all (except the third sort) very impatient of moisture.

If the seeds of these are procured from the countries where they grow naturally, they should be sowed in small pots filled with the earth before directed, and plunged into a moderate hot-bed of tanners bark, giving them now and then a little

water. Sometimes the seeds will come up the same year, but they very often lie in the ground till the spring following; so that if the plants do not appear in six or seven weeks after the seeds are sown, they will not come up that season; in which case the pots may be plunged in the tan-bed of the stove, between the other plants, where they will be shaded from the sun, and but little water given them; in this situation they may remain till the following spring, when they should be removed, and plunged into a fresh hot-bed, which will bring up the plants in a short time, provided the seeds were good.

When the young plants are fit to remove, they should be carefully shaken out of the pots, and each planted into a separate pot filled with the before-mentioned earth, and plunged into the hot-bed again, and afterward treated in the same way as hath been directed for the plants raised from cuttings.

CETERACH. See *Asplenium*.

[CHAA. See *Thea*.

CHÆREFOLIUM. See *Scandix*.

CHÆROPHYLLUM SIMILIS. See *Aphanes*.]

CHÆROPHYLLUM. (From *χαίρω* & *φύλλον*; rejoicing, or being very luxuriant in leaves.

Lin. gen. n. 358. Reich. 388. Schreb. 490.

Juss. 220. *Chærophyllo species*. Tourn. 166.

Class. 5. 2. Pentandria Digynia.

Nat. order of *Umbellatæ*, or *Umbellifere*.

GENERIC CHARACTER.

CAL. Umbel universal spreading; Partial nearly equal as to the number of rays.

Involucre universal none. Partial subpentaphyllous; leaflets lanceolate, concave, reflected, nearly the length of the umbellule. Perianth proper obscure.

COR. universal nearly uniform. Florets of the disk abortive.

Proper of five petals, heart-inflexed; with the point bent in, flattish; exterior ones rather larger.

STAM. Filaments five, simple, length of the umbellule. Anthers roundish.

PIST. Germ inferior. Styles two, reflected. Stigmas obtuse.

PER. None. Fruit oblong, acuminate, smooth, bipartite.

SEEDS two, oblong, attenuated upwards, convex on one side, flat on the other.

OBS. The seeds of the disk frequently are abortive: the fruit varies in shape.

ESSENTIAL CHARACTER.

Invol. reflected concave. Pet. heart-inflexed. Fruit oblong, even.

SPECIES.

1. *Chærophyllo sylvestre*. Wild Cicely or Cow-weed. Common Cow-parley.

Lin. spec. 369. Reich. 708. fl. suec. n. 257.

mat. med. 83. Hudf. angl. 124. With. 306.

Curt. lond. 4. t. 25. Light. 167. Jacqu.

austr. 2. t. 149. Krock. fl. siles. n. 450. Neck.

gallob. 148. Scop. carn. n. 366. Pollich. pal.

n. 298. Plenck. ic. t. 208. Villars dauph. 2.

642.

Cerfolium. Hall. belv. n. 748.—*sylvestre*. Riv. t. 44.

Cicutaria vulgaris. Baub. hist. 3. 181. Raii hist. 429. Mor. hist. f. 9. t. 11. f. 5.

Myrrhis sylv. seminibus lævibus. Baub. pin. 160. Stem (upper part) even, striated, joints somewhat swelling.

2. *Chærophyllo bulbosum*. Tuberous Chervil.

Lin. spec. 370. Reich. 709. hort. ups. 64.

Jacqu. austr. 1. t. 63. Pollich. pal. n. 299.

Krock. siles. n. 451. Plenck, ic. t. 207.

Myrrhis. Hall. belv. n. 752.—*foetens*. Riv. t. 50.

Pluk. alm. t. 206. f. 2.

Cicutaria bulbosa. Baub. pin. 161. Raii hist. 429. n. 3.

Stem even swelling at the joints, rough with hairs at the base.

[3. *Chærophyllo aristatum*.

Lin. syst. 288. Thunb. jap. 119.

Stem

Stem even swelling at the joints, seeds rough with hairs two-awned.]

4. *Chærophylum temulum*. Wild Chervil. Rough Cow-Parley.

Lin. spec. 370. *Reich.* 710. *fl. succ.* n. 258. *Huds. angl.* 125. *With.* 307. *Curt. lond.* 6. *Lightf.* 167. *Relb cantab.* n. 236. *Jacq. austr.* 1. t. 65. *Krock. files.* n. 452. *Leers. herborn.* n. 214. *Pollich. pal.* n. 300. *Neck. gallob.* 147. *Villars dauph.* 2. 646.

C. sylvestre. *Baub. pin.* 152.

Cerfolium sylv. *Ger.* 867. *emac.* 1038. 2. *Park.* 915. *Raii hist.* 431. *Pet. t.* 25. f. 3.

Myrrhis. *Hall. belv.* n. 750. *Riv. t.* 49. *Mor.* f. 9. t. 10. f. 7.

Anthriscus. *Baub. hist.* 3. 70.

Stem rugged, joints swelling.

5. *Chærophylum hirsutum*. Hairy Chervil.

Lin. spec. 371. *syft.* 288. *Reich.* 710. *mant.* 356. *hort. cliff.* 101. n. 2. *Jacqu. austr.* 2. t. 148. *Krock. files.* n. 453. *Gouan. illustr.* 15. *Leers. herborn.* n. 215. *Villars dauph.* 2. 644.

Myrrhis. *Hall. belv.* n. 751.—*palustris.* *Riv. pent. t.* 51.

Scandix hirsuta. *Scop. carn.* n. 350.

Cerfolium. *Mor.* 304. f. 9. t. 10. f. 6.

Stem equal; leaflets gashed, acute; fruits two-awned.

- [6. *Chærophylum aromaticum*. Aromatic Chærophylum.

Lin. spec. 371. *syft.* 288. *Reich.* 711. *mant.* 356. *Jacqu. austr.* 2. t. 150. *Krock. files.* n. 455.

Cerfolium. *Bocc. mus.* 2. 29. t. 19.

Myrrhis fol. podagrariæ. *Riv. pent. t.* 53.

Angelica. *Baub. pin.* 156. 4. *prodr.* 82.

Stem equal; leaflets serrate, entire; fruits two-awned.

7. *Chærophylum coloratum*.

Lin. syft. 288. *Reich.* 711. *mant.* 57. *Jacqu. hort.* t. 51.

Myrrhis perennis lutea daucoides. *Mor.* 302. f. 9. t. 10. f. 6.

Stem equal; leaves superdecompound; involucels coloured.]

8. *Chærophylum aureum*. Golden Chærophylum.

Lin. spec. 370. *syft.* 288. *Reich.* 712. *mant.* 356.

Jacqu. austr. 1. t. 64. *Krock. files.* n. 454.

Pollich. pal. n. 301. *Villars dauph.* 2. 645.

Cerfolium. *Hall. belv.* n. 749. *Rupp. jen.* 3. 282. t. 5.

Myrrhis. *Baub. pin.* 160. n. 2. *Lob. ic.* 734. *Mor. umb.* 66. *hist.* 301. t. 10. f. 2.

Stem equal; leaflets gashed; seeds coloured, grooved, awnless.

- [9. *Chærophylum scabrum*.

Lin. syft. 289. *Thunb. jap.* 119.

Stem equal; leaves gashed, acute, rough with hairs, peduncles rugged.

10. *Chærophylum arborescens*.

Lin. spec. 371. *Reich.* 712.

Cicuta arbor virginiana. *Raii suppl.* 257.

Shrubby.

DESCRIPTIONS, &c.

1. *Stem* two feet high and upwards, hollow, grooved, generally villose and purplish, much branched: branches suberect, less hoary than the stem. *Leaves* next the root superdecompound, and very large; ribs hirsute, fistulose, forming a sharp angle on the back, hollow in front, and arising from a short, striated sheath; leaflets lanceolate, pointed, deeply and irregularly serrate, generally hirsute, but sometimes smooth: leaves of the stem and branches successively smaller, and less divided, in other respects similar; the upper ones often opposite or growing three together, with as many axillary branches. *Umbels* flattish when in fruit, but in blossom convex; drooping before the expansion of the flowers. Common peduncle round. Rays seven to eighteen, slender, round and smooth. Leaflets of the involucre five or more, ovate-pointed, smooth but somewhat hairy on the edges, only half the length of the umbellule, finally reflected. *Petals* flat, obovate, whitish; at first yellowish white;

those of the central flowers nearly equal; but the outermost of the outer flowers larger, subcordate and emarginate. *Seeds* columnar, glossy, grooved, blackish, without scent, and almost tasteless^a.

Very common in pastures, orchards, and under hedges, flowering in May, and in warm situations in April. Mr. Hudson marks it as an annual plant; other authors affirm it to be perennial. I should rather suppose it to be biennial.

Linnaeus remarks that this plant indicates a luxuriant soil; and says that the flowers communicate a green and yellow dye to wool. He also affirms that horses, sheep and goats are not fond of it, and that cows and swine refuse it. According to Monf. Villars, horses will not eat it, even in the stable. Mr. Miller says that there are few animals who care to eat it except the ass. On the contrary Mr. Ray informs us that it has the name of *Cow-weed*, because it is a grateful food to cows, in the spring, before it runs up to stalk; and in confirmation of this, Mr. Wainwright (*With. arr.*) says that cows like it so well, that when a pasture is over-run with it, as is often the case about Dudley, they always turn them in to eat it up. Rabbits are well known to be very fond of this herb; and Mr. Curtis relates, that in time of scarcity, the young leaves have been used as a pot-herb.—Haller (from Buckwald) says that the Dutch use it in gangrenes. John Bauhin mentions instances of two families having been poisoned by eating a small quantity of the root.

2. *Root* like the Navew, and biennial. *Stem* from two or three to six feet high, with reddish-brown spots, smooth and even at top, hispid, with long white hairs below, a little swelling at the joints. *Leaves* triply-pinnate, sharply cut; the upper surface smooth, the petioles and keel with scattered white hairs beneath. Both *umbels* of unequal rays, the *partial* rather convex. *Universal involucre* none, or of one or two lanceolate, reflected leaflets: *partial*, of five, six, or seven, almost united at the base. *Petals* white, obcordate, unequal. Some florets of the disk abortive.—The roots taken up early in the spring are eaten boiled, with salt, oil and vinegar. Gmelin affirms both these and the seeds to occasion vertigoes; but certainly this is not true, at least of the fresh root, many persons having eaten of that with impunity.—It is frequently substituted for the *Cicuta* or *Conium maculatum*^b.

Native of Germany, Austria, Switzerland, Norway; in hedges and by wood sides; flowering in June and July.—Cultivated 1739, by Mr. Miller^c.

3. *Stem* round, striated, smooth, erect. *Leaves* bipinnate, villous, the sheaths of the petioles ciliated. *Umbels* terminal, compound. *Involucres* and *involucels* subulate, reflected. *Seeds* oblong, awned with divaricated styles, white-villous.—It differs from *Ch. bulbosum* in having hirt, scabrous leaves; and villous, awned seeds. Native of Japan^d.

4. *Stem* but little furrowed, marked with purple spots, and set with white hairs standing out. *Umbels* drooping before the time of flowering. *Flowers* in the middle of the umbellule, abortive^e. *Root* biennial. *Stem* two feet or more in height, branched, round, solid. *Leaves* petioled, from a sheath, slightly hirsute, soft, flaccid, doubly pinnate, the pinnae subovate, obtuse, and cut into lobes. *Umbel* universal, from five to twelve rays, the outermost longest; *partial* twice as many. *Involucre*, universal mostly wanting; but sometimes there are from one to four leaves: *partial*, consists of about six leaflets, or rather is one-leaved, with six or eight clefts, which are lanceolate, pointed, reflected. *Corolla*: florets of the disk rarely abortive, unless in those which flower late: petals white, which having the tip bent inwards, appear heart-shaped; the outermost rather larger. *Seeds* smooth, brown, on the inside hollow, on the outside faintly and bluntly marked with five grooves, the angles paler. The

^a Curtis and Stokes in Withering.

^b Linn. and Krock.

^c Hort. kew.

^d Thunberg.

^e Linn.

roughness, deep purple colour, and swelled joints of the stem, distinguish it from the *syvestre*; it also flowers a month or six weeks later, and is more confined to hedges, being rarely met within open pastures. The stem being generally spotted with purple, it is frequently mistaken for Hemlock^f.

It has the name of *templum* or *temulentum* from its supposed narcotic or inebriating quality, which it probably possesses, like the *syvestre*, only in a very small degree.

5. A pubescent plant. Stem hollow, round, very rough with stiffish hairs. Leaves decomposed, almost naked, rugged underneath with ciliate veins: leaflets on each branchlet of the leaves scarcely more than five with white dots above the serratures. Umbel convex, nodding before it flowers. Involucels five-leaved, lanceolate, acuminate, green, the length of the umbellule. Flowers whitish, not radiate; many barren. Fruits subcylindric, slightly striated, terminating in two distinct, straight awns, blunted at the tip, more rigid than in *C. aromaticus*^g.]

It is perennial, and resembles the first sort, but the leaves are hairy, and their segments broader. Stem four feet high. Corolla in some plants red, in others white.

[Native of Switzerland, Germany, Austria, Car-niola.—Cultivated in 1768, by Mr. Miller^h.

6. Stem and petioles rough with hairs. Leaves of *Aegopodium Podagraria*. Most of the flowers male, not radiate. Involucels consisting of from seven to nine lanceolate, reflected leafletsⁱ.

Krocker says, that the root is perennial, branching, aromatic. Stem from two to three feet high, hollow, round, striated, dichotomous. Leaves pin-nate, with the odd leaflet very large; pinnae ellip-tic, acuminate. Petioles slender, channelled, pro-ceeding from broad, membranous sheaths. Native of Lusatia, Misnia, Austria, Silesia. Flowering in July and August.

Cultivated 1758, by Mr. Miller^k.

7. Stem round, hirsute especially at bottom. Leaves of *Selinum Thyselinum*, with a few hairs scat-tered about them. Umbel as in the first species: involucels ovate, acuminate, yellow as in the *Bu-pleurums*, the length of the pedicels. Various florets barren. Fruit as in the next species, but more finely striated. It differs from that altogether in the leaflets and hairs^l. Native of Illyria.

8. A pubescent plant. Stem angular, striated, spotted, rough with hairs at bottom, and not hollow. Leaves pale, smooth above, hirsute underneath; the extreme leaflets confluent. Corollas white, reddish on the outside. Fruit fusiform-cylindric. Seeds yellow, with four obtuse, remote grooves^m.

According to Krocker, the root is perennial, fusi-form, white. Stem eighteen inches or more in height. Partial involucre of seven broad, lanceo-late, reflected leaflets. Outer petals larger, semi-bifid. Native of the country about Geneva, of Switzerland, Germany, and Austria.—Cultivated 1570, by Mr. Pennⁿ.

9. Root fibrous. Stem somewhat flexuose, erect, angular, striated, smooth below, hirsute above, a foot high and more. Branches alternate, spreading, sub-fastigiate, resembling the stem. Leaves bipinnate, rough with hairs. Umbels terminal. Petioles and peduncles very hirsute with white hairs pressed to them, and rugged. Seeds ovate-oblong. It differs from *Cb. divfutum* in having smaller leaflets, more divided, with the sheaths not dilated; and in the umbels being smaller. Near Jedo, &c. in Japan, flowering in April and May^o.

10. Stem shrubby. Leaves like those of the first species, large, superdecompound, with the pinnae much expanded, glossy, gash-serrate. Umbels thin, white, with a partial involucre: all the florets fer-tile. Native of Virginia^p.]

^f Curtis & Pelhan.

^g Linn. syst.

^h Hort. kew.

ⁱ Linn.

^k Hort. kew.

^l Linn. mant.

^m Linn.

ⁿ Hort. kew. from Lobel.

^o Thunberg.

^p Linn. spec.

PROPAGATION AND CULTURE.

The first and fourth species are common weeds. The others are admitted only into botanic gardens; not being in use either for medicine, or in the kitchen. If the seeds be permitted to scatter, the plants will come up without farther care; or they may be sown in spring, where they are to remain.

[CHÆROPHYLLUM. See *Althamanta* and *Scandix*.

CHÆFEWEED. See *Filago*.

CHALCAS PANICULATA. See *Murraya exotica*.

CHALCEIOS. See *Echinops*.

CHAMÆBALANUS. See *Arachis*.

CHAMÆBUXUS. See *Polygala*.]

CHAMÆCERASUS. See *Prunus* and *Lonicera*.

[CHAMÆCISSUS. See *Glechoma*.]

CHAMÆCISTUS. See *Andromeda*, *Azalea*, *Cistus*, *Por-tulaca*, *Rhododendron*, *Saxifraga*, and *Turnera*.

CHAMÆCLEMA. See *Glechoma*.

[CHAMÆCRISTA. See *Cassia*.

CHAMÆ-CHRYSOCOME. See *Stæbelina*.]

CHAMÆCYPARISSUS. See *Santolina*.

CHAMÆDAPHNE. See *Andromeda*, *Kalmia*, *Mitchella*, *Ruscus*.

[CHAMÆDRIFOLIA. See *Forskoëblea*.]

CHAMÆDRYS. See *Barbisa*, *Dryas*, *Pæderota*, *Rhinan-thus*, *Teucrium*, *Veronica*.

[CHAMÆFILIX. See *Asplenium*.

CHAMÆ-GENISTA. See *Genista*.

CHAMÆIASME. See *Stellera*.

CHAMÆIRIS. See *Iris*.

CHAMÆLARIX. See *Aspalathus*.]

CHAMÆLEA. See *Cneorum*, *Clutia*, *Phyllica*, and *Tragia*.

CHAMÆLEAGNUS. See *Myrica*.

[CHAMÆLEON. See *Atractylis*, *Carduus*, *Carlina*, *Car-thamus*, *Centaurea*, *Cnicus*.

CHAMÆLINUM. See *Linum*.]

CHAMÆMELUM. See *Achillea*, *Anthemis*, *Arctotis*, *Chrysanthemum*, *Cotula*, *Matricaria*.

CHAMÆMESPIUS. See *Mespilus*.

[CHAMÆ-MOLY. See *Allium*.]

CHAMÆMORUS. See *Rubus*.

CHAMÆNERION. See *Epilobium*.

CHAMÆ-ORCHIS. See *Ophrys*.

[CHAMÆPERICLYMENUM. See *Cornus*.

CHAMÆPEUCE. See *Stæbelina*.]

CHAMÆPITYS. See *Cressa*, *Dracocephalum*, *Erica*, *Teucrium*.

CHAMÆRHODODENDRON. See *Azalea* and *Kalmia*.

CHAMÆRHODODENDROS. See *Azalea* and *Rhododen-dron*.

CHAMÆRIPHES. See *Chamærops*.

CHAMÆROPS. (χαμαὶ ὢ ῥωψ, a low shrub.)

Dwarf Palm or Palmetto.

Lin. Appendix. Palmae. n. 1289. Reich. App.

Palmae. Schreb. 1688. Juss. 39. Mus. Cliff. 10.

Chamæriphe Pont. 10. (Polygamia Dioecia.)

Gartn. t. 9.

GENERIC CHARACTER.

* Hermaphrodite Flower.

CAL. Spathe universal, compressed, bifid; Spadix branching; Perianth proper tripartite, very small.

COR. tripartite. Petals ovate, coriaceous, erect, acute, inflexed at the tip.

STAM. Filaments six, subulate-compressed, scarce cohering at the base. Anthers linear, twin, growing to the interior side of the filaments.

PIST. Germs three, roundish; Styles as many distinct, permanent. Stigmas acute.

PER. Drupes three, globose, unilocular.

SEEDS solitary, globose.

* Male Flower in a distinct plant, flowering in the same manner.

CAL. and COR. as in the Hermaphrodite.

STAM. A gibbous receptacle, ending in six Filaments not marked by perforations.

All the other particulars as in the Herma-phrodites.

ESSENTIAL CHARACTER.

HERMAPHR. Cal. three-parted. Cor. three-petalled.

Stam. six. Pist. three. Drupes three, one-seeded.

MALES. Dioecous, as in the hermaphrodite.

Obs. Thunberg removes this genus into the class Hexandria, and the order Monogynia, along with Mufa.

SPECIES.

1. *Chamærops humilis*. Dwarf Fan-Palm.
Lin. spec. 1657. *Reich.* 4. 632. *hort. cliff.* 482. 1.
Chamæripes major. *Gærtn. fruct.* 1. 26.
Palma minor. *Bauh. pin.* 506.
P. humilis f. *Chamæripes*. *Bauh. hist.* 1. 369.
Raii hist. 1369.
Chamæripes. *Dod. pempt.* 820. *Pont. anth.* 147.
t. 8. *Dalech.* 369.
Fronds palmated, plaited; stipes thorny.
β. Chamærops glabra. *Palmetto Royal*.
Mill. dict. n. 2.
Leaves fan-shaped very large; stipes smooth.
- [2. *Chamærops excelsa*.
Lin. syst. 984. *Thunb. jap.* 130.
Sjuro & Sodio. *Kämpf. amœn.* 5. 898.
β. Soo Tſiku, v. Sjuro Tſiku. *Kämpf. amœn.* 5. 898.
Fronds palmated, nervous, serrate; stipes unarmed.
3. *Chamærops cochinchinensis*.
Lour. cochinch. 657.
Fronds palmate plaited, stipes thorny, spathes partial, corollas monopetalous.

DESCRIPTIONS, &c.

1. This never rises with an upright stem, but the foot-stalks of the leaves rise immediately from the head of the root, and are armed on each side with strong spines; they are flat on their upper surface, and convex on their under side. The centers of the leaves are fastened to the foot-stalk, and spread open like a fan, having many foldings, and at the top are deeply divided like the fingers of a hand; when they first come out, they are closed together like a fan when shut, and are fastened together by strong fibres which run along the borders of the leaves; and when the leaves spread open, these fibres or strings hang from the sides and ends; the borders of the leaves are finely sawed, and have white narrow edgings; they are from nine to eighteen inches long, and near a foot broad in their widest part: as the lower leaves of the plants decay, their vestiges remain, and form a short stump above ground, in the same manner as our common male Fern does; from between the leaves comes out the spadix or club, which sustains the flowers; this is covered with a thin spathe or hood, which falls off when the bunches open and divide.

[According to Gærtner, the pericarp consists of three berries, which are ovate-globular, rounded three-cornered at bottom, of a rufous chestnut colour, with pale callose dots: rind thin, leathery. Seed smooth, oblong-spheroidal, testaceous, with a small lateral teat below the middle.]

It grows naturally in Italy, Sicily and Spain, particularly in Andalusia, where, in the sandy land, the roots spread and propagate so fast, as to cover the ground in the same manner as Fern in England. The leaves of these plants are tied together to make besoms for sweeping.

1. *β. Chamærops glabra* of Miller is native of the West-Indies, where it never rises with a stem; the stipes are rounder than those of the European Fan-Palm, and have no spines on their sides. When the plants are old, the leaves are three or four feet long, and upwards of two broad, and of a darker green; the folds also are broader: some of them have put out slender bunches of male flowers in England.

There is a dwarf Palm from Carolina very like this, if not the same.

[They are also used for making baskets, and in thatching. The pith next the root is tender and sweetish, and is sometimes eaten in deserts¹.

Cultivated 1731, by Mr. Miller².

2. A lofty tree. Leaves smooth, green above, pale underneath: lobes cohering at the base, linear, cleft at the end, serrated, with rough veins. Petioles

three-cornered, entire, the length of the leaves. Flowers panicle. Panicle decomposed, expanding, with floscules sessile on the extreme pedicels. Besoms are made of the slender netted bark of the trunk.—The variety is a much lower tree. Native of Japan³.

3. Trunk eight feet high, an inch in diameter, straight, equal. Stipes long, slender, with short, straight, scattered spines. Fronds turbinate, with oblong blunt small many-plaited segments. Spadix short, upright. Spathes lanceolate, shorter than the spadix. No universal spathe. Calyx consisting of three sharp, curved, upright, short leaflets. Corolla one-petalled, cup-shaped, three-cornered; border trifid, bent in, very small. Filaments very short, placed on the border of the corolla: anthers roundish, minute. Drupes ovate, small, juiceless, not eatable.

Native of the woods of CochinChina. The fronds are fit for covering houses, and making umbrellas⁴.]

PROPAGATION AND CULTURE.

The dwarf Fan-Palm is commonly propagated here by heads, which sometimes separate from the main root; if these are carefully taken off with fibres and planted, they will grow; but the plants so raised are not so good as those which are produced from seeds; so that if good seeds can be procured, that is by much the better way to propagate it. The seeds should be sown in small pots filled with light sandy earth, and plunged into a moderate hot-bed of tanners bark; these must be refreshed now and then with water. If the seeds are fresh, the plants will come up in two months; these rise with a single long-pointed leaf. When they appear they must be now and then refreshed with water, but they must not have it in too great plenty. If the plants are not too close to each other in the pots, they will not require to be transplanted the first year; therefore they should remain in the tan-bed all the summer, but in warm weather they must have plenty of air admitted to them. In autumn the pots should be removed into the stove, and, if they are plunged into the bark-bed the first winter, it will greatly forward the growth of the plants. The following spring the plants should be carefully turned out of the pots, so as to preserve their roots entire; for all the sorts of Palms have tender roots, and if these be cut off or broken, the plants are frequently killed: then they should be each planted into a separate small pot filled with light, sandy, undunged earth, and plunged into a fresh hot-bed to encourage their taking root; the following summer they should be gradually hardened, by raising the glasses pretty high, so as to admit a large share of air to them, but they should not yet be wholly exposed to the open air. The autumn following the plants may be placed in a dry stove; but as the plants advance and get strength, they may be treated more hardily, and in summer placed in the open air in a warm situation, and in winter may be preserved in a warm greenhouse without artificial heat.

As the plants advance in growth, they should be put into larger pots; but when this is done, there must be great care taken that their roots are not cut or broken, nor should they have pots too large. In winter they must have but little water, and if they are exposed to the open air in summer, they will not require much, unless the season proves very warm and dry, in which case they may be sparingly watered two or three times a week.

CHAMÆRUBUS. See *Rubus*.

CHAMÆSYCE. See *Euphorbia*.

CHAMEJASME. See *Houstonia*.

CHAMELÆA. See *Daphne*, *Paullinia*, *Tragia*.

CHAMIRA. See *Heliophila*.

CHAMOMILLA. See *Matricaria*.

CHAMPACA and CHAMPACAM. See *Michelia*.

CHAMPIGNON. See *Agaricus*.

¹ Ray.

² Hort. kew.

³ Thunberg.

⁴ Loureiro.

C H A

CHANDIROBA. See *Feuillea*.
 CHANGEABLE ROSE. See *Hibiscus mutabilis*.
 CHANSCHENA-POU. See *Bauhinia*.
 CHANTARELLE. See *Agaricus*.
 CHARA. (*χαρά*, the joy or delight of the water.)
Lin. gen. n. 1203. *Reich.* 1127. *Schreb.* 1397.
Gärtn. t. 84. *Juss.* 18. *Vaill. act. gall.* 1719.
t. 3. *Hippuris Dill. gen.* 2. *Pont. anth.*
Class. 21. 1. *Monoecia monandria*.
Nat. order of Inundatæ. Naiades Juss.

GENERIC CHARACTER.

* Female flower.

CAL. *Perianth* four-leaved; *leaflets* subulate, erect, permanent: the two opposite exterior ones longer than the others.

COR. none.

PIST. *Germ* turbinate. *Style* none. *Stigma* five-cleft, oblong, deciduous.

PER. *Crust* ovate, unilocular, adhering.

SEED single, ovate, spirally striated.

* Male flower at the base of the germ, beyond the calyx.

CAL. none.

COR. none.

STAM. *Filament* none. *Anther* globose, before the germ, beyond the calyx, beneath.

OBS. The common *Chara* bears oblong polyspermous berries. Weis. R.

ESSENTIAL CHARACTER.

MALE. Cal. and Cor. none. *Anther* before the germ, underneath.

FEM. Cal. four-leaved. Cor. none. *Stigma* five-cleft. *Seed* one.

SPECIES.

1. *Chara tomentosa*. Brittle *Chara* or *Stonewort*.
Lin. spec. 1624. *Reich.* 4. 89. *fl. succ. n.* 1132.
Huds. angl. 398. *With.* 1015. *Hall. belv.*
n. 1683. *Raii syn.* 132. *n.* 2.
Equisetum. Pluk. alm. t. 29. *f.* 4. *Mor. f.* 15.
t. 4. *f.* 9.
Hippuris coralloides. Ger. emac. 1115. *n.* 7.
Raii hist. 130.
Prickles on the stem ovate.
2. *Chara vulgaris*. Common or sinking *Chara* or *Stonewort*.
Lin. spec. 1624. *Reich.* 4. 90. *fl. lapp. n.* 469.
succ. n. 1131. *Huds. angl.* 397. *With.* 1015.
Lightf. 535. *Relb. cant. n.* 668. *Scop. carn.*
n. 1419. *Neck. gallob.* 525. *Pollich pal. n.*
1135. Hall. belv. n. 1681. *Weis. crypt.* 32.
Vaill. act. 1719. 17. *t.* 3. *f.* 1. *Gärtn. fruct.*
2. 25.
Hippuris foetida. Dill. gif. 105.
Equisetum foetidum sub aqua repens. Baub. pin.
16. prodr. 25. *theatr.* 251. *Baub. hist.* 3. 731.
Raii hist. 130. *Park.* 1201. *f.* 10.
Stems glossy; leaves toothed on the inside.
3. *Chara hispida*. Prickly *Chara* or *Stonewort*.
Lin. spec. 1624. *Reich.* 4. 90. *fl. succ. n.* 1133.
Huds. angl. 398. *With.* 1016. *Lightf.* 535.
Relb. n. 670. *Fl. dan. t.* 154. *Vaill. act.*
1719. 18. t. 3. *f.* 3. *Hall. belv. n.* 1682.
Equisetum. Pluk. alm. t. 193. *f.* 6.
Prickles on the stem capillary, crowded.
4. *Chara flexilis*. Smooth *Chara* or *Stonewort*.
Lin. spec. 1624. *Reich.* 4. 90. *fl. succ. n.* 1134.
Huds. angl. 398. *With.* 1017. *Lightf.* 536.
Pollich pal. n. 1136. *Hall. belv. n.* 1684.
Vaill. par. 18. *t.* 3. *f.* 8, 9.
Joints of the stem unarmed, diaphanous, broader upwards.

DESCRIPTIONS, &c.

These plants, which were ranged by Linneus among the *Cryptogamia Algæ*, have in his later works, on more accurate inspection, been removed to *Monoecia Monandria*.

1. Plant always flesh-coloured when alive, but when dry it becomes ash-coloured. Stem twisted^a, brittle, and gritty in the mouth, like Coralline. Low and creeping in marshes and where there is

^a Linn. succ.

C H E

little water, but in deep waters growing out in length and erect. The bristles at the joints sometimes naked, sometimes rough with little spines, especially towards the top^x. According to Weis, the stems much branched, flexible when young, but growing very stiff as they advance in age, and covered with a gritty tufo; when dry they are so brittle as to fly with the least touch. In summer this plant abounds in oblong berries, growing yellow when ripe, and having very small black seeds in them. In salt-marshes, ditches, pools, lakes, &c. in many parts of Europe.—In England Mr. Leonard Buckner first found it three miles beyond Oxford, near Evansham ferry, 1632. Mr. Bowles found it afterwards on a bog near Chislehurst in Kent^y.—Near Bath; Besorfeigh; in the rivulet that runs from Malham Tarn; common in peat ditches in Lancashire and Westmoreland.—Annual, flowering from June to October.

2. The whole plant is yellowish or reddish green. Flowers in the divisions of the stem. Green when fresh, and extremely fetid; glaucous when dry, and very brittle. Leaves sometimes ten or twelve in a whorl^z. Stem but little branched, six to nine inches long, flexible. Leaves six in a whorl, (eight or nine. *Lightf.*) jointed, the knots with prickles, and often fructifications on the inside. Flowers polygamous, sessile^z.—Ditches and pools. Annual, flowering in July and August.

3. Whitish or pale green when fresh, with spines or prickles usually bent down^b. Stem twisted spirally, its lower part, branches and lower leaves frequently naked; upper part thick set with prickles. Leaves eight to ten in a whorl. Prickles in bundles, at short distances on the upper side of the leaves, resembling half whorls. Not so fetid as *C. vulgaris*. The whole plant has a strong scent of garlic^c.

In several parts of Europe, on sea coasts, &c. With us by Hinton moor near Cambridge; Ellingham, Norfolk; near Gayton, Staffordshire, in Yorkshire, Lancashire and Westmoreland; East-Lothian, Scotland; and on the turf bogs of Ireland. Annual, flowering from June to October.

4. Stems eight or ten inches long, fistular, tender, smooth, flexible, dull green, pellucid. Leaves smooth, linear, fistular, pointed at the end, from four to ten or twelve in a whorl, often subdivided into two, and sometimes three forks or branches, at a joint near their extremity. The whorls grow in clusters towards the upper part of the stalks, secondary ones being produced from the axils of the primary. Fructifications either single or in pairs, sessile, and placed on the inside, at the angle of the forks: they appear at first like small round yellowish grains, afterwards turn black, and are inclosed within a green transparent pericarp^d.

In several parts of Europe, on the sea coast, &c. With us in lakes, ponds, ditches and bogs: as about Henley near Ipswich, near Knareborough, near Hornsey, and in several of the Scotch lakes, as Loch Lomond, &c.—Annual; flowering from June to October.

PROPAGATION AND CULTURE.

These plants having no beauty, nor any use that we are acquainted with, and growing only in water, are not cultivated in gardens.

CHARACIAS. See *EUPHORBIA*.

CHARANTIA. See *Momordica*.

CHARLOCK. See *Sinapis arvensis*.

CHASTE-TREE. See *Vitex*.

CHATE. See *Cucumis*.

CHAW-STICK. See *Gouania*.

CHAYOTA. See *Sechium*.

CHEESE-RENNING OR RENNET. See *Galium*.]

CHEIRANTHUS. (From the arabic *Keiri*; altered by Linneus into a name in the greek form, from *χείρ*, a hand, and *άνθος*, a flower.)

^x Raii syn.

^y Ger. emac.

^z Woodw. Mff.

^a Stokes in Withering.

^b Linn. succ.

^c Woodw. Mff. and Withering.

^d Lightfoot.

Lin. gen. n. 815. Reich. 879. Schreb. 1091.
Gartn. t. 143. Juss. 238. Leucoium Tourn.
107.

Class. 15. 2. Tetradynamia Siliquosa.

Nat. order of *Siliquosæ*, *Cruciformes* or *Cruciferae*.

GENERIC CHARACTER.

CAL. *Perianth* four-leaved, compressed: *leaflets* lanceolate, concave, erect, parallel-converging, deciduous; the two outer gibbous at the base.

COR. Four-petalled, cruciform. *Petals* roundish, longer than the calyx; claws the length of the calyx.

STAM. *Filaments* six, subulate, parallel, the length of the calyx: two of them within the gibbous leaflets of the calyx, a little shorter than the other four. *Anthers* erect, bifid at the base, acute at the tip, and reflected. *A nectareous* gland surrounds the base of the shorter stamens on each side.

PIST. *Germ* prismatic, four-cornered, the length of the stamens, marked with a tubercle on each side. *Style* very short, compressed. *Stigma* oblong, two-parted, reflected, thickish, permanent.

PER. *Siliques* long, compressed, the two opposite angles obliterated, marked with a toothlet, two-celled, two-valved; furnished with the very short style, and the erect bifid stigma.

SEEDS very many, pendulous, alternate, subovate, compressed; with a membranous edge.

OBS. *The toothlet on each side of the germ, in some species is almost evanescent; in others increases.*

ESSENTIAL CHARACTER.

Germ with a glandulous toothlet on each side.
Cal. closed: with two leaflets gibbous at the base. *Seeds* flat.

SPECIES.

1. *Cheiranthus erysimoides*. *Wild Wall-flower*, or *Stock*.
Lin. spec. 923. *syft.* 597. *Reich.* 3. 262. *fl. succ.* n. 603. *Huds. angl.* 287. *With.* 698. *Jacqu. austr.* 1. t. 74. *Villars dauph.* 3. 314.
Erysimum sylvestre. *Scop. carn.* n. 630.
Leucoium luteum sylvestre angustifolium. *Baub. pin.* 202. *Mor. f.* 3. t. 8. f. 18.
L. sylvestre. *Clus. hist.* 1. 299. *Baub. hist.* 2. 873. f. 2. *Raii hist.* 783. *Ger.* 373. 4. *emac.* 457. 4. *Park.* 625. 2.
 β . *Ch. integerrimus*. *Mill. dict.* n. 2.
Hesperis leucii fol. non ferrato, filiqua quadrangula. *Tourn. inst.* 223.
Leaves lanceolate toothed naked, stem erect quite simple, siliques four-cornered.
- [2. *Cheiranthus helveticus*. *Swiss Wall-flower* or *Stock*.
Lin. syft. 597. *Jacqu. hort.* 3. t. 9. *Allion. pedem.* n. 988. t. 58. f. 2. *Hall. belv.* n. 450.
Leaves lanceolate toothed naked, stem erect, siliques four-cornered, acuminate with the style.]
3. *Cheiranthus alpinus*. *Alpine or Straw-coloured Wall-flower*, or *Stock*.
Lin. syft. 597. *Reich.* 3. 262. *mant.* 93. *Jacqu. austr.* 1. t. 75. *Allion. pedem.* n. 986. t. 20. f. 2. *Villars dauph.* 3. 315.
C. angustifolius. *Mill. dict.* n. 4.
Hesperis. *Hall. belv.* n. 449. t. 14.
Erysimum Hesperis. *Scop. carn.* n. 829. *Ger. prov.* 363. n. 7.
Eruca. *Lob. ic.* 205. f. 1.
Leaves linear entire subtomtose, stem branching.
- [4. *Cheiranthus strictus*.
Lin. syft. 597. *suppl.* 296.
Leaves linear acute smooth, stem shrubby erect.
5. *Cheiranthus callosus*.
Lin. syft. 597. *suppl.* 296.
Leaves lanceolate entire callous, stem angular shrubby.]
6. *Cheiranthus Cheiri*. *Common Wall-flower*.
Lin. spec. 924. *Reich.* 3. 263. *hort. cliff.* 334. *mat. med.* 162. *Huds. angl.* 287. *With.* 699. *Relb. cant.* n. 481. *Neck. gallob.* 283. *Blackw.* t. 179. *Pct.* t. 45. f. 3.
Leucoium. *Hall. belv.* n. 443.—*luteum* *Dod. pempt.* 160. f. 2. *lut. vulgare*. *Baub. pin.* 202. *Mor.*

- f.* 3. t. 8. *f.* 15.—*lut. v. Cheiri fl. simplici* *Baub. hist.* 2. 872. *Raii hist.* 782.
- Viola lutea*. *Ger.* 371. 1. *emac.* 456. 1.
- Keiri f. L. vulgare luteum*. *Park.* 625. 1. *par.* 257.
- β . *L. luteum magno flore*. *Baub. pin.* 202. *prodr.* 102. *Raii hist.* 782. *Park. par.* 257. n. 2.
- γ . *L. lut. ferrato fol. flore grandiore*. *Baub. pin.* 202. *prodr.* 102. 2. *Raii hist.* 783.
- δ . *L. lut. pleno fl. majus & minus*. *Baub. pin.* 202. 6, 7. *Raii hist.* 782. *Ger.* 371. 2. *emac.* 456. 2. *Park. par.* 257. n. 4, 5, 6, 7.
Leaves lanceolate acute smooth, branches angular, stem shrubby.
- [7. *Cheiranthus fruticulofus*.
Lin. syft. 597. *Reich.* 3. 263. *mant.* 94.
Leucoium lut. minus fruticans. *Barr. ic.* 1228.
Leaves lanceolate acute smooth subserrate, stem shrubby.]
8. *Cheiranthus chius*.
Lin. spec. 924. *Reich.* 3. 264. *Murr. prodr.* 166. *Hesperis*. *Lin. hort. cliff.* 335. n. 3. *Dill. ellb.* 180. t. 148. f. 178.
Leucoium thlaspioides facie. *Herm. par.* 192. t. 193. 61.
Leaves obovate veinless emarginate; siliques subulate at the tip.
9. *Cheiranthus maritimus*. *Dwarf annual, Stock Gilliflower*.
Lin. spec. 924. *syft.* 597. *Reich.* 3. 264. *mant.* 568. *amæn.* 4. 280. *Curtis magaz.* t. 166.
Leucoium marinum parvum fol. virente crassiusculo. *Baub. hist.* 2. 877. *Pluk. alm.* 213.
L. minus fl. violaceo. *Barr. ic.* 1127.
Leaves elliptic obtuse naked roughish; stem diffused, rough.
- [10. *Cheiranthus salinus*.
Lin. syft. 597. *Reich.* 3. 264. *mant.* 93.
Leaves lanceolate obtuse quite entire; stem erect; anthers included.]
11. *Cheiranthus incanus*. *Stock-gilliflower*.
Lin. spec. 924. *Reich.* 3. 265. *hort. cliff.* 334. 2. *Mill. illustr. ic.*
Leucoium incano fol. hortense. *Baub. pin.* 200. n. 1. 2. 4. 5. 6. 7. *Raii hist.* 779. n. 1. *Ger.* 372. f. 1, 2. & 373. f. 3. *emac.* 458. f. 1, 2. *Park.* 622. f. 1. *par.* 259. f. 5. 6. & 263. f. 2, 3. *Mor.* f. 3. t. 8. f. 1, 2.
 α . *Queen's Stock-gilliflower*. *Mill. dict.* n. 6.
 β . *Ch. coccineus*. *Brompton Stock-Gilliflower*. *Mill. dict.* n. 7.
 γ . *Ch. albus*. *White Stock-Gilliflower*. *Mill. dict.* n. 8.
 δ . *Ch. glaber*. *Wall-flower-leaved Stock-Gilliflower*. *Mill. dict.* n. 9.
L. album odoratissimum fol. viridi. *Baub. pin.* 202. *prodr.* 102. *Raii hist.* 781.
Leaves lanceolate quite entire obtuse hoary; siliques truncate at the end and compressed; stem under-shrubby.
12. *Cheiranthus fenestralis*. *Cluster-leaved Stock-Gilliflower*.
Lin. spec. 924. *syft.* 598. *Reich.* 3. 265. *dec.* 31. t. 16. *Jacqu. hort.* 2. t. 179.
Leaves crowded in heads recurved waved; stem undivided.
13. *Cheiranthus annuus*. *Annual Stock-Gilliflower*, or *Ten-week Stock*.
Lin. spec. 925. *syft.* 598. *Reich.* 3. 265.
Leucoium incanum minus. *Baub. pin.* 200. *Raii hist.* 779.
Leaves lanceolate somewhat toothed obtuse hoary; siliques cylindric acute at the end; stem herbaceous.
14. *Cheiranthus littoreus*. *Sea Stock-Gilliflower*.
Lin. spec. 925. *Reich.* 3. 265.
L. maritimum angustifolium. *Baub. pin.* 201. *Raii hist.* 780. *Clus. hist.* 1. 298. f. 2. *Ger.* 375. 5. *emac.* 461. 5. *Park.* 623. 4.
Leaves lanceolate somewhat toothed tomentose and fleshy; petals emarginate; siliques tomentose.
15. *Cheiranthus tristis*. *Dark-flowered Stock-Gilliflower*.
Lin.

- Lin. spec. 925. Reich. 3. 266. Gouan. illustr. 44.
Allion. pedem. n. 991.
- Leucoium. Barr. ic. 999. n. 1, 2. 1019, & 802.
Bocc. mus. 148. t. 111, fig. med. inf.
- Leaves linear subsinuate; flowers sessile, petals waved;
stem shrubby.
- [16. Cheiranthus trilobus.
Lin. spec. 925. Reich. 3. 266.
Leuc. maritimum minimum. Baub. pin. 201.
prodr. 103.
Leaves toothed obtuse; calyxes even; siliques knotted
mucronate filiform even.]
17. Cheiranthus tricuspidatus. Trifid Stock-Gilliflower.
Lin. spec. 926. Reich. 3. 267. Gertn. fruct.
2. 296. Gron. orient. 80. Sabb. hort. 4. t. 25.
Leucoium maritimum. Cam. hort. 87. t. 24. Mor.
242. f. 3. t. 8. f. 13.
Leaves lyrate; siliques three-toothed at the tip.
18. Cheiranthus sinuatus. Prickle-podded Stock-Gil-
liflower.
Lin. spec. 926. Reich. 3. 267. Hudf. angl. 288.
With. 700.
Leucoium maritimum sinuato fol. Baub. pin. 201.
L. mar. magnum latifolium. Baub. hist. 2. 875.
f. 876. 1.
L. maritimum maximum. Park. 622. Raii hist. 780.
L. marit. majus. Lob. ic. 1. 330. 2. Ger. 374. 2.
emac. 460. 2.
Leaves tomentose obtuse subsinuate, branch-leaves en-
tire; siliques muricate.
- [19. Cheiranthus Farsetia.
Lin. syst. 598. Reich. 3. 267. mant. 94. Vabl.
fymb. 1. 48.
Farsetia ægyptiaca. Turra Farset. 1. t. 1.
Lunaria scabra. Forsk. ægypt. 117. n. 60. ic. t. 16.
β. C. linearis. Forsk. ægypt. 120.
Siliques oval compressed; leaves linear-lanceolate;
stem shrubby erect.
20. Cheiranthus tenuifolius. Narrow-leaved shrubby
Stock-Gilliflower.
Ait. hort. kew. 2. 395. L'Herit. st. nov. 92.
Leaves filiform quite entire somewhat silky, stem fru-
tescent branched.
21. Cheiranthus mutabilis. Broad-leaved shrubby
Stock-Gilliflower.
Ait. hort. kew. 2. 395. L'Herit. st. nov. 92.
Curt. magaz. t. 195.
Leaves lanceolate acuminate sharply serrate, stem fru-
tescent, siliques peduncled.
22. Cheiranthus quadrangulus.
L'Herit. st. nov. 91. t. 44.
C. montanus. Pallas it. 1. 496.
Leaves linear entire, siliques sessile oblong quadran-
gular.

DESCRIPTIONS, &c.

1. Root perennial: or, according to some, bien-
nial. Stem usually one (in the wild plant) purplish
at bottom, generally quite simple, in height from
six to eighteen inches; on the Pyrenees not above
two inches high. Leaves narrow, sharpish, sessile,
dark green, either linear or oblong-lanceolate, ge-
nerally quite entire, but the lower ones sometimes
toothletted. The stem, leaves, and unripe silique
have some roughness^a.

The flowers are the size of those in *Brassica olera-
cea*. Calyx green, not sea-green, smooth. Stigma
as thick as the pistil, divided to the base into two
lobes. Germs tomentose. In appearance it ap-
proaches very near to *Erysimum cheiranthoides* and
hieracifolium^b.] The leaves resemble those of the
common Wall-flower, as do also the flowers, but
they have no scent, they are yellow, and in loose
spikes or corymbs. [The stems are branched, and
bordered; in which it differs from this genus *Chei-
ranthus*^c. It differs in the calyx from *Erysimum*;
in the seeds from *Cheiranthus*, according to Haller.
Italy, Spain, France, Switzerland, Germany, Austria,
Hungary, Sweden. England in the osier-holts
about Godstow near Oxford, and East-Grinstead in

Suffex.] It flowers in june, and ripens its seeds in
autumn.

The variety rises with an upright stalk nearly the
same height, but does not branch out. The leaves
are broader, smoother, and not pointed; they are
alternate, sessile, and of a deep green. Native of
Hungary and Istria.

Miller is confident that it is different, and makes
it a distinct species from the other.

[2. In appearance very like the foregoing, but
more shrubby; flowers smaller and having less
scent; the seeds twice as large, and the stigma sepa-
rated from the germ by a style; whereas in the *ery-
simoides* there is no style whatever.—Root perennial.
Stem erect, somewhat angular, eighteen inches high,
when young a little villose. Leaves narrow-lan-
ceolate, acute, thickish, usually somewhat rugged,
subsessile, obscurely villose, pale green, for the most
part quite entire, but sometimes having a few teeth.
Racemes corymbed, long and erect. It flowers in
may and june, and the seeds ripen in july. Native
of Switzerland^d.

3. It very much resembles the first species, but
differs in having hoary leaves and a branching
stem^e.

The whole plant is roughish. Root biennial.
Stem stiffly erect, solitary or few, from one to three
feet in height, simple or branching, somewhat an-
gular, slender, firm. Leaves lanceolate-linear, with
very short, scarcely conspicuous hairs, sessile, acute:
when the flowers are going off, drying up and fall-
ing, so as to leave the stem naked. In some indi-
viduals the leaves are truly linear, quite entire,
almost hoary, and convolute: in others they are
much broader, greener, and the lower ones toothed
here and there. The stems and branches are pro-
duced into very long racemes. The flowers are
pale yellow or sulphur-coloured, and have little or
no smell. They appear in june and july, and the
seeds are perfected in august and september. On
banks, walls, &c. in Austria and Provence^f; Swit-
zerland, and the mountains of Piedmont.—It was
cultivated in 1731, by Mr. Miller^g.

4, 5. Found at the Cape by Thunberg^h.

6. Stem woody, a foot high, ascending. Branches
angular. Leaves crowded, upright, lanceolate, with
few serratures, smooth, concave. Petioles hardly
distinct from the leaves. Peduncles four-cor-
neredⁱ.] On walls it is seldom more than six or
eight inches high, with very tough roots and firm
stalks, the leaves short and sharp-pointed, and the
flowers small; but in gardens it is two feet high,
and branches wide; the leaves are broader, and the
flowers much larger.

[The principal varieties are, 1. Common dwarf
yellow. 2. Large yellow. 3. Large yellow bloody.
4. True Bloody. 5. Narrow-leaved Straw-co-
loured. 6. Variegated-leaved yellow. 7. Winter.
8. White.—And these are either single or double.
Parkinson enumerates seven varieties.—1. Common
single. 2. Great single. 3. White. 4. Common
double. 5. Pale double. 6. Double red; which
is what we now call Bloody. 7. Greatest double
yellow; then, as he says, a stranger in England^k.

The common Wall-flower is a native of Switzer-
land, France, Spain, &c.; and is common on old
walls and buildings in many parts of England. It
is one of the few flowers which have been cultiva-
ted for their fragrantcy, time immemorial, in our
gardens.

7. Resembles the foregoing very much, but is
a lower plant, being only three or four inches high.
Branches angular. Leaves subpetioled, acuminate,
hardish; the lowest having a few small serratures.
Flowers one-eighth of the size of the common
Wall-flower, less fragrant, pale yellow: petals
roundish, obscurely emarginate. Anthers bluish.
Native of Spain^l.

^a Jacquin.^b Linn. suppl.^c Linn.^d Lyons in Relh. cant.^e Linn. mant.^f Jacq.^g Hort. kew.^h Farad.ⁱ Jacquin.^j Linn. succ.^k Stokes in Withering.

8. Very nearly allied to the following species. Stem prostrate at bottom; then oblique, flexuose, roundish, rough with stiff, appressed hairs, nine inches high, brittle; branches alternate, spreading. Leaves alternate, ovate-lanceolate, generally obtuse, ending in a long petiole, rugged about the edge, serrate here and there, the middle vein prominent beneath. Flowers at the ends of the branches: calyx manifestly gibbous and almost conical: claws of the petals of the same length with the calyx, white, border obcordate, purplish red, paler underneath. Siliques hirsute with appressed hairs.—Leaves not emarginate, nor so oblong as in *Dillenius's* figure^m.

Native of the island of Chios, and Russia.

9. Stems very much branched, divaricated, somewhat stiff, rugged, with twin appressed hairs. Leaves oval-lanceolate, somewhat reflected at the tip, green, on rather long petioles, stiffish: the upper ones obscurely subdentated. Raceme terminal. Calyx closed, even. Petals obcordate, red, turning purple. Anthers in the throat of the flowerⁿ.]

It seldom rises more than six inches in height, [unless it be preternaturally drawn up. The native place of growth is the coast of the Mediterranean; and therefore it is very improperly called Virginia Stock. Annual.—Cultivated 1739, by Mr. Miller^o.

10. Very like the next species, but only one-eighth of the size, the whole very smoothly tomentose. Stems erect, continuing some years. Leaves not toothed in the least. Corolla purple, with a yellowish throat. Stigma obtuse, thickish, bifid, and by no means slender. It has the smell of the Stock Gilliflower.—Salt-marshes of Siberia and Tartary^p.]

11. The Queen's Stock-Gilliflower rises with a strong stalk, which is almost shrubby, a foot high or more, having oblong, spear-shaped, hoary leaves, which are frequently waved on their edges, and turn downward at the extremity; from the stalk come out many lateral branches, with the same shaped leaves, but smaller; these side branches are each terminated by a loose spike of flowers, each having a woolly calyx, and four large roundish petals, indented at the end. These usually appear in May and June, but the same plants frequently continue flowering most part of the summer. The seeds ripen in autumn, and the plants generally perish soon after; but when any of them grow in dry rubbish, they will last two or three years, and become shrubby; but those with single flowers are not worth preserving after they have perfected their seeds. The flowers of this sort vary in their colour; some are of a pale red, others are of a bright red, and some are curiously variegated, but those of the bright red are generally most esteemed. If the seeds be well chosen, frequently three parts in four of the plants will be double; and as the plants divide into many branches, they make a fine appearance during their continuance in flower.

β. Is known by the title of Brompton Stock-Gilliflower, I suppose from its having been there first cultivated in England. This rises with an upright, strong, undivided stalk, to the height of two feet or more, with long hoary leaves, which are reflexed, and waved on their edges, and at the top form a large head; out of the center of these arises the flower-stalk, which, when the plants are strong, is frequently a foot and a half long, putting out two or three short branches toward the bottom; the flowers of this kind have longer petals, and are formed into a pyramidal spike; but those with single flowers are loosely disposed, because the flowers having but few petals, do not fill the spike, as those do which are double; for these often have so many petals, as to render each flower as large and full as small Roses; and when they are of a bright red, they make a pretty appearance, but the plants of this sort produce but one spike, in which

it differs from all the others. This is generally biennial, though many times the plants are preserved longer; but they are always stronger the first year of their flowering than they will be after; so that the seeds are sown every spring, to continue a succession of flowering plants.

γ. Is the White Stock-Gilliflower, which is of longer duration than either of the others. I have frequently had these plants live three or four years, which have become shrubby; their stalks have been three feet high, and branched out on every side, so as to appear like shrubs; these seldom send out flower-stalks from the center of the plant, but the side branches produce the flowers, and divide into several other. There are always many double flowers rise from seeds of this sort, when they are well chosen; some years I have scarce had enough single flowers to preserve the kind. The varieties of this are few; sometimes a few of the plants will produce pale flesh-coloured flowers, and now and then some have been purple; and as that sort of Stock Gilliflower, which is titled the Twickenham Purple, will sometimes come with flowers variegated with white, I have been inclinable to think these two may be varieties of each other; and the rather, because the plants agree with each other in their external habit; for neither of these put out their flower-stems from the center of the plants, but always on their side.

δ. Is known by the name of White Wall-flower, among the gardeners and florists. This rises with a greenish stalk a foot high, dividing into many branches. Leaves narrow, smooth, lanceolate, of a lucid green, and of thicker consistence than those of the others; they are near three inches long, and about half an inch broad in the middle: the flowers are produced in loose spikes at the end of the branches, are of a pure white, and have a great fragrancy, especially in an evening, or in cloudy weather. There is a variety of it with double flowers. [Linneus observes, that the variety with white flowers has the leaves less tomentose and even green, but not rigid or stiff, as in the Wall-flower.

Native of the sea-coasts of Spain^q.—In Italy, Greece, Candia, and the isles adjacent^r.

The Stock-Gilliflower is of very long standing in the English gardens. Johnson gives a figure of the double Stock, which was not in Gerarde's original work, and observes that many and pretty varieties of it were kept in the garden of his kind friend Master Ralph Tuggye at Westminster: we may conclude therefore that double Stocks were not known in Gerarde's time. The old English name of Gilliflower, which is now almost lost in the prefix Stock, is corrupted from the French *Giroflier*. Chaucer writes it *Gylofre*; Turner *Gelover* and *Gelyfloure*; Gerarde and Parkinson *Gilloflower*. Having got thus far from its original orthography, it was easily corrupted by those who knew not whence it was derived, into *July-flower*. Pinks and Carnations also having the name of Gilliflower, from their smelling like the Clove, which is called *Girofle* in French, from the Latin *Caryophyllum*; they were called *Clove-Gilliflowers*, and these *Stock-Gilliflowers* for distinction. Gerarde says they were also called *Garnsey Violet* and *Castle Gilloflower*.

12. Stem shrubby, from six to eight inches high, nearly the thickness of the little finger, straight, rigid, round, covered with leaves, hoary with nap, dividing at top into two or three very short, alternate branches. Leaves scattered, petioled, lanceolate, bending this way and that, very obtuse, lacunose, tomentose, somewhat veined, compact, rigid, an inch long. Petioles linear, short, spreading, very broad, tomentose. Racemes terminal, two or four, erect, straight, simple, naked, the length of the stem. Peduncles roundish, tomentose. Flowers alternate, nearly the size of those in the common Stock: pedicels filiform, spreading, tomentose, the length of the calyx. Corolla, petals obcordate, re-

^m Murr. prodr.

ⁿ Linn. mant.

^o Hort. kew.

^p Linn. mant.

^q Linn.

^r Parkinson.

flected, channelled, notchletted, purple glittering with gold. *Siliques* shorter than in the other species, linear, a little flattish, flexuose, hoary with nap. It continues three or four years, flowering the second; the third and fourth it puts out branches, which flower the same year. This plant is proper to stand in windows (whence its trivial name,) on account of its smallness, and the very grateful odour it exhales, especially in the evening.—The seeds were first sown in the Upsal garden in 1753; but it is not known whence they came.—It was cultivated here in 1759, by Mr. Miller^c; and flowers from may to july.]

13. The annual or ten weeks Stock-Gilliflower rises with a round smooth stalk about two feet high, dividing into several branches at top. Leaves lanceolate, hoary, rounded at the end, almost opposite, or alternate, or three and four together of unequal sizes. The flowers are produced in loose spikes at the ends of the branches, and are placed alternately: the calyx is large, erect, and slightly cut into several acute parts at the top; the petals are large and heart-shaped.

[Linneus remarks, that the petals of this are emarginate; whereas in the *incanus* they are entire. It grows naturally on the sea coasts in the southern countries of Europe^a; and was cultivated in 1731, by Mr. Miller^x.]

Of this sort there are the red, purple, white and striped, with single flowers; and the same colours with double flowers; which are very great ornaments in the borders of the flower-garden in autumn.

14. *Stem* a foot high, alternately branching, hoary. *Leaves* alternate, channelled, obtuse. *Flowers* in terminal racemes: petals obcordate, purplish, but white at the base: stamens the length of the tube. *Siliques* subulate, narrow, equal, not longer than the leaves^y.] The flowers are smaller than those of the common Stock, of a bright red at first, but fading to a purple. The whole plant is very white; and having woody stalks, has the appearance of a perennial plant, but it generally perishes in autumn. It grows naturally near the sea coast, in the south of France, Spain, and Italy.—[It was cultivated in 1683, by Mr. James Sutherland^z.]

15. This sort is of humble growth, seldom rising above eight or nine inches high.

[The whole plant is roughish, and of a hoary ash-colour. The bottom leaves have two or three pairs of teeth, and are sinuated; the branch-leaves have one or two teeth, and the upper ones are quite entire. Flowers alternate in a long raceme. Petals linear, emarginate, green-sulphur changing to a shining purple, with brown veins, and a curled toothletted edge. *Siliques* round, torulose, very long, thicker at the end. At night it has a grateful odour, somewhat resembling that of *Geranium triste*. Native of the south of Europe^a.—Cultivated 1768, by Mr. Miller^b.]

16. *Root* annual. *Stems* branching, spreading, seven or eight inches high, hoary. *Leaves* lanceolate, with one or two pretty deep teeth on each side. *Corolla* purple, rather large. *Siliques* linear, roundish, keeled at the futures, knotted with torules on the sides, acuminate with a long subulate tip, and smooth^c. Native of Italy, on the sea shore near Terracina^d.]

17. This is an annual plant, which branches out from the root into many declining stalks: the lower leaves are about two inches long, and three quarters of an inch broad, very deeply sinuated on their edges, and hoary; those upon the stalks are of the same form, but much smaller: the flowers are produced from the sides of the stalks singly, and at the top in loose spikes (or racemes); the calyxes are covered with a white down, as are also the ends of the branches; the corollas are purple: the pods

are two or three inches long, [subcylindric: obscurely knotted where the seeds are, terminating at top in three subulate cusps: partition very slender. Seeds ten or twelve in each cell, ovate, compressed, beaked, ferruginous-red, not margined^e.

Native of Barbary. Cultivated 1759, by Mr. Miller^f.]

18. *Stalk* erect, and the whole plant covered with a white down. Lower leaves broad-lanceolate; obtuse, alternately indented. Flowers flesh-coloured, succeeded by long, woolly pods.

[Brought out of the isle of Ree near Rochelle by John Tradescant, when the duke of Buckingham was sent with supplies for Mons. Soubise^g. Gathered by Mr. George Bowles upon the rocks at Aberdovey in Merionethshire^h. On the sandy coast of Anglesey about Abermeney-ferry, at Aberdaren in Caernarvonshire; on the coast of Cornwall, &c.ⁱ. Biennial.

19. *Stem* a foot high, hoary, stiff and straight, branching. *Leaves* alternate, sessile, acuminate, quite entire, hoary or silverish. *Racemes* subterminal, opposite to the leaves, stiff and straight. *Calyx* oblong, green. *Petals* sad-coloured, linear, rounded, quite entire, oblique, from purplish white, obscurely netted with darker meshes. *Stamens* shorter than the claws of the petals. *Pistil* shorter than the stamens. *Siliques* oval, from compressed flat.—It has the whole herb of *Convolvulus Dorycnium*; the flower of *Cheiranthus tristis*; a fruit nearly resembling that of *Lunaria*. The flowers of a dull colour, smelling sweet only in the night. In its air, it approaches very near to the *Leucoium* of Tournefort referred to among the synonyms; but the leaves are linear, acuminate, even and stiff.—Egypt and Arabia^k: observed by Forskael, in the kingdom of Tunis. Turra gave it the name of *Farsetia*, from Farsetti, a noble Venetian.

Introduced 1788, by John Sibthorp, M.D.^l.

β. The variety differs only in having narrow leaves and filiques^m.

20. This is a shrub, a foot and a half in height; the branches becoming bald at bottom. It is a native of Madeira, and was found there by Massonⁿ. It was introduced in 1777; and flowers in may and june^o.

21. This also is a shrub, growing to the height of two or three cubits^p. It was found by Masson in the same island, was introduced at the same time, and flowers from march to may^q.

Its chief merit consists in its early flowering. The showy blossoms on first opening are white, sometimes inclined to yellow; in a few days they become purple; hence its trivial name *mutabilis* or changeable^r.

22. This grows a cubit in height, with an herbaceous stem, becoming a little shrubby at bottom, upright, branched, round: branches alternate, axillary, subdecumbent, the younger ones scarcely hoary. Leaves alternate, sessile, acute, channelled, one-nerved, thickish, scarcely pubescent, spreading, reclined, bright green, three or four inches long, and two or three lines wide. Flowers in terminating, very long, proliferous, subdecumbent spikes: alternate, sessile, sulphur-coloured, odorous. *Siliques* short. Seeds not margined. Native of the deserts of Siberia. Introduced into the Paris garden by the famous Jean Jacques Rousseau; and since by Demidow^s.]

PROPAGATION AND CULTURE.

1. If the seeds be permitted to scatter, the plants will come up without care, and will thrive in any soil or situation, and upon walls or among rubbish, as the common Wall-flower.

3. This sort, when cultivated, grows as large as the common Wall-flower, and makes a finer appearance, the racemes being longer, and the flowers

^a Linn. dec.

^x Hort. kew.

^a Allioni.

^t Hort. kew.

^y Linn.

^b Hort. kew.

^d Bauh. prodr.

^u Linn.

^z Hort. kew.

^c Linn. spec.

^e Gartner.

^h Ger. emac.

ⁱ Hort. kew.

^o Hort. kew.

^f Hort. kew.

ⁱ Ray.

^m Fork.

^p L'Herit.

^r Curtis.

^g Park.

^k Linn. mant.

ⁿ L'Heritier.

^q Hort. kew.

^s L'Heritier.

growing much closer; having little scent, however, this sort has been much neglected.

6. The common wild Wall-flower, being of a firmer texture, with little sap, is never affected by cold; so that in severe winters, when the plants are frequently killed in the gardens, those upon the walls receive no injury, though they are much more exposed to wind and frost.

The variety of this, with very double flowers, is propagated from slips planted in the spring, which readily take root. Another variety with variegated leaves is not quite so hardy.

The large bloody Wall-flower will frequently rise with double flowers from seeds, if they are carefully saved from such as have five petals; and these double flowers may be increased by slips, but the plants so raised will not produce such large racemes of flowers as those which are propagated by seeds.

The old bloody Wall-flower, the petals of which are shorter and more numerous, approaching to the common double, but much larger, is propagated also by slips; as are likewise all the intermediate varieties, distinguished by florists from the size and colour of the petals.

The Wall-flowers that are single produce seeds in plenty; but the largest and deepest-coloured flowers should always be selected for seeds. These should be sown in april, upon poor undunged soil; and when the plants are fit to remove, they should be transplanted into nursery-beds, at about six inches distance each way, observing to water and shade them until they have taken fresh root; after which they will require no farther care, but to keep them clean from weeds all the summer; and at Michaelmas they may be transplanted into the borders of the flower-garden where they are designed to remain, that the plants may get good roots before the frost comes on. This is the method which is commonly practised with these flowers; but if the seeds are sown upon poor land, where they are designed to remain, and not transplanted, they will thrive, and endure the frost in winter much better than those which are removed; so that upon ruins or rubbish the seeds of these plants may be sown, where they will thrive and continue much longer than in good land; and in such places, if they are properly disposed, they will be very ornamental, and their flowers having a strong odour, will perfume the air to a considerable distance.

8, 9. The seeds are sown in patches, at two or three different times; the first in autumn, the second at the end of march, and the third at the end of april, or the beginning of may, in the borders of the flower-garden; where they will make a variety, when intermixed with other low-growing annual flowers, for three months. The eighth having little beauty, is not often cultivated, but the ninth is very common.

11. All the varieties of Stock-Gilliflower flower in may and june, at which time they are the greatest ornament to the flower-garden, therefore deserve our care to cultivate them as much as any of the flowery tribe; but in order to have many double flowers, there must be great care taken in the choice of plants for seeds, without which there can be little hopes of having these flowers in perfection. The only sure way of getting many double flowers, is to make choice of those single flowers which grow near many double ones; for I have always found those seeds which have been saved from plants growing in beds close to each other, where there happened to be many double flowers among them, have produced a much greater number of plants with double flowers, than those which have been saved from plants of the same kinds, which grew single in the borders of the flower-garden; so that there should be a small bed of each kind planted on purpose to save seeds in the flower-nursery; or if they are sown there, and the plants thinned properly when they are young, they need not be transplanted; for I have always observed the plants which have come up from scattered seeds, which

have not been transplanted, endure the frost much better than those which have been removed; for as these plants send out horizontal roots from the bottom of their stems, which spread near the surface of the ground; so when they are transplanted, the roots are forced downward out of their natural direction; and if their stalks were grown tall before removal, they are generally planted low in the ground, whereby they are apt to rot, if the ground is moist, or the winter should prove wet; therefore where they can be left unremoved, there will be a better chance of their living through the winter; and as these beds need not be of great extent, so when the winter proves very severe, it will not be much trouble or expence to arch the beds over with hoops, and cover them with mats in frosty weather; by which method they may be always preserved.

The ground where these seeds are sown, must not have any dung, for in rich land the plants will grow very vigorous in summer, but frost, or the heavy rains in autumn, will soon destroy them; for these plants will thrive upon rocks or old walls, as was before observed; and in such situations they will live, when all those which are planted in gardens are destroyed. The best time to sow the seeds is about the beginning of may; and if the season should prove dry, it will be proper to shade the beds with mats every day, to prevent the earth from drying too fast; but the covering must be taken off every evening, to admit the dews of night, and they should be gently watered in the evening two or three times a week. When the plants first appear, with their two seed-leaves, they are often attacked by flies, especially in dry hot seasons; therefore to prevent their destroying the plants, the covering should be continued over them during the heat of the day, and the plants frequently refreshed with water, which will keep them in a growing state, and the flies will not infest them; for I have always observed; they never attack any plants unless they have been stunted in their growth: when the plants have got strength, they will be secure from this danger, and the coverings may be removed; after this the plants will require no farther care but to keep them clean from weeds, and to be thinned to the distance of nine inches or a foot, that they may have proper room to grow, and not draw each other up tall and weak. The plants which are drawn out of these beds to thin them, may be planted in the borders of the flower-garden, where they are designed to remain, and the sooner they are removed, when the plants have got six or eight leaves, the more likely they will be to live through the winter.

The farther care of the plants which are left in the beds, will be to cover them in winter with mats; and when they come to flower, all those which are not of good colours, or whose flowers are small, should be drawn out as soon as they appear, that they may not impregnate those which are designed for seeds with their farina; but those with double flowers should by no means be removed, nor should their flowers be cut off, but suffered to fade among the single ones, by which the seeds will be improved; it will also be a sure method of preserving each sort in perfection, to have them separate from each other, in distinct beds; though I think there is no danger of any of the species altering, by the mixture of their farina, but their colours are liable to be changed by it; so that in order to continue those pure, they should not stand too near each other.

There are some who propagate the double Stock-Gilliflowers by slips and cuttings, which will take root when properly managed; but the plants so raised are never so strong as those which come from seeds, their spikes of flowers are always very short, and have not half the beauty; it is not worth while therefore to practise this method, unless for those which cannot be obtained with any certainty from seed.

13. The annual or ten weeks Stock, if sown at three different times, may be continued in succession

cession during several months. The first sowing should be about the middle of february, upon a very slender hot-bed; just to bring up the plants, which must be guarded against frost; and when they are fit to remove, they should be transplanted into nursery beds, at about three or four inches distance, observing to water and shade them till they have taken root, and afterwards to keep them clean from weeds; in these beds they may remain five or six weeks to get strength, and may then be planted into the borders of the flower-garden, where they are to remain: if these are transplanted when there is rain, they will soon take root, after which they will require no farther care. From these early plants good seeds may be expected, therefore some of the finest plants of each colour should be preserved, and marked for seeds, which, when ripe, should be carefully cut before the frost pinches them, and the stalks tied up in small bundles, and hung up in a dry room till the pods are well dried, when the seeds may be rubbed out and preserved for use.

To succeed these another parcel of seeds should be sown in march; and a third parcel at the end of may. If these last be sown upon a warm border, where they may be covered, by placing glasses before them in winter, or covering them with mats, they may be continued in flower till Christmas: and if some of the plants be potted, and put under a hot-bed frame in autumn, where they may enjoy the open air in mild weather, and be screened from hard rains and frost, they will keep flowering all the winter, when the weather is not very severe.

14. The seeds should be sown in autumn on a warm border, where the plants are designed to remain. These will flower early in june, and produce good seeds. Such as are sown in the spring, will flower in july and august; but from these there will be no certainty of having ripe seeds. They will serve, however, to keep up a succession of flowers.

15. Not being so hardy as the other sorts, requires some protection in winter.

17. If the seeds be sown in autumn on a warm border, the plants will live through the winter, and flower early in june, so that good seeds may be obtained from them. When the seeds are sown in the spring, the plants flower in july, and in favourable seasons the seeds will ripen.

18. This may be increased by seeds, in the same manner as the other sorts; and if they are among rubbish, they will live through the winter better than in rich earth.

[20, 21. These are of quick growth, and may be propagated by cuttings, put into the ground as soon as the plants have done flowering. These cuttings will become handsome plants to place in the green-house at the approach of winter, to decorate it the ensuing spring.

In sheltered gardens, under a wall, they will survive a mild winter, and seem to be almost as hardy as the common Stock.

22. Is propagated from seeds. It flourishes in the open air, but will not continue many years.

CHEIRANTHUS. See *Arabis*, *Heliophila* and *Manulea*.
lacerus. See *Hesperis lacerata*.

CHEIRI. See *Cheiranthus*.

CHELIDONIA. See *Ranunculus Ficaria*.]

CHELIDONIUM. (From *χελιδών*, a Swallow.)

Lin. gen. n. 647. Reich. 703. Schreb. 880.
Gertn. t. 115. Tourn. 116. Glaucium Tourn.
130.

Class. 13. 1. Polyandria Monogynia.

Nat. order of *Rhoeadeæ*.

GENERIC CHARACTER.

CAL. Perianth two-leaved, roundish: leaflets subovate, concave, obtuse, caducous.

COR. Petals four, roundish, flat, spreading, large, narrower at the base.

STAM. Filaments very many (thirty) flat, broader at top, shorter than the corolla. Anthers oblong, compressed, obtuse, erect, twin.

PIST. Germ cylindric, the length of the stamens. Style none. Stigma headed, bifid.

PER. Siliqua cylindric, subbivalve.

SEEDS very many, ovate, increased, shining. Receptacle linear, between the valves of a kind of circumambient future, not gaping.

OBS. Distinct from *Papaver* by its siliquose pericarp. *Chelidonium T.* has a one-celled siliqua.—*Glaucium T.* has a bicapsular siliqua. *Ch. hybridum* has a three-valved siliqua.

ESSENTIAL CHARACTER.

Cor. four-petalled. Cal. two-leaved. Siliqua one-celled, linear.

SPECIES.

1. *Chelidonium majus*. Common or great Celandine.
Lin. spec. 723. Reich. 2. 569. mat. med. 134.
hort. cliff. 201. 1. upf. 137. 1. fl. succ. n. 465.
Huds. angl. 228. With. 547. Lightf. 278.
Relb. cant. n. 381. Gertn. fruct. 2. 164.
Pollich pal. n. 504. Scop. carn. n. 634. Neck.
gallob. 231. Crantz. austr. 141. Hall. belv.
n. 1059. Krock. filef. n. 813. Villars dauph.
3. 687. Fl. dan. t. 542. Lour. cochinch. 330.
Mill. fig. t. 92. f. 1. Blackw. t. 91. Ger. 911.
emac. 1069. 1. Park. 617. 1. Mor. f. 3.
t. 11. f. 2. Baub. hist. 3. 483. Raii hist. 858.
Fuchf. 865.
β. *C. laciniatum*. Mill. dict. n. 2. fig. t. 92. f. 2.
C. majus fol. quernis. Baub. pin. 144. Raii syn.
309. Fl. dan. t. 676. Lin. spec. 724. 1. β.
C. fol. laciniato. Baub. hist. 3. 483.
C. majus lacin. flore. Clus. hist. 2. 203.
C. maj. fol. magis dissecto. Ger. emac. 1069. f. 2.
C. maj. laciniatum. Park. 679. 2. Raii hist. 858.
Peduncles umbelled.
2. *Chelidonium Glaucium*. Sea Celandine, or yellow
horned Poppy.
Lin. spec. 724. Reich. 2. 569. hort. cliff. 201. 2.
upf. 137. Huds. angl. 229. With. 548. Lightf.
279. Gron. virg. 57. 79. Fl. dan. 585. Sowerby
engl. bot. t. 9. Villars dauph. 3. 687. Krock.
filef. n. 814.
Glaucium. Hall. belv. n. 1060.—flavum Crantz.
austr. 141. Allion. pedem. n. 1062.—luteum.
Scop. carn. n. 635.
Papaver corniculatum luteum. Camer. epit. 805.
Baub. pin. 171. Baub. hist. 3. 398. Ger. 294.
f. 1. emac. 367. f. 1. Park. 262. f. 1, 2. Mor.
f. 3. t. 14. f. 1. Pet. t. 52. f. 7. Raii hist. 857.
P. cornic. flavo fl. Clus. hist. 2. 91. 1. Dod. 448.
Lob. obs. 141. 1. ic. 1. 270. 2.
Peduncles one-flowered; leaves stem-clasping, sinuated;
stem smooth.
3. *Chelidonium corniculatum*. Red Celandine, or
horned Poppy.
Lin. spec. 724. Reich. 2. 570. hort. upf. 137. 3.
Huds. angl. 229. With. 548. Mill. fig. t. 143.
Krock. filef. n. 815.
Glaucium phæniceum. Crantz. austr. 141. Allion.
pedem. n. 1063.
Papaver cornic. phænic. hirsutum. Baub. pin. 171.
Raii hist. 857.
P. cornutum fl. rubro. Ger. 294. 2. emac. 367. 2.
P. corn. phæniceo fl. Clus. hist. 2. 91. 2. Dod.
449. 1. Lob. obs. 141. 2. ic. 1. 271. 1.
P. corn. phænic. fol. hirsuto. Baub. hist. 3. 399.
f. 1.
β. *P. corn. phænic. glabrum*. Baub. pin. 171.
Ger. emac. 367. f. 3.
C. glabrum. Mill. dict. n. 5.
Peduncles one-flowered; leaves sessile, pinnatifid; stem
hispid.
4. *Chelidonium hybridum*. Violet Celandine or horned
Poppy.
Lin. spec. 724. Reich. 2. 570. Huds. angl. 229.
With. 549. Relb. cantab. n. 382. Villars
dauph. 3. 688.
Papaver corniculatum violaceum. Baub. pin. 172.
Baub. hist. 3. 399. f. 2. Raii hist. 857. Mor. f. 3.
t. 14. f. 3.
P. corn.

P. corn. violaceo flore. *Clus. hist.* 2. 92. 2. *Dod.* 449. 2. *Lob.* 141. 3. *ic.* 1. 272. 1. *Ger. emac.* 367. f. 4. *Park.* 262. f. 3. *Petiv. t.* 52. f. 8. Peduncles one-flowered; leaves pinnatifid linear; stem glossy: siliques three-valved.

[5. *Chelidonium japonicum.*

Lin. syst. 489. *Thunb. jap.* 221.

Peduncles one-flowered; leaves petioled, pinnated, ovate.

DESCRIPTIONS, &c.

1. Stem erect, from a foot to eighteen inches in height, cylindric, a little hairy. Radical leaves in a tuft: stem-leaves alternate, one to each branch, pinnated; segments nearly circular, scalloped, the end one deeply three-parted. Peduncles one-flowered, hairy, with a roundish hoary bracte at the base of each^a. The juice of the whole plant is saffron-coloured. It approaches to the class *Tetradynamia* in the cruciform shape of the corolla, and its siliques^b; which however differs essentially, in being one-celled. Linneus makes the filaments thirty, Pollich twenty-five, and Withering says they are sometimes not more than twenty. It is common in hedges and other shady places, uncultivated grounds, on rubbish, walls, &c. flowering from may to july, during which time it is in the greatest perfection for use.

The juice of every part of this plant is very acrimonious. It cures tetters and ringworms. Diluted with milk it consumes white opaque spots on the eyes. It destroys warts, and cures the itch. There is no doubt but a medicine of such activity will one day be converted to more important purposes^c.

The root, according to Loureiro, is extremely bitter, and greatly esteemed among the natives of Cochinchina, for a variety of uses in medicine.]

β. The leaves are divided into long narrow segments, which are deeply jagged on their edges; and the petals of the flower are cut into many parts. [Observed plentifully among the ruins of the Duke of Leeds's seat at Wimbleton, by Professor John Martyn^d.

2. The root is perennial according to Scopoli and Allioni, but annual according to others. Miller says biennial. The whole plant is glaucous. Stem strong, near two feet high, much branched. Root-leaves pinnatifid, waved, variously lobed and indented, pinnae gradually larger upwards; hairy on both sides: stem-leaves embracing, deeply indented, rough above, smooth beneath. Branches dichotomous. Peduncles thick, slightly hairy, one or two-flowered. Calyx large, oval, hairy. Petals large, ovate, yellow. Seed-vessels very long (nine or ten inches), variously twisted, rough, terminated by a sagittated stigma^e. Stamens sixty and upwards. The flowers nod till the day preceding the unfolding of the petals, which fall off on the second day after they are opened^f.

The large and numerous flowers, which, although of short duration, succeed one another in great abundance during most part of the summer, make a fine contrast with the sea-green dew-bespangled leaves, and are a great ornament to our sandy shores. The whole plant abounds in a yellow juice, is foetid, and of a poisonous quality. It is said to occasion madness. Probably the *Glaucium* of Dioscorides^g.

Sandy soils in Switzerland, France, Italy, Austria, Carniola, Denmark, Virginia; and on the coasts of Britain, frequently within reach of the spray of the sea, as in Norfolk, Suffolk about Dunwich, &c. Lancashire, Isle of Wight, Kent, Essex, Wales and Scotland. Flowering from june to august.

3. Plant glaucous. Root spindle-shaped. Root-leaves in a circle, on short petioles; pinnatifid; pinnae alternate, indented at the ends; the upper ones largest, the terminating one broad, blunt, with three or four indentures, hairy. Stem eighteen inches high, slightly hairy, furrowed, dichotomously branched. Stem-leaves pinnatifid, half-stem-clasping, alternate. Peduncles terminating and axillary,

slightly hairy, with sometimes one or two leaves, similar to those of the stem, but smaller. Calyx oval, rather pointed. Petals oval, deep orange, veined, with an elliptic purplish spot at the base of each; they soon fall off. Silique very long, nearly straight, terminated by a blunt knob, very hairy^h.

Hungary, Bohemia, Moravia, Austria, about Montpellier, Piedmont, Spain. In England, first observed by Mr. Stillingfleet, in the sandy corn fields of Norfolk. Annual; flowering in july and august.]

β. This variety differs in having broader leaves, not so deeply divided. The whole plant is smooth, and the flowers are larger, but they are of the same colour.

4. [Linneus suggests that this plant might have been originally produced, by the pollen of a species of *Chelidonium*, impregnating the germs of *Papaver Argemone*; and hence his trivial name of *hybridum*. Root fusiform, slender. Stem erect, a foot high, branched, cylindric, smoothish, having a few expanded bristles. Leaves multifid, smooth, with toothed sharp segments; they are very much like those of *Papaver hybridum*; or, according to Mr. Miller, of Buck's-horn Plantain. Peduncles terminal, cylindric, one-flowered. Calyx hairy. Petals violet, fugacious, seldom lasting above three or four hours. Anthers twin, pale blue. Silique two inches long, a little crooked, hispid with a few hairs. Stigma three-rayedⁱ. Mr. Woodward observes that the root-leaves are petioled: the stem-leaves sessile, once or twice pinnate; divisions linear, nearly equal, smooth. Stem slightly hairy. Peduncles smooth. Calyx oval, slightly hairy. Petals ovate, deep purple. Silique smooth, terminated by a roundish knob^k, marked with three furrows^l.—In the southern countries of Europe. In sandy corn fields between Swaffham and Burwell in Cambridgeshire, and in Norfolk. Annual, flowering in july and august.

5. Stem herbaceous, striated, smooth, weak, erect. Leaves alternate, unequally pinnate: leaflets three or five, opposite, on very short petioles, ovate-oblong, acute, gashed, unequally serrated with acute ciliated ferratures, smooth, pale underneath, an inch or an inch and half in length, the end lobe always larger: petiole like the stem, a finger's length. Flowers axillary, solitary, peduncled. Peduncle capillary, nearly the length of the leaves. Calyx smooth. Corolla a little longer than the calyx, yellow. Filaments one-fourth of the length of the corolla.—Native of Japan^m.]

PROPAGATION AND CULTURE.

If the seeds of the four first species be permitted to scatter, the ground will be plentifully stored with plants. If a few of them be thrown about in rock-work, they will come up without trouble, and have a good effect. Seeds sown in the autumn will grow with more certainty than in the spring, and come earlier to flower: they should be sown where the plants are to remain, and will require no care but to thin them where they are too close, and to keep them clean from weeds.

There is a variety of the first sort with double flowers, which generally rises the same from seeds; and may also be preserved by parting the roots.

CHELIDONIUM. See *Bocconia*.

_____ majus. See *Sanguinaria*.

_____ minus. See *Ranunculus Ficaria*.

CHELONE. (From *χελών*, a Tortoise.)

Lin. gen. n. 748. *Reich.* 806. *Schreb.* 1005.

Gertn. t. 54. *Juss.* 137. *Dill. gen.* 11.

Anonymos. Gron. virg. 71, 72. *Ad. par.* 1706.

t. 3. p. 87.

Class. 14. 2. *Didynamia Angiospermia.*

Nat. order of Personata. Bignonia Juss.

GENERIC CHARACTER.

Cal. Perianth one-leaved, five-parted, very short, permanent: *divisions* erect, ovate.

^a Pollich. ^b Relhan. ^c Withering. ^d Raii syn.
^e Woodw. Mff. ^f Scopoli. ^g Engl. Bot.

^h Woodw. Mff. ⁱ Lyons in Relh. ^k Woodw. Mff.
^l Linn. ^m Thunberg.

COR. monopetalous, ringent. *Tube* cylindric, very short. *Throat* inflated, oblong, convex above, flat beneath. *Border* closed, small. *Upper lip* obtuse, emarginate; *lower* almost equal to the upper, very slightly trifid.

STAM. *Filaments* four, hid beneath the back of the corolla; the two sides ones a little longer. *Anthers* incumbent. The rudiment of a fifth filament, like the point of a dagger, between the upper pair of stamens.

PIST. *Germ* ovate. *Style* filiform, situation and length of the stamens. *Stigma* obtuse.

PER. *Capsule* ovate, two-celled, longer than the calyx.

SEEDS very many, roundish, surrounded with a membranous rim.

Obs. *C. pentstemon* differs in some circumstances.

ESSENTIAL CHARACTER.

Cal. five-parted. *Rudiment* of a fifth filament between the upper stamens. *Caps.* two-celled.

SPECIES.

1. *Chelone glabra*. *White Chelone*.
Lin. spec. 849. *Reich.* 3. 122. *Gærtn. fruct.* 1. 256. *Gron. virg.* 70. 93. 1. *Tourn. æt. par.* 1706. 85.
Leaves petioled lanceolate serrate, the upper ones opposite.
2. *Chelone obliqua*. *Red Chelone*.
Lin. syst. 553. *Reich.* 3. 123. *Gron. virg.* 71. 93. 2. *Lour. cochinch.* 382.
C. glabra β. *Lin. spec.* 849.
C. purpurea. *Mill. dict. n.* 2. *fig. t.* 93.
Digitalis mariana. *Ruii suppl.* 397. *Pluk. mant.* t. 348. f. 4.
Leaves petioled lanceolate serrate, all opposite.
3. *Chelone hirsuta*. *Hairy Chelone*.
Lin. spec. 849. *syst.* 553. *Reich.* 3. 123. *Gron. virg.* 71. 93. 3.
Digitalis. *Pluk. mant.* 64. 3. *Banist. virg.* 1926.
Stem and leaves hirsute.
4. *Chelone Pentstemon*.
Lin. spec. 850. *syst.* 553. *Reich.* 3. 123. *mant.* 415. *Arduin. spec.* 14. t. 5.
Afarina erecta. *Mill. dict. n.* 2. *fig. t.* 252.
Dracocephalus. *Mor. hist.* 3. 417. f. 11. t. 21. f. 2.
Digitalis. *Mor. hist.* 2. 479. f. 5. t. 8. f. 6.
Pentstemon lævigata. *Hort. kew.* 2. 361.
Cynorynchium. *Pluk. mant.* 62.
Pentstemon. *Mitch. gen.* 14.
β. *Dracocephalus*. *Mor.* 3. 417. f. 3. (*latifolia*).
Leaves stem-clasping; panicle dichotomous.
- [5. *Chelone campanulata*.
Cavan. hisp. 18. n. 27. t. 29.
Leaves opposite, sessile, ovate-lanceolate, extremely acuminate, deeply serrate.]

DESCRIPTIONS, &c.

1. The first sort grows naturally in most parts of North America. This is called by Joscelyn, in his *New England Rarities*, the Humming Bird-tree. It has a pretty thick jointed root, which creeps under ground to a considerable distance, sending up smooth channelled stalks, which rise about two feet high, with two leaves at each joint, standing opposite without foot-stalks; these are three inches and a half long, and about three quarters of an inch broad at their base, where they are broadest, diminishing gradually to a sharp point; they have small serratures on their edges, which scarcely appear. The flowers grow in a close spike at the end of the stalks; they are white, and have but one petal, which is tubular, and narrow at the bottom, but swells towards the top, almost like the Foxglove flower; the upper side is bent over and convex, but the under is flat, and slightly indented in three parts at the end.

[Cultivated 1730, by Mr. Miller^a.]

2. The second sort was discovered in Virginia by Mr. Clayton, who sent it to England: the roots of this do not creep so far as those of the first, the stalks are stronger, the leaves much broader, and oblique; they are deeply fawed on their edges, and

stand upon short foot-stalks: the corolla is of a bright purple colour, and therefore makes a finer appearance than the first sort.

[Cultivated 1732, by Mr. Miller^b.]

3. This approaches to the first sort, but the stalks and leaves are very hairy, and the flower is of a purer white. It flowers at the same time.—Native of New England, whence Mr. Miller received the seeds.

[Jussieu observes that this has a long fifth stamen, with a very villose anther. Perhaps it is only a variety of the next species^c.]

4. Stem cylindric, pubescent; upright, a foot and half high, putting out several side-branches. Leaves oblong-lanceolate ending in a point. Flowers in short loose spikes from the divisions of the stalks, purple. [Calyx from erect spreading, subequal. Corolla perfonate; tube the length of the calyx: throat oblong, bellying: gape white: upper lip shorter, obtusely two-parted, reflected; lower trifid, straight, obtuse with reflected sides. Filaments declined, shorter than the gape; a fifth or upper one castrated, bearded towards the tip, incumbent on the lower lip, broader towards the tip^d.]

Native of North America. Cultivated by Mr. Miller in 1758^e.

5. The whole plant smooth. Stems round, a foot and half high, purple, wand-like. Leaves stem-clasping, ovate at the base, towards the tip always narrower, one-nerved, deep green above, paler beneath. Flowers in a very long, loose, terminating spike: peduncles axillary, solitary, opposite; the lower ones bifid and two-flowered, the upper one-flowered. It may perhaps only be a variety of the foregoing.

Native of Mexico. Cultivated in the gardens of Paris and Madrid^f.]

PROPAGATION AND CULTURE.

1. The first sort flowers in august, and when the autumn proves favourable, the seeds will sometimes ripen in England; but as the plants propagate so fast by their creeping roots, the seeds are seldom regarded. The best time to transplant the roots is in autumn, that they may be well established in the ground before the spring, otherwise they will not flower so strong, especially if the season proves dry; but when they are removed in the spring, it should not be later than the middle of march, by which time their roots will begin to push out new fibres. They will thrive in almost any soil or situation, but their roots are apt to creep too far, if they are not confined, and sometimes intermix with those of other plants; and then their stalks stand so far distant from each other, as to make but little appearance; therefore they should be planted in pots, which will confine their roots, so that in each pot there will be eight or ten stalks growing near each other, when they will make a tolerably good appearance. This plant being very hardy, is not injured by cold; but it must have plenty of water in hot weather.

2, 3. The second and third sorts flower at the same time, may be increased in the same way, and require a like treatment.

As these plants flower in the autumn, when there is a scarcity of other flowers, it renders them the more valuable, especially the second sort, whose flowers make a very pretty appearance, when they are strong: and if some of them have a shady situation in the summer, they will flower later.

4. The seeds should be sown in autumn. When the plants are grown strong enough to remove, they should be transplanted into a shady border, which will prevent their flowering the same year; and in the autumn they may be planted in the borders of the flower-garden. The roots seldom last above two or three years.

[CHENOPODIO-MORUS. See *Blitum*.]

^a Hort. kew.

^b Linn.

^c Linn. mant.

^d Hort. kew.

^e Cavanilles.

CHENOLEA.

Lin. gen. Schreb. n. 406. Thunb. nov. gen. 9.

Class. 5. 1. Pentandria Monogynia.

Nat. order of Holoraceæ. Atriplices Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, globular, somewhat fleshy, five-parted; segments bent in.

COR. none.

STAM. Filaments five, filiform, from upright bent in, inserted at the base of the calyx, and of the same length. *Antbers* minute.

PIST. Germ superior. *Style* filiform, very short. *Stigmas* two, simple, subulate, acute, from spreading bent back, a little longer than the style.

PER. Capsule round, slightly depressed, umbilicate, one-celled.

SEED single, roundish, bifid at the tip, smooth.

ESSENTIAL CHARACTER.

Cal. globular, one-leaved, five-parted. *Caps.* one-celled, containing one smooth seed, bifid at the tip.

SPECIES.

1. *Chenolea diffusa.*

Thunb. nov. gen. 10. Lin. syst. 247.

Salsola sericea. Ait. hort. kew. 1. 317.

DESCRIPTION, &c.

Stems several, radical, filiform, herbaceous, dif-fused, simple and branched, covered with leaves, purple, smooth at bottom, subtomtose at top, unequal, the ends upright: branches alternate, scat-tered, few, very short. Leaves fastigiately oppo-site, sessile, ovate-lanceolate, blunt with a point, fleshy, entire, flat above, convex beneath, frequent, the uppermost more approximating and imbricate, from upright spreading, silvery tomentose, longer than the internodes. Flowers axillary, solitary or in pairs, sessile in each axil, towards the tips of the branches.

Native of the Cape of Good Hope, on the low coast^s. Cultivated in 1758, by Mr. Miller. It flowers in august and september^a.]

CHENOPODIUM. (*From χην, a goose, and πους; a foot.*)

Engl. Goose-foot. Fr. Patte d'oye.

Lin. gen. n. 309. Reich. 337. Schreb. 435.

Gertn. t. 75. Tourn. 288. Juss. 85.

Class. 5. 2. Pentandria Digynia.

Nat. order of Holoraceæ. Atriplices Juss.

GENERIC CHARACTER.

CAL. Perianth five-leaved, concave, permanent. *Di-visions* ovate, concave, membranaceous on the margin.

COR. none.

STAM. Filaments five, subulate; opposite the leaves of the calyx, and of the same length. *Antbers* roundish, twin.

PIST. Germ orbiculate. *Style* two-parted, short. *Stigmas* obtuse.

PER. none. *Calyx* closed, five-cornered, five-angled; (angles compressed) deciduous.

SEED single, lenticular, superior.

OBS. In some species the style is observed to be trifid.

ESSENTIAL CHARACTER.

Cal. five-leaved, five-cornered. *Cor.* none. *Seed* one, lenticular, superior.

SPECIES.

*. *With angular leaves.*

1. *Chenopodium Bonus Henricus.* *Angular-leaved Goosefoot. English Mercury or Allgood, Good-Henry, Good King Harry, Wild Spinach.*

Lin. spec. 318. Reich. 617. fl. succ. n. 214. hort.

cliff. 84. 1. mat. med. 72. Hudf. angl. 104.

With. 251. Lightf. 147. Curt. lond. 3. t. 17.

Hall. belv. n. 1578. Neck. gallob. 131. Pollich

pal. n. 245. Allion. pedem. n. 2006. Villars

dauph. 2. 561. Krock. fl. filef. n. 369. Oed.

dan. t. 579. Petiv. t. 7. f. 12. Plenck, ic.

t. 164.

Mercurialis. Blackw. t. 311.

Lapathum unctuosum. Baub. pin. 115. n. 6. Park.

1225. f. 6.

Bonus Henricus. Baub. hist. 2. 965. f. 2. Trag. 317.

Ger. 259. emac. 329.

Blitum perenne Bonus Henricus dictum. Mor. 2.

599. f. 5. 1. 30. f. 1. Raii syn. 156. hist. 195.

Leaves triangular-sagittate quite entire; spikes com-pound leafless axillary.

[2. *Chenopodium urbicum.* *Upright Goosefoot.*

Lin. spec. 318. Reich. 617. fl. succ. n. 215.

Hudf. angl. 104. With. 252. Relb. cant. n. 196.

Raii syn. 155. n. 11. Pet. brit. t. 8. f. 8.

Pollich pal. n. 246. Buxb. hal. 69. ult. t. 1.

Krock. filef. n. 370. Villars dauph. 2. 564.

Leaves triangular, somewhat toothed; racemes crowd-ed, very straight, approximating to the stem, and very long.

3. *Chenopodium Atriplicis.* *Orach or purple Goose-foot.*

Lin. syst. 261. suppl. 171.

C. purpurascens. Jacqu. hort. 3. t. 80.

Leaves deltoid coloured beneath; stem erect.

4. *Chenopodium rubrum.* *Red Goosefoot.*

Lin. spec. 318. Reich. 617. fl. succ. n. 217.

mat. med. 73. hort. cliff. 85. 7. Hudf. angl. 105.

With. 252. Lightf. 148. Relb. n. 197. Hall.

belv. n. 1583. Neck. gallob. 131. Pollich pal.

n. 247. Krock. filef. n. 371. Gertn. fruct. 1.

360.

Atriplex sylvestris latifolia. Baub. pin. 119. Mor.

t. 31. f. 2. Raii hist. 198.

Pes anserinus. Dalech. t. 542. Fuchf. t. 653.

Baub. hist. 2. 975. f. 2. Dod. 616. 1. Ger. emac.

328. f. 1, 2. Park. 749. f. 8. Petiv. brit. t. 8. f. 6.

Leaves cordate-triangular bluntish toothed, racemes erect compound somewhat leafy shorter than the stem.

5. *Chenopodium murale.* *Wall or Nettle-leaved Goosefoot.*

Lin. spec. 318. Reich. 618. fl. succ. n. 216.

hort. cliff. 85. 8. Hudf. angl. 105. With. 253.

Curt. lond. n. 61. Lightf. 148. Pollich pal.

n. 248. Neck. gallob. 130. Berg. phyt. t. 137.

Krock. filef. n. 372. Villars dauph. 2. 562.

Atriplex sylvestris latifolia acutiore folio. Baub.

pin. 119. Pet. brit. t. 8. f. 5. Raii hist. 197.

n. 9.

A. dicta pes anserinus alter f. ramosior. Baub. hist.

976. f. 1.

Leaves ovate shining toothed sharp, racemes branched naked.

6. *Chenopodium serotinum.* *Fig-leaved Goosefoot.*

Lin. spec. 319. Reich. 618. amæn. 4. 309. Hudf.

angl. 106. With. 253. Hall. belv. n. 1532.

Blitum ficus folio. Raii syn. 155. Pet. brit. t. 8.

f. 3.

Leaves deltoid sinuate-toothed wrinkled smooth uniform, racemes terminal.

7. *Chenopodium album.* *Common or white Goosefoot.*

Lin. spec. 319. Reich. 618. fl. succ. n. 218. vir.

cliff. 22. hort. cliff. 85. 6. Hudf. angl. 106.

With. 253. Lightf. 148. Curt. lond. 2. 15.

Hall. belv. n. 1579. Neck. gallob. 128. Pollich

pal. n. 549. Blackw. t. 553. Krock. filef. n. 373.

Villars dauph. 2. 562.

Atriplex sylvestris. Fuchf. t. 119. Baub. hist. 2.

972. 1. Raii hist. 197.

A. vulgaris. Ger. 257. 4. emac. 326. 6. Pet. brit.

t. 8. f. 2.

Leaves rhomboid-triangular erose entire behind, upper-most oblong: racemes erect.

8. *Chenopodium viride.* *Green Goosefoot.*

Lin. spec. 319. syst. 262. Reich. 619. fl. succ.

n. 219. With. 254. Curt. lond. 2. 16. Lightf.

149. Hall. belv. n. 1580. Pollich pal. n. 250.

Krock. filef. n. 374. Scop. carn. n. 280.

C. album. β. Hudf. angl. 106.

C. opulaceum. Neck. gallob. 130.

C. sylvestre, opuli fol. Vaill. par. t. 7. f. 1.

Blitum fol. subrotundo. Pet. brit. t. 8. f. 4.

Leaves rhomboid tooth-sinuate, racemes branched some-what leafy.

9. *Chenopodium*

9. *Chenopodium hybridum*. *Bastard Goosefoot*.
Lin. spec. 319. *Reich.* 619. *fl. succ.* n. 220. *hort. cliff.* 85. 9. *Huds. angl.* 105. *With.* 255. *Curt. lond.* 4. 23. *Hall. belv.* n. 1581. *Neck. gallob.* 129. *Pollich pal.* n. 251. *Krock. flesf.* n. 375. *Lour. cochinch.* 174. *Villars dauph.* 2. 563.
C. stramonii folio. *Vaill. par.* t. 7. f. 2. *Raii syn.* 154. *Pet. brit.* t. 8. f. 7.
C. f. Pes anserinus 2. *Tabern.* 428.
Atriplex sylvestris major, anguloso fol. *Barrel. ic.* 540.
Leaves cordate angular-acuminate, racemes branching naked.
10. *Chenopodium Botrys*. *Cluster or Cut-leaved Goosefoot or Oak of Jerusalem*.
Lin. spec. 320. *Reich.* 620. *hort. cliff.* 84. 3. *upf.* 55. 5. *mat. med.* 73. *Hall. belv.* n. 1585. *Villars dauph.* 2. 563. *Krock. flesf.* n. 376. *Allion. pedem.* n. 2016. *Blackw. t.* 314. *Plenck, ic. t.* 165.
Botrys. *Dod. pempt.* 34. *Fuchf.* 179. *Matth.* 853. *Camer. epit.* 598. *Baub. hist.* 3. 298. *Raii hist.* 196. *Ger.* 950. f. 1. *emac.* 1108. — *vulgaris.* *Park.* 89. — *ambrosioides vulg.* *Baub. pin.* 138.
Leaves oblong sinuate, racemes naked multifid.
11. *Chenopodium ambrosioides*. *Mexican Goosefoot, or Oak of Cappadocia*.
Lin. spec. 320. *Reich.* 620. *hort. cliff.* 85. 4. *upf.* 56. *Plenck, ic. t.* 168.
Botrys ambrosioides mexiocana. *Baub. pin.* 138, 516. *Raii hist.* 196.
B. americana. *Park.* 89. n. 2.
Atriplex odora f. suaveolens Americana Mexiocanave. *Mor. hist.* 2. 605. f. 5. t. 31. f. 8.
 β. *C. fruticosum.* *Mill. dict.* n. 6.
C. ambrosioides fruticosum mexiocanum. *Bocrb. ind.* 2. 90.
Leaves lanceolate toothed, racemes leafy simple.
12. *Chenopodium multifidum*. *Buenos-Ayres Goosefoot*.
Lin. spec. 320. *Reich.* 620. *Dill. elth.* 78. t. 66. f. 77.
Leaves multifid, segments linear; flowers axillary sessile.
- [13. *Chenopodium anthelminticum*. *Wormseed Goosefoot*.
Lin. spec. 320. *Reich.* 621. *mat. med.* 73. *Kalm. canad.* 2. 283. *Dill. elth.* 77. t. 66. f. 76. *Plenck, ic. t.* 166.
Leaves ovate-oblong toothed, racemes leafless.
14. *Chenopodium glaucum*. *Oak-leaved Goosefoot*.
Lin. spec. 320. *Reich.* 621. *fl. succ.* n. 221. *vir. cliff.* 22. *hort. cliff.* 85. 5. *Huds. angl.* 106. *With.* 255. *Hall. belv.* n. 1584. *Pollich pal.* n. 252. *Krock. flesf.* n. 377. *Villars dauph.* 2. 563.
C. angustifolium laciniatum minus. *Tourn. inst.* 506. *Raii syn.* 155.
Atriplex ang. lacin. *Baub. hist.* 2. 472. t. 473.
A. sylvestris secunda. *Tabern. ic.* 427.
Blitum quercus folio. *Pet. brit.* t. 8. f. 1.
Leaves ovate-oblong repand, racemes naked simple glomerate.
- ** With simple leaves.
15. *Chenopodium Vulvaria*. *Stinking Goosefoot*.
Lin. spec. 321. *Reich.* 621. *fl. succ.* n. 222. *mat. med.* 74. *Woodv. med. bot.* 394. t. 145. *hort. cliff.* 84. 2. *Huds. angl.* 107. *With.* 255. *Lightf.* 149. *Reib.* n. 203. *Hall. belv.* n. 1577. *Neck. gallob.* 128. *Pollich pal.* n. 253. *Villars dauph.* 2. 564. *Krock. flesf.* n. 378. *Allion. pedem.* n. 2014. *Plenck, ic. t.* 167.
C. olidum. *Curt. lond.* 5. t. 20.
Atriplex foetida. *Baub. pin.* 119. *Baub. hist.* 2. 974. t. 975. f. 1. *Mor.* 2. 605. f. 5. t. 31. f. 6.
A. olida. *Ger.* 258. *emac.* 327. *Park.* 749. f. 9. *Raii hist.* 198. *Pet. brit.* t. 7. f. 11. *Blackw. t.* 100.
Vulvaria. *Dalech. hist.* 543. *Tabern.* 428.
Garofmus. *Dod.* 616. 2. *Lob. obs.* 128. 4.
Leaves quite entire rhomboid-ovate, flowers conglomerate axillary.

- [16. *Chenopodium polyspermum*. *Round-leaved Goosefoot, Upright Blite, or Allseed*.
Lin. spec. 321. *Reich.* 621. *fl. succ.* n. 223. *Huds. angl.* 107. *With.* 256. *Curt. lond.* 2. 17. *Lightf.* 150. *Hall. belv.* n. 1576. *Neck. gallob.* 128. *Pollich pal.* n. 254. *Krock. flesf.* n. 379. *Scop. carn.* n. 279. *Villars dauph.* 2. 564.
C. betæ folio. *Tourn. inst.* 506. *Raii syn.* 157.
Blitum fol. ovatis. *Lin. hort. cliff.* 28. — *polyspermum.* *Baub. pin.* 118. *Park.* 753. t. 754. f. 3. — *sylvestre.* *Camer. epit.* 237. — *majus polyssp.* *Mor.* 2. 599. t. 30. f. 6. — *erectius*, f. 3. *Tragi.* *Baub. hist.* 2. 967. f. 2. *Raii hist.* 196.
Atriplex sylvestris, f. *polyspermon.* *Ger.* 257. f. 3. *emac.* 325. f. 3.
Leaves quite entire ovate, stem decumbent, cymes dichotomous leafless axillary.
17. *Chenopodium Scoparia*. *Flax-leaved Goosefoot, Belvedere, or Summer Cypress*.
Lin. spec. 321. *syf.* 262. *Reich.* 622. *hort. cliff.* 86. 10. *upf.* 55. 2. *Scop. carn.* n. 282.
Linaria scoparia. *Baub. pin.* 212.
L. Belvedere. *Baub. hist.* 3. 462.
Osyris. *Dod. pempt.* 101.
Scoparia f. Belvedere Italicorum. *Park. parad.* 268. t. 267. f. 4. *Raii hist.* 210.
S. f. Osyris Græcorum. *Ger.* 443. f. 9. *emac.* 554. f. 11.
Leaves linear-lanceolate flat quite entire.
- [18. *Chenopodium maritimum*. *Sea Goosefoot, or White Glasswort*.
Lin. spec. 321. *Reich.* 622. *fl. succ.* n. 224. *hort. cliff.* 86. 12. *Huds. angl.* 107. *With.* 256. *Lightf.* 150. *Scop. carn.* n. 283. *Fl. dan.* t. 489.
Kali minus. *Ger. emac.* 535. f. 3. *Raii hist.* 198. n. 14. — *album.* *Park.* 279. — *femine splendente.* *Baub. pin.* 289. *Mor.* 2. 610. f. 5. t. 33. f. 3?
Leaves subulate semicylindric.
19. *Chenopodium aristatum*. *Awnead Goosefoot*.
Lin. spec. 321. *syf.* 262. *Reich.* 622. *mant.* 347. *Gmel. sib.* 3. 83. t. 15. f. 1.
 β. *Ch. virginicum.* *Lin. spec. edit.* 1. 222.
Leaves lanceolate somewhat fleshy quite entire; corymbs dichotomous awnead axillary.
20. *Chenopodium oppositifolium*. *Opposite-leaved Goosefoot*.
Lin. syf. 262. *suppl.* 172.
Salsola oppositiflora. *Pall. it.* 2. 735. t. O.
Leaves opposite lanceolate-subulate very short.
21. *Chenopodium punctulatum*. *Dotted-leaved Goosefoot*.
Scop. insubr. 26. t. 11.
Leaves dotted with white, the bottom ones rhomb-ovate sinuate, the uppermost elliptic; racemes lateral spiked leafy.
22. *Chenopodium triandrum*. *Three-stamened Goosefoot*.
Forst. florul. austr. n. 129.
Leaves cordate-sagittate, spikes terminal leafless interrupted.
23. *Chenopodium laterale*. *Branching oblong-leaved Goosefoot*.
Ait. hort. kew. 1. 313.
Stem-leaves lanceolate obtuse, those of the branches oblong; peduncles lateral solitary one-flowered.
- DESCRIPTIONS, &c.
1. Root perennial, branched. Stem twelve to eighteen inches in height, at bottom round and smooth, upwards finely grooved, and somewhat angular, covered with transparent powdery globules, and branched. Leaves petioled, alternate, smooth; underneath veiny, paler and mealy, somewhat waved. Spike terminal, yellowish, conical, mealy; at bottom branched, at top clustered and cylindrical. Spikelets alternate, sessile; flowers clustered, sessile. Lower spikelets on short peduncles from the bosom of the flower-leaves. Calyx one-leaved, deeply divided into five segments, which are jagged at top.

Style none: stigma divided to the base into two, three or four whitish, spreading segments, running to a point. *Seed* large, somewhat kidney-shaped, exceeding the calyx, and covered with a fine skin. Female flowers are numerous among the hermaphrodite ones.

It is gathered while young and tender to eat as Spinach. At Boston in Lincolnshire it is generally cultivated, and is there preferred to Spinach^c. The young shoots peeled and boiled, may be eaten as Asparagus, and are gently laxative. The leaves are often boiled in broth. The roots are given to sheep that have a cough^d. As a medicine this herb is ranked among the emollients, but rarely made use of in practice. The leaves are applied by the common people for healing slight wounds, and cleansing old ulcers. It grows in waste places, by road sides, about farm yards, &c. flowering and seeding from May to August^e.]

Mr. Miller thinks that it is not originally a native of England, but that having been formerly cultivated in kitchen gardens, the seeds have got out from them. [Our oldest herbarists however mention it as a plant found commonly wild.

2. Distinguished by its very long racemes, altogether erect, and approximating to the stem^f; which is erect and simple. Leaves alternate, petioled, acute at each end, smooth, with one or two teeth in the hinder part. Racemes axillary and terminal^g. Possibly it may be a variety of *C. rubrum*. There seems to be no distinction but in the racemes; except that the calyx is smaller^h.

Villars says, that it bears some resemblance to *C. album*, but that the leaves are broader and more obtuse, and that the branches approximate more to the stem.

This and all our succeeding wild species are annual; grow abundantly on dunghills and in waste places; and flower from July to September.

3. This has the appearance, erect stature, height, colour and leaves of red garden Orach. *Stem* simple, scarcely pubescent with meal, not glossy, striated towards the top. *Leaves* alternate, petioled, somewhat toothed. *Raceme* terminal, more and more crowded towards the top: racemules simple, with small linear leaves interposed. *Flowers* three to five in a racemule, sessile, blood red, all hermaphrodite: calyx five-cornered, five-cleft. Annual. Found in Siberia, by Pallasⁱ.—Native of China. Introduced 1780, by Monf. Thouin^k.

4. Stems decumbent, and close to the ground. Leaves shining, thick. Spikes composed of sessile glomerules, separated by small linear leaves. When ripe it grows red, and is dispersed^l. Dr. Withering has described the stem as pale green, smooth, slightly scored with lines of a deeper green: branches axillary, upright. Petioles as long or longer than the branches that rise from them. No shining spangles on the leaves or calyx so as to give the plant a white appearance, but when held against a strong light an infinite number of shining particles appear. Racemes in the bosom of the upper leaves. According to Lyons, the leaves are alternate, upright, running down into the petioles, sharp, finely toothed, smooth above. Petioles the length of the leaves. The whole panicle is longer than the stem^m. Dr. Stokes has corrected the specific character thus—leaves deltoid, tooth-sinuate, teeth acuminate; racemes erect, compound, leafy, shorter than the leaf. Mr. Hudson doubts whether this be distinct from *C. urbicum*.

5. Haller thinks, that the *rubrum* and this are not distinct species. They have certainly been confounded. Monf. Villars says, that the leaves of the *rubrum* are blunter, and red on the edges, and that the stem is higher. It is most strikingly distinguished by the particular form of its racemes, which are short and spread out widely, so as to give them a depressed appearance, the tops somewhat curled

in: the racemes of the *rubrum* and *urbicum*, which are most liable to be mistaken for it, are perfectly upright: its glossy leaves and unpleasant smell contribute also to point it out. The whole plant is sometimes tinged with redⁿ.

Mr. Curtis observes that this, and most other species of the genus, afford plenty of seeds, for the support of small hard-billed birds.

6. The stem, says Linneus, is the height of a man, very much branched. Leaves pale green, resembling those of *C. album*, but broader. According to Haller, the stem is branching, diffused. Leaves green, not mealy, petioled, three-lobed; middle lobe triangular, long, lanceolate, entire, with few teeth, or wholly toothed; middle lobes deeply separated from it by a rectangular incision. Spikes of flowers composed of small balls, branched and divaricated when ripe. Haller suspects that it may be a variety of his n. 1581. *C. hybridum*. Dr. Withering takes *C. viride* of Curtis to be this species.

7. *Stem* upright, from one to three feet high, slightly crooked, somewhat angular and striated, solid, branched, smooth, sometimes purplish: branches alternate. *Leaves* deeply and irregularly indented, blueish green, covered especially underneath with a mealy powder; the uppermost oblong, less deeply indented and even entire. *Racemes* axillary, upright, forming a spike of flowers growing in little clusters. It is whiter than most of the *Chenopodiums*; and varies exceedingly, both when young, and in its seeding state. This is the most common of the genus, occurring in every garden, on every dunghill, and in most corn fields^o.

It is mentioned by Lightfoot and several other authors as being boiled and eaten for greens, and is known by the name of *Fat-ben* or *Muckweed*.—Linneus affirms that swine are extremely fond of it, and yet *C. murale* and *hybridum* are said to be fatal to this animal, contrary to all probability, since the common Goosefoots seem to be mild and gently laxative like Spinach.

8. *Stem* upright, green, with purplish angles. Branch-leaves lanceolate, entire, or with only one or two teeth. Racemes filiform, divided, long, naked. Calyxes of the fruit with five sharp angles. So nearly allied to the foregoing, as to make it doubtful whether it be any thing more than a variety^p. Accordingly Mr. Hudson gives it merely as such; and Monf. Villars considers it in the same light. Mr. Curtis however points out the following distinctions. The appearance of the whole plant is greener; the bright red colour at the angles of the joints is constant; the leaf is much longer; though not destitute of meal, yet this has it not in such profusion as the *album*; when the seeds are ripe, the tops of the stalks are more apt to hang down; the parts of fructification are smaller; the calyx is not quite so much covered with little globules; the seed is smaller, and reticulated with impressed dots, whereas in the *album* it is smooth.

9. *Stem* from one to two feet high, upright, branched, angular, and perfectly smooth. *Leaves* petioled, alternate, smooth, without any meal, veiny, spreading, with three teeth on each side large and distant; in form resembling those of the Thorn-apple. This species varies the least of any; the panicle of flowers is peculiarly branched and naked; it has a strong and disagreeable smell. It is not common near London, being observed only in Battersea-fields and about Northfleet. It has been found also near Ely and Colchester. Mr. Lightfoot enumerates it among the Scottish plants^q.

If any of the *Chenopodiums* be poisonous, this must be the species. Linneus suspects it to have arisen from the *viride*.]

10. This sends up several stems from the root, which rise about two feet high. Leaves light green, alternate. Flowers axillary from the upper part of the branches, in loose racemes. They appear in July, and the seeds ripen in September. The leaves emit

^c Curtis. ^d Linn. suec. ^e Curtis. ^f Linn. suec.
^g Lyons. ^h Woodw. in Withering. ⁱ Linn. suppl.
^k Hort. kew. ^l Linn. ^m Relh. cant.

ⁿ Curtis. ^o Ibid. ^p Linn. ^q Curtis.

a very strong odour when bruised, somewhat like that of Ambrosia; and for this principally the plant is preserved in gardens, for the flowers have no beauty.

[Native of the South of Europe. Cultivated in 1551^r.

11. Stem from twelve to eighteen inches high, sometimes reddish, round, striated, with fine scattered hairs. Leaves pale green, oblong, sinuated; at the base of each, peduncles an inch long, on which are several little heads of flowers alternately disposed, with a leaflet under each. It grew first in Plater's garden, in the year 1619^r.

Native of Mexico. Cultivated in 1640^r.

The leaves and flowery heads of both these plants have a strong and not unpleasant smell, and a moderately aromatic taste somewhat bitterish: on much handling them, an unctuous resinous juice adheres to the fingers. The proper menstruum of their active matter is rectified spirit; but they give it out also to boiling water. The infusions, which are not unpalatable, are said to be of service in humoral asthmas and coughs, and other disorders of the breast: they are supposed also to be antispasmodic and antihysterical. The seed is reckoned among the anthelmintics, and the herb dried is put among cloaths to keep away moths^u.]

β. This has leaves very like those of the Botrys, with the same scent: but it has a shrubby stalk, which rises five or six feet high, and divides into many branches. It is a native of the Brasils.

12. This rises with a shrubby stalk three or four feet high; with oblong leaves cut into many linear segments. It grows naturally at Buenos Ayres.

[It differs from the *Chenopodiums* in having the calyx somewhat longer, less deeply cut, and not embracing the seed so closely; the style also is five-cleft^r.

13. Stems three cubits high, straight, stiff, grooved, hairy, dividing into few branches to the middle, but above that more branched. Leaves green on both sides, the middle nerve only hairy, in form resembling those of *Lycopus*, not without smell but less sweet than the last. Racemes axillary, upright, green. Calyxes very small, inclosing the small, shining, brown, roundish seed, a little compressed^r.

At Buenos Ayres, and in Pennsylvania and New Jersey, where it is called *Wormseed* and *Jerusalem Oak*. The seeds are given to children against the worms. It has a disagreeable scent^r.

Cultivated by Dr. Sherard at Eltham, 1732^r.

14. Stem decumbent, marked with lines, branching, smooth, mealy, as is the whole plant. Leaves sessile, alternate, the uppermost wedge-form or lanceolate, succulent, blue-green with the edges reddish^b. Stem from twelve to eighteen inches high, angular, green. Leaves petioled, angular, obtuse. Panicles axillary, dichotomous, composed of green florets sessile in bunches^c.

According to Villars, it has much affinity to *C. album*; but the leaves are blunt and quite white: the stems are lower, and very much branched.

15. The whole plant is sprinkled with a white pellucid meal. Stems numerous, spreading, round, somewhat striated, and thinly beset with leaves, which are alternate, petioled. Flowers axillary and terminal, closely clustered and subspiked. This species is easily known by its decumbency, and its permanently disagreeable odour of stale salt fish, both green and dried. Common on dry banks, and at the foot of walls and paling^d.

On account of its strong scent it is reckoned an useful antihysterical: some recommend a conserve of the leaves, others an infusion in water, others a spirituous tincture of them. On some occasions, it may perhaps be preferable to the fetids which have been more commonly made use of, as not being accompanied with any pungency or irritation, and

seeming to act merely by virtue of its odorous principle^e. It is omitted in the last edition of the London Pharmacopœia, and, as Allioni affirms, is not undeservedly neglected.

This herb dyes a good strong greenish lemon colour.

16. This species is sufficiently obvious from its square stalk generally of a bright red colour, its long extended branches, and its reddish seeds which are numerous and strikingly visible from being only in part covered with the calyx^f. It has the appearance of a small *Amaranth*. Linneus says the stem is decumbent. Curtis makes it in general nearly upright. According to Lightfoot and Reichard it is sometimes one, sometimes the other.—Leaves in more luxuriant plants with a large tooth on one, and sometimes on both sides. The small lanceolate leaves of the upper flowering branches, at first sight induce one to suppose the racemes to be leafy; these when first in blossom are ovate or globular^g.

Mr. Curtis remarks that it is a troublesome weed to the gardener, but scarcely injurious to the farmer. Mr. Woodward however says that it is generally found in turnep fields; and Ray affirms that it grows abundantly in hop grounds, and corn fields where the soil is good.—It is a very grateful food to fish in ponds^h.

17. Stem round. Leaves ciliated about the edge, nerved beneath. Flowers two sessile in the uppermost axils. Style bifid and trifid. Pericarp five-corneredⁱ.]

It is a beautiful plant, naturally disposed to grow very close and thick, and in as regular a pyramid as if cut by art. The leaves are a pleasant green, and were it not for that, it has so much the appearance of a Cypress tree, that at some distance it might be taken for it.

[Scopoli affirms that this plant drives away bugs. It grows wild in Carniola, Greece, China, and Japan. Cultivated 1633^k.

18. Stem furrowed. Branches alternate. Flowers solitary, axillary: calyx one-leaved, divided: style single: stigmas three, pink-coloured. Seeds glossy. On sea shores, and in salt marshes. An excellent pot-herb^l.—It varies much in size and appearance; being either very small and decumbent, or else growing up into an erect woody shrub^m.

19. Panicle large, extremely divaricated and dichotomous, a flower being interposed; when the dichotomy ceases the flowers are alternate and sessile; under these is an awn.—Native of Siberia and Virginiaⁿ. Introduced 1771, by Mr. Reichard^o.

20. Stem round, somewhat woody and even. Branches opposite, wand-like, almost simple, purplish. Leaves half-stem-clasping, scarcely connate, acute, scariose about the edge. Rudiments of branchlets in the axils of the leaves, short. The appearance of this is different from that of the other species: perhaps it may be a *Polycnemum*^p.—Native of Siberia.

21. Root annual. Stem erect, two feet high, round, striated, rigid, yellowish at the base, red in other parts, with white dots scattered all over it. Leaves alternate, remote, petioled; petioles short, red: the lower leaves a little sinuated, and dotted with white; the upper not sinuated. Flowers racemed, crowded into spikes, seldom an inch long, usually shorter than the subjacent leaf: upper racemes leafless, lower leafy. Calyx red, powdered with white meal, composed of five subovate leaflets, at first converging, afterwards separating. The white dots magnified, appear to be round or oval granules, more or less flattened, dark in the middle, but lucid towards the edge: there are many of these on the upper leaves, but few on the lower. It is not a native of Europe. The seeds were sent by Marfigli, and the plant flowered in the garden at Pavia on the 28th of June 1786.

^r Hort. kew. from Turner. ^s Bauh. pin.
^t Hort. kew. from Park. ^u Krock. ^x Dillenius.
^v Ibid. ^z Kalm. ^a Dillenius. ^b Krock.
^c Pollich. ^d Curtis.

^e Lewis. ^f Curtis. ^g Stokes in Withering.
^h Loefel. in Linn. succ. ⁱ Scopoli. ^k Gerarde.
^l Withering. ^m Ray. ⁿ Linn. ^o Hort. kew.
^p Linn. suppl.

Perhaps it may be the same with *C. Atriplicis*, though it does not agree in the leaves, &c.^a.

22. Found in New Zealand^b.

23. Introduced 1781, by P. M. A. Broussonet, M. D.^c

PROPAGATION AND CULTURE.

Most of these plants are to be eradicated as weeds rather than cultivated. Being very succulent and exhausting, and abounding very much in seeds, they should be carefully destroyed, especially on dung-hills.

1. Sow the seed of English Mercury in march, on a deep loamy soil, prepared as for Asparagus, let the seedlings continue to grow till autumn; about the middle of september, taking advantage of a wet season, set the plants out on a bed similar to that on which they were sown, about a foot apart; keep them clear of weeds, and the ensuing spring and summer they will afford an abundant crop: the young shoots with their leaves and tops are to be cut as they spring up; and being a perennial plant it will continue thus plentifully to produce for a great number of years. In the winter the bed is to be covered with dung, which should be raked off as the spring advances, when the earth around the roots is carefully to be dug or forked up^d.]

The seeds of all the species succeed best, if they are sown in autumn; for when they are sown in the spring, they frequently lie a whole year before the plants come up: for which reason where the seeds scatter, the plants will come up much better than those which are sown by hand.

10, 11. A few of these plants, which will come up of themselves, may be transplanted in the spring into pots, filled with kitchen garden earth, to be preserved through the winter, and the others may be planted in the common borders, where they will flower and perfect their seeds; but unless the winter is very favourable, the roots will be destroyed.

11. β . Must be housed in the winter. It is easily increased by cuttings during any of the summer months, planted in a shady border and duly watered; then set in pots filled with light earth, and placed in the shade till they have taken root, after which they may be placed with other hardy exotic plants in a sheltered situation during summer; and when frost comes on, they must be removed into the greenhouse, having plenty of air in mild weather.

12. This is perennial; and retaining its leaves through the year, will add to the variety in a greenhouse during winter; but it has little other beauty to recommend it. This may be propagated by cuttings, and must be treated in the same manner with the foregoing.

17. The seeds should be sown in autumn, and in the spring, when the plants are come up, they may be put into pots of good earth, and kept supplied with water in dry weather: these pots may be intermixed with other plants to adorn court-yards, &c. where they will appear very handsome, until their seeds begin to swell and grow heavy, so as to weigh down and displace the branches, when the pots should be removed for the plants to perfect their seeds, which will come of themselves in the spring, if they be permitted to scatter.

[CHENOPODIUM. See *Amaranthus*, *Illecebrum*, *Polycnemum*, *Salsola*.

CHERAMELA. See *Averrhoa*.

CHERLERIA. (From *Jo. Hen. Cherler*, son-in-law to *John Baubin*, whom he assisted in his history.)

Lin. gen. n. 570. Reich. 619. Schreb. 775. Hall. it. herb. 1. Juss. 301.

Class. 10. 3. Decandria Trigynia.

Nat. order of *Caryophyllei*.

GENERIC CHARACTER.

CAL. Perianth five-leaved; leaflets lanceolate, concave, equal.

COR. Petals none (unless you rather call the calyx or nectaries so.)

^a Scop. insub.

^b Forster.

^c Hort. kew.

^d Curtis.

Nectaries five, emarginate, placed in a circle, very small.

STAM. Filaments ten, subulate, of which the alternate ones are affixed to the back of the nectaries. Anthers simple.

PIST. Germ ovate. Styles three, spreading. Stigmas simple.

PER. Capsule ovate, three-celled, three-valved.

SEEDS two or three, kidney-shaped.

ESSENTIAL CHARACTER.

Cal. five-leaved. Nect. five, bifid, resembling petals. Anth. alternate barren. Caps. one-celled; three-valved, three-seeded.

SPECIES.

1. *Cherleria Sedoides*. Stone-crop *Cherleria*.

Lin. spec. 608. syst. 425. Reich. 2. 367. Hudsp. angl. 193. With. 462. Lightf. 232. Penn. tour. t. 33. Hall. herb. n. 859. t. 29. opusc. 300. t. 1. f. 3. Segu. veron. 3. 180. t. 4. f. 3. Scop. carn. n. 531. Jacqu. austr. 3. t. 284. Villars dauph. 3. 647.

Lychnis alpina, &c. *Pluk.-alm. t. 42. f. 8.*

Sedum montanum perpusillum luteum. *Park. 737. f. 11. Mor. bist. 3. 471. f. 12. t. 6. f. 14.*

DESCRIPTION, &c.

1. Leaves opposite, linear, rugged about the edge; connate at the base into a sheath. When the leaves are fallen, the sheaths remain with the keel of the leaves, investing the lower part of the stem; hence the affinity of this with the Caryophylleous plants^a.

It forms large green mossy tufts. Stems about two inches high, closely matted. Flowers from the summits of the branches, single, erect, on very short peduncles, yellowish green: leaflets of the calyx streaked on the back with three lines. Nectaries much shorter than the calyx, fleshy and connected. The whole plant, at first view, has a great resemblance to a tuft of *Polytrichum* or *Mnium*^b. *Sequier* describes the flower as having five petals: *Haller* and *Scopoli* deny its having any: *Villars* says, that they are so small, as to require the assistance of a glass to view them; but that they are oblong, and cloven at the end: the glands placed between the stamens and the calyx are oblong, and four times as large as in *Arenaria*.—*Scopoli* observes that in the garden, the flower sometimes produces ten entire nectaries, and has all the stamens arising from the receptacle.

On the mountains of Dauphiné, Switzerland, Savoy, the Valais, Austria, Carniola, and the Highlands of Scotland. Perennial. Flowering in July and August.]

CHERRY-TREE, } See *Prunus* and *Cordia*.

CHERRY-LAUREL. }

CHERVIL. See *Cherophyllum* and *Scandix*.

CHESTNUT. See *Fagus*.

CHESTNUT, HORSE. See *Æsculus*.

[CHICK-PEA. See *Cicer*.

CHICKWEED. See *Alfina* and *Arenaria*.

————— Bastard. See *Bufonia*.

————— Water. See *Callitriche*.

CHIMARRHIS. (So named by *Jacqu. apo τὸν χιμάρρον*, because it usually grows by torrents.)

Lin. gen. Schreb. n. 309. Jacqu. amer. 61.

Class. 5. 1. Pentandria Monogynia.

GENERIC CHARACTER.

CAL. Perianth margin entire, crowning the germ, permanent.

COR. one-petalled; funnel-form: tube very short: border five-cleft; segments lanceolate, concave, blunt, hirsute below with a longitudinal line running along the middle, and spreading.

STAM. Filaments five, subulate, hirsute at the base, below the divisions of the border, the length of the corolla. Anthers oval, erect.

PIST. Germ roundish, inferior. Style filiform, the length of the stamens. Stigma bifid, obtuse.

PER. Capsule subovate, obtuse, crowned; two-celled; two-valved: the valves bifid at the tip.

SEEDS solitary.

^a Lin. syst.

^b Lightfoot.

C H I

ESSENTIAL CHARACTER.

Cor. funnel-form, with a very short tube. Caps. inferior, obtuse, two-celled, two-valved, the valves bifid at the tip. Seed one in each cell.

SPECIES.

1. Chimarrhis cymosa.

Jacqu. amer. 61.

DESCRIPTION, &c.

It is a lofty tree, with a handsome head, and the boughs spreading out horizontally. Leaves ovate, acuminate at both ends, quite entire, shining, petioled, opposite, a foot long, commonly eight or ten at the end of each twig. Flowers numerous, small, with white corollas, and without scent, disposed in cymose racemes half a foot in diameter; those in the axils opposite and solitary, those at the end usually four together. Capsules small. Wood white and used for beams, rafters, &c. It is called in Martinico, where it is common, *Bois de riviere*.*

CHINA. See *Smilax*.

CHINA-PINK. See *Dianthus*.

CHINA-ROSE. See *Hibiscus*.

CHINCHINA. See *Cinchona*.

CHINQUAPINE. See *Fagus*.

CHIOCOCCA. (From *χιών*, snow, and *κόκκος*, a berry.)

Lin. gen. n. 231. Reich. 248. Schreb. 315.

Gertn. t. 26. Juss. 204. Brown. 164. Jacqu. amer. 68.

Class. c. 1. Pentandria Monogynia.

Natural order of *Aggregatæ*. *Rubiaceæ* Juss.

GENERIC CHARACTER.

CAL. Perianth five-toothed, superior, permanent.

COR. monopetalous, funnel-form. Tube long, spreading. Border five-parted; divisions equal, acute, reflected.

STAM. Filaments five, filiform, length of the corolla. Anthers oblong, erect.

PIST. Germ inferior, roundish, compressed. Style filiform, length of the stamens. Stigma simple, obtuse.

PER. Berry roundish, compressed, crowned with the calyx, one-celled. (two-celled, Gertn. & Browne.)

SEEDS. two, roundish, compressed, distant. (solitary, pendulous, G.)

ESSENTIAL CHARACTER.

Cor. funnel-form, equal. Berry one-celled, two-seeded, inferior.

SPECIES.

1. Chiococca racemosa. Climbing Snowberry-tree, or David's-root.

Lin. spec. 246. Syst. 215. Reich. 479. suppl. 145.

Jacqu. amer. 68. pict. 37. t. 69. Brown. jam.

164. n. 1, 2. Swartz obs. 76. Gertn. fruct.

1. 125.

Lonicera racemosa. Lin. spec. edit. 1. 175. hort. cliff. 496. 8.]

Periclymenum racemosum. Mill. dict. n. 2.— fl. flavescente, fr. niveo. Plum. ic. t. 217. f. 2.

Dill. elth. 306. t. 228. f. 295.

Jasminum fol. myrtino acuminato, fl. albicante racemoso. Sloan. jam. 2. 97. t. 188. f. 3. Raii dendr. 64.

Pandacqui. Sonner. guin. 49. t. 19.

[β. C. scandens sarmentis tenuissimis & fere indivisis. Brown. jam. 164. n. 2.

Scandent, leaves broad-lanceolate, flowers lateral panicle-racemed, one stipular tooth.

2. Chiococca barbata.

Forst. fl. austral. n. 96.

Erect, leaves ovate, peduncles axillary one-flowered, corollas bearded in the throat.

DESCRIPTIONS, &c.

1. Stem a fathom in height and more, with smooth loose branches spreading out horizontally. Leaves petioled, opposite, oblong, acuminate, nerved, glittering on the upper surface, and smooth. Stipules minute, acuminate, within the petioles. Racemes axillary, opposite to the branchlets, loose, simple or subdivided, scarcely longer than the leaves, many-flowered: flowers peduncled, usually in pairs, directed one way, pale yellow. Calyx small. Tube

* Jacquin.

C H I

of the corolla ventricose, slightly five-cornered: border five-cleft; the segments ovate, acute, spreading. Filaments short, from the bottom of the corolla, villose: anthers linear, the length of the ventricose tube. Style thickening towards the top: stigmas two, blunt. Berry snow-white. Seeds two, oblong, acuminate.

This plant is very nearly allied to the genus *Psychotria*; but it differs not only in the manner of flowering, which is always in a raceme, but also in the form of the corolla, the berry and the seeds*.

According to Browne's account, it begins to branch immediately above the root, and rises by many shoots and slender twigs from four to seven or eight feet, then requiring support. The racemes are very slender and numerous towards the top of the branches, and are both terminating and axillary. The snow-white berries are of a loose texture and very numerous.

The root has much the same bitter acrid taste with the Seneka Snake-root, and has been long used as a strong resolutive and attenuant: it is administered with great success in obstinate rheumatisms, and old venereal taints; nor is it entirely useless even in the *spina ventosa*. It is best given in a decoction*.

Native of the West Indies; as in woods, on the lower mountains of Jamaica.

It flowered in Mr. Sherard's garden at Eltham in 1729, and was sent thither by Mr. Warner, a merchant of London, who received it from Barbadoes*. Jacquin observed it in St. Domingo, and also at Carthagen.

β. There is a variety of this (Brown. jam. n. 2.) which grows to a considerable height, and throws some of its slender twigs again to the ground. The leaves are very like those of the foregoing; but smaller, subconvex, somewhat rigid, and glittering: the racemes are short and simple: the corollas a little larger, pale-coloured but purple at the corners*.

2. This is a native of the Marquesas, Society and Friendly Islands in the South Seas*.]

PROPAGATION AND CULTURE.

1. Propagated by seeds procured from the West Indies. To be sown in pots plunged in a moderate hot-bed, where they may remain till the autumn; when they should be removed into the stove for the winter, and the following spring placed on a fresh hot-bed, to bring up the plants; for they rarely come up the first year. When they are fit to remove, plant them each in a separate small pot filled with light earth, and plunge them in a fresh hot-bed, shading them from the sun till they have taken new root, and then treating them as other tender plants from hot countries. As they obtain strength, the plants may be set abroad in a sheltered situation for two months or ten weeks, in the warmest part of the summer, and in the winter they may be placed in a dry stove, kept to a moderate degree of warmth, where they will thrive, and produce flowers in autumn.

[CHIOCOCCA nocturna. See *Cestrum nocturnum*.

paniculata. See *Psychotria*.]

CHIONANTHUS. (From *χιών*, snow, and *άνθος*, a flower.)

Fringe or Snow-drop-tree. Dutch Sneeboom.

Lin. gen. n. 21. Reich. 21. Schreb. 26. Juss. 105.

Gertn. t. 39. Royen.

Class. 2. 1. Diandria Monogynia.

Nat. order of *Sepiariæ*. *Jasminæ* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leafed, four-parted, erect, acuminate, permanent.

COR. monopetalous, funnel-form. Tube very short, length of the calyx, spreading. Border of four divisions, which are linear, erect, acute, oblique, most extremely long.

STAM. Filaments two, very short, subulate, inserted into the tube. Anthers cordate, erect.

* Swartz.

* Brown. jam.

* Dill. elth.

* Browne.

* Swartz.

* Forster.

PIST.

PIST. Germ ovate. Style simple, length of the calyx.
 Stigma obtuse, trifid.
 PER. Drupe round, one-celled.
 SEED. Nut striated.

OBS. The number of stamens is often three.

ESSENTIAL CHARACTER.

Cor. quadrifid, with the divisions extremely long.
 Drupe with a striated nut.

SPECIES.

1. *Chionanthus virginica*. *Virginia Fringe-tree*, or *Snow-drop-tree*.
Lin. spec. 11. *fl.* 57. *Reich.* 20. *hort. cliff.* 17.
Dubam. arb. 1. 165. *t.* 63.
Amelanchier virginiana laurocerasi folio. *Pet. ficc.*
in Raii suppl. app. 241. *Catesb. car.* 1. *t.* 68.
Peduncles three-cleft three-flowered.
- [2. *Chionanthus zeylanica*. *Ceylon Snowdrop-tree*.
Lin. spec. 11. *Reich.* 20. *fl. zeyl. n.* 14. *Gertn.*
fruct. 1. 189.
Arbor zeylanica, &c. *Burm. zeyl.* 31. *Pluk. alm.*
t. 241. *f.* 4. *Raii dendr.* 124.
Peduncles paniced many-flowered.
3. *Chionanthus compacta*.
Swartz prodr. 13. *Vabl. symb.* 2. 1. *C. caribæa*.
Jacqu. collect. 2. 110. *t.* 6. *f.* 1.
Panicles trichotomous, the last flowers subcapitate; calyces villose, leaves lanceolate-oblong, anthers acuminate.
4. *Chionanthus Mayepea*.
Vabl. symb. 2. 1.
Mayepea guianensis. *Aubl. guian.* 81. *t.* 31.
Panicles axillary trichotomous, all the flowers distinct, anthers obtuse.]

DESCRIPTIONS, &c.

1. This shrub is common in South Carolina, where it grows by the sides of rivulets, and seldom is more than ten feet high: the leaves are as large as those of the Laurel, but are of a much thinner substance; the flowers come out in may, hanging in long bunches, and are of a pure white, from whence the inhabitants call it Snowdrop-tree; and, from the flowers being cut into narrow segments, they give it the name of Fringe-tree. After the flowers have fallen away, the fruit appears, which becomes a dark-coloured drupe, about the size of a Sloe, having one hard seed in it.

[It varies with a four, five and six-cleft corolla, and four stamens^a. Also, with broader, or ovate-elliptic; and with narrower, or lanceolate leaves.—Introduced 1736, by Peter Collinson, Esq.^b

2. Leaves opposite, obovate, smooth on both sides, quite entire, subpetioled. One panicle from each axil; the peduncle subdivided and the flowers sessile. The leaves are thicker than in the first species. The panicle has often forty flowers, and the petals are much shorter^c. The fruit is a berried drupe, superior, obovate, smooth, black; the shell is bony, thin, marked on the outside with six or eight raised filiform streaks; within it is very smooth; and it does not open with valves. The seed is an oblong spheroid, and bay-coloured^d.

3. This is a tree fifteen feet in height, covered with a dusky ash-coloured bark. Leaves opposite, on short petioles, sharp at the base, narrowed into a long sharp and sometimes sickle-shaped termination, quite entire, thickish, firm, shining, about half a foot in length, and an inch and half in breadth. Common peduncle terminating, trifid, each division having opposite branches, which are also trifid; the last pedicels sustaining several sessile flowers. Bractes at the divisions of the peduncles opposite, small, narrow, concave, sharp, somewhat villose, as are also the peduncles, when viewed with a glass. Calyx deeply cut; leaflets ovate, acute, somewhat villose, ciliate about the edge. Petals snow-white, scarcely any tube, but the segments very long, and of a linear shape. Style twice as long as the calyx. The first species differs from this in having smooth

calyxes; and the second differs from both in having the leaves villose underneath.

Native of the Caribee islands^e.

4. This is a middle-sized tree, five or six feet high, and five inches in diameter, the wood and bark whitish. Leaves opposite or nearly so, smooth, thin, firm, long, oval, ending in a point; the largest seven inches long and two wide, on a short petiole. Calyx very small, divided into four sharp segments. Petals white, concave, terminated by a thread three lines in length. Fruit the size of an olive; rind violet, succulent, two lines thick, bitter. The flowers exhale a sweet and pleasant odour.—Native of the forests of Guiana^f.]

PROPAGATION AND CULTURE.

1. The best way to obtain good plants, is from the seeds, which must be procured from America, for they never have produced any fruit in this country. The seeds should be sown in small pots filled with fresh loamy earth soon after they arrive, and should be placed under a hot-bed frame, where they may remain till the beginning of may, when they must be removed to a situation exposed to the morning sun, and screened from the sun in the middle of the day. In dry weather the pots must be watered, and kept clean from weeds; for as these seeds lie in the ground a whole year before the plants will come up, they should not be exposed to the sun the first summer, but the following autumn they should be removed; and placed under a frame, to protect the seeds from being injured by the frost; and if the pots are plunged into a moderate hot-bed the beginning of march, it will bring up the plants much sooner than they will otherwise rise; by which means they will get more strength the first summer, and be better able to resist the cold of the next winter. While these plants are very young, they will be in danger of suffering by severe frost; but when they have obtained strength, they will resist the greatest cold of our climate in the open air; therefore for the two or three first winters, it will be proper to keep them under shelter; so that the young plants may remain in the seed-pots all the first summer, and the following winter; and in the spring before they begin to shoot, they should be shaken out of the pots, and carefully separated so as not to break off their roots, and each planted in a small pot filled with light loamy soil, and plunged into a very moderate hot-bed, just to forward their taking fresh root; then they should be gradually inured to the open air, and during the following summer, the pots should be plunged into the ground, to prevent the earth from drying, in a situation where they may enjoy the morning sun, but screened from the great heat at noon. During the summer season, they will require to be frequently watered, and kept clean from weeds. The autumn following, they should be again placed under a hot-bed frame to screen them from frost; but they should enjoy the free air at all times, when the weather is mild. The april following, the plants may be shaken out of the pots, with the ball of earth to their roots, and planted where they are designed to remain.

This shrub delights in a moist, soft, loamy soil, and if it is planted in a sheltered situation, will endure the cold of our winters very well in the open air; but in dry land it is very subject to decay in warm seasons.

It may also be propagated by layers; but these seldom take under two years, and not then, unless they are well supplied with water in dry weather.

CHIRONIA: (*From the centaur Chiron.*)

Lin. gen. n. 255. *Reich.* 275. *Schreb.* 349.
Juss. 142. *Gertn. t.* 114.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Rotaceæ*. *Gentianæ* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, five-parted, erect, acute, permanent; leaflets oblong.

COR. monopetalous, equal. Tube narrower. Border five-parted, spreading; divisions ovate, equal.

^a Reich. from Du Roi.

^b Hort. kew.

^c Linn. zeyl.

^d Gertner.

^e Jacquin collect.

^f Aublet.

STAM. Filaments five, broad, short, growing from the tip of the tube. Anthers oblong, erect, large, converging, and (after having shed the pollen), spirally twisted.

PIST. Germ ovate. Style filiform, a little longer than the stamens, declinate. Stigma headed, ascending.

PER. ovate, bilocular.

SEEDS numerous, small.

OBS. In some species the pericarp is a berry, in others a capsule.

ESSENTIAL CHARACTER.

Cor. rotated. Pist. declinate. Stam. on the tube of the corolla. Anth. finally spiral. Per. two-celled. The drooping stigma seems to constitute the essence of this genus. Berg.

SPECIES.

[1. *Chironia trinervia*.

Lin. spec. 272. Reich. 527. fl. zeyl. n. 90. hort. cliff. 54.

Lyfimachia. Burm. zeyl. 145. t. 67.

Herbaceous; leaflets of the calyx membranaceous-keeled.

2. *Chironia jasminoides*.

Lin. spec. 272. Reich. 528. amæn. 6. afr. 5.

Herbaceous; leaves lanceolate; stem four-cornered.

3. *Chironia lychnoides*.

Lin. syst. 229. Reich. 528. mant. 207. Berg. cap. 45.

Stem simple, leaves linear-lanceolate.

4. *Chironia campanulata*.

Lin. spec. 272. Reich. 528.

Herbaceous; leaves sublinear, calyxes the length of the corolla.

5. *Chironia angularis*.

Lin. spec. 272. Reich. 528.

Herbaceous; stem acute-angled, leaves ovate stem-clasping.

6. *Chironia linoides*. Flax-leaved *Chironia*.

Lin. spec. 272. syst. 229. Reich. 529. hort. cliff. 54. Berg. cap. 43.

Rapuntio affinis. Breyn. cent. 175. t. 90.

Herbaceous; leaves linear.

7. *Chironia nudicaulis*.

Lin. syst. 229. suppl. 151.

Herbaceous; leaves oblong bluntish, stems subdiphyllous quite simple one-flowered, calyxes with setaceous teeth.

8. *Chironia tetragona*.

Lin. syst. 229. suppl. 151.

Shrubby; leaves ovate three-nerved bluntish, leaflets of the calyx bluntish keeled.]

9. *Chironia baccifera*. Berry-bearing *Chironia*.

Lin. spec. 273. syst. 229. Reich. 529. Curtis magaz. t. 233. Gärtn. fruct. 2. 156.

Centaurium. Comm. rar. t. 9. Oldenl. afr. 26.

Shrubby, berry-bearing.

10. *Chironia frutescens*.

Lin. spec. 273. syst. 229. Reich. 529. amæn. 4. 308. n. 130. Berg. cap. 45. Mill. fig. t. 97.

Curt. mag. t. 37.

Centaurium. Comm. rar. t. 8. Oldenl. afr. 26.

Burm. afr. 205. t. 74. f. 1.

Shrubby; leaves lanceolate subtomentose; calyxes bell-shaped.

DESCRIPTIONS, &c.

[1. Stem annual, quadrangular, acute. Leaves opposite, lanceolate, acuminate at each end, smooth, quite entire, three-nerved. Flowers from the upper axils opposite, solitary, peduncled². Burman adds, that the stem is glossy, ash-coloured, furrowed, with four joints or more. At each joint a pair of sessile leaves. Flowers elegant, blue. Capsule one-celled.—Native of Ceylon and the Cape.

2. Stem glossy. Leaves opposite, sessile, smooth, quite entire, shorter than the internodes, erect. Panicle terminal, dichotomous, erect, few-flowered. Bractes opposite, subulate. Calyx with lanceolate acuminate leaflets, rather spreading, the length of the tube of the corolla³.

Native of the Cape.

² Linn. zeyl.

³ Linn. amœn.

3. Stem entirely simple, round, stiff and straight, two feet high. Leaves opposite, sessile so that the bases touch, glossy, longer than the internodes, erect, subdecurent. Peduncles three terminal, longer than the leaves, the lateral ones having a pair of subulate bractes. Leaflets of the calyx lanceolate-subulate, keeled. Corolla purple, the size of *Gladiolus*; tube length of the calyx, divisions sharp, longer than the tube¹.—Native of the Cape.

4. Stem a foot high, round with long branches. Leaves lanceolate-linear glossy. Flowers terminal, solitary, wheel-shaped, purple, on a long peduncle. Leaflets of the calyx subulate².—Observed in Canada, by Kalm.

5. This has the appearance of lesser Centory, (*Gentiana Centaurium*). Stem a foot high, four-cornered, with membranaceous wings. Flowers heaped, as in *Hypericum*. Style bifid¹. Found in Virginia, by Kalm.

6. An undershrub, with filiform, round, smooth branches. Leaves opposite, acute, a little compressed, an inch or more in length, succulent, smooth, sessile, frequent, longer than the internodes. Flowers scarlet, solitary at the ends of the branches, peduncled. Tube of the corolla only half the length of the calyx³, which is half-five-cleft and obtuse⁴.

Native of the Cape. Introduced in 1787, by Masson⁵.

7. This is singular for its oblong leaves frequently rooted into a tuft. Stems many, elongated, with two leaves in the middle, or two pairs of leaves. Divisions of the calyx subulate.—Discovered at the Cape, by Thunberg⁶.

8. Corolla yellow, large. It differs from the first species in being shrubby; in having shorter and more obtuse leaves.—Native of the Cape⁷.

9. This plant grows to the height of a foot and half or two feet, and becomes very bushy, rather too much so in point of ornament. It produces both flowers and fruit during most of the summer⁸.

The stem is quadrangular. The calyxes subulate and short⁹.

The pericarp, according to Gärtner, is a berry, which is succulent, subdiaphanous, globular, twin, red or saffron-coloured, one-celled; with a very thin transparent skin, and a watery pulp, but two spongy receptacles, which are fixed to the sides of the berry longitudinally, where the groove is externally, and two-lobed within, the lobes curved back to the sides. The seeds are numerous, small, ovate-globular, pitted, dark chestnut colour.

It is a native of Africa, and was cultivated in 1759, by Mr. Miller¹⁰.

10. Branches round, tomentose, ash-coloured, mostly alternate, subdividing a little at top. Leaves opposite, obtuse, fleshy, about two inches in length, sessile, frequent, twice as long as the internodes. Peduncles two or three together, terminating, each having two or three flowers, arising from the axils, with a pair of linear folioles in the middle; the pedicels one-flowered¹¹.

The leaflets of the calyx are ovate, obtuse, sub-tomentose, much broader than the tube of the corolla¹². The pericarp is berried in this sort also, but it is much smaller than in the foregoing, concealed within the calyx, ovate, acuminate, red, and opening at length into two valves at the groove¹³.—Native of Africa. Cultivated in 1756, by Mr. Miller¹⁴.]

PROPAGATION AND CULTURE.

9, 10. The seeds should be sown in small pots filled with light sandy earth, soon after they are ripe, and plunged into a moderate hot-bed, and must be frequently but gently watered; sometimes the seeds will lie a long time in the ground, so that if the plants do not appear the same season, the pots should not be disturbed, but preserved in shelter till the following spring, and then plunged into a fresh hot-

¹ Linn. mant.

² Linn. spec.

³ Ibid.

⁴ Bergius.

⁵ Linn. syst.

⁶ Hort. kew.

⁷ Linn. suppl.

⁸ Ibid.

⁹ Curtis.

¹⁰ Linn. syst.

¹¹ Hort. kew.

¹² Berg.

¹³ Linn. syst.

¹⁴ Gärtner.

¹⁵ Hort. kew.

bed, which will bring up the plants in a short time, if the seeds are good. When the plants are fit to remove, they should be transplanted into small pots, four or five in each pot; then plunge the pots into a moderate hot-bed, and sprinkle them with water, and shade them every day from the sun till they have taken new root; after which they must have a large share of air in warm weather, to prevent their drawing up weak: when the plants have obtained some strength, they must be gradually inured to bear the open air; but when they are exposed abroad, if there should happen much rain, the plants must be screened from it, otherwise it will cause them to rot: when the plants have filled the pots with their roots, they should be parted, and each put into a separate pot filled with light sandy earth, not rich with dung, placing them in the shade till they have taken fresh root; then they may be removed to a warm sheltered situation, and mixed with such other plants as require but little water; in which situation they may remain till autumn, when they must be placed in a dry airy glass-case; and in the winter should have very little wet, but must enjoy the sun as much as possible; and in mild weather should have fresh air admitted to them, but must be protected from frost: with this management, the plants will thrive and produce flowers the second year from seed.

[The cuttings also will take root with proper management, but not very readily.

Most of the other species, coming from the Cape, may be increased and treated in the same manner.

CHIRONIA. See *Clora*, *Gentiana*.

CHIRONIUM. See *Laserpitium*.

CHLAMYDIA. See *Phormium*.]

[CHLORA. (From *χλωρός*, green or pale: because the flowers are of a pale yellow colour.)

Lin. gen. Reich. n. 519. Schreb. 653. Juss. 142.

Adans. fam. plant. 503. Blackstonia. Huds. angl. edit. 1. 146.

Class. 8. 1. Octandria Monogynia.

Nat. order of Rotaceæ. Gentiane Juss.

GENERIC CHARACTER.

CAL. Perianth eight-leaved; leaflets linear, spreading, permanent.

COR. monopetalous, salver-shaped. Tube shorter than the calyx, coating the germ. Border eight-parted; divisions lanceolate, longer than the tube.

STAM. Filaments eight, very short, seated on the throat. Anthers linear, erect, shorter than the divisions.

PIST. Germ ovate-oblong. Style filiform, length of the tube. Stigmas four, oblong, cylindric. (Style none; stigmas two. Huds. Style simple; stigma four-cleft. Smith.)

PER. Capsule ovate-oblong, one-celled, somewhat compressed, furrowed, two-valved; valves incurved on the side.

SEEDS numerous minute.

OBS. This genus is allied to *Gentiana*: but differs in the number of stamens, and segments of the calyx and corolla.

Chl. dodecandra differs in having the flowers twelve-cleft, and furnished with twelve stamens. R.

ESSENTIAL CHARACTER.

Cal. eight-leaved. Cor. one-petalled, eight-cleft.

Caps. one-celled, two-valved, many-seeded.

Stigma four-cleft.

SPECIES.

1. *Chlora perfoliata*. Perfoliate Yellow-wort, or Yellow Centaury.

Lin. syst. 361. Reich. 2. 161. Huds. angl. 168.

With. 392. Lightf. 200. Relb. n. 301. Sowerby

engl. bot. t. 60. Villars dauph. 3. 412.

Chlora. Renealm. spec. 80. t. 76.]

Gentiana perfoliata. Lin. spec. 335. hort. cliff. 81.

10. & 496. 11. Mill. dict. n. 10. [Hall. belv.

n. 649. Scop. carn. n. 299. Pollich pal. n. 262.

Sabbat. hort. t. 100.

Centaureum luteum perfoliatum. Baub. pin. 278.

Camer. epit. 427. Mor. hist. 2. 565. f. 5. t. 26.

f. 1, 2. Raii syn. 287. hist. 1093. Baub. hist. 3.

355. fig.

C. parvum flavo flore. Clus. hist. 2. 180.

C. minus lut. perfol. famosum. Park. 271. 5. fig. 272. 5.

β. *C. pusillum luteum*. Baub. pin. 278. Mor. f. 3. Park. 273. 7. fig. 272. 7.

C. luteum novum. Col. ecphr. 2. 78.

Leaves perfoliate

2. *Chlora imperfoliata*.

Lin. syst. 362. suppl. 218.

Corollas six-cleft.

3. *Chlora quadrifolia*.

Lin. syst. 362. Reich. 2. 161.

Gentiana quadrifolia. Lin. spec. 1671.

Leaves in fours.

4. *Chlora dodecandra*.

Lin. syst. 362. Reich. 2. 162.

Chironia dodecandra. Lin. spec. 273.

Gentiana flor. duodecim-petalis, fol. distinctis. Gron. virg. 29.

Leaves opposite.

DESCRIPTIONS, &c.

1. The whole plant generally very glaucous. Stem cylindric, smooth, from three inches to three feet high. Root-leaves oval, sessile, spreading in form of a star; lowest stem-leaves oval-lanceolate; the rest perfoliate, as if composed of two lanceolate or cordate leaves running into each other at the base; all of a glaucous colour. Flowers in a kind of umbel, of three rays, encompassed by the uppermost leaf; the middle one bearing one flower without any leaves: the outer ones terminated by a leaf similar to the stem-leaves, from which arises an umbellule supporting one or more flowers. Calyx sometimes equal to, sometimes longer, and sometimes shorter than the corolla; leaflets eight to ten. Corolla gold-coloured, with a milky juice; segments sometimes nine, slightly emarginate. Stamens six to nine or ten. Style cloven, yellow, thickest towards the top: stigmas two, shaped like a horse-shoe, yellow. Capsule more rounded than in the *Gentians*.—Annual. Pastures, in chalky and limestone soils; flowering from June through the autumn.

It was first separated from the *Gentians* by Mr. Hudson. He gave it the name of *Blackstonia*, from Mr. Blackstone an apothecary, author of *Fasciculus plantarum circa Harefield*, and *Specimen botanicum*; but Linneus has adopted Reneaume's name of *Chlora*, after Adanson; and Mr. Hudson has given up the title of *Blackstonia*, in the second edition of his *Flora*.

Haller affirms that it is more bitter than the red (*Gentiana Centaurium*), and that it seems to possess the same qualities.

2. Stem herbaceous, quite simple, erect, four-cornered, glossy, a hand in height; the internodes longer than the leaves. Leaves opposite, sessile, inclined to stem-clasping, ovate, glossy, acute. Flower peduncled, terminal, full yellow, larger than the leaf. Calyx one-leaved, bell-shaped, the length of the corolla, bifid beyond the middle, spreading, permanent; divisions lanceolate. Corolla, tube short, spreading; divisions of the border oval. Filaments six, subulate, a little longer than the tube on which they are placed: anthers roundish. Styles two, glued together: stigmas obtuse. It has the appearance of the foregoing, but differs in having the calyx divided to the base, and the divisions not linear; in the corolla also being six-cleft, and the styles glued together.—It is a native of the extreme part of Italy, and is annual.

3. Produced from *Gentiana perfoliata* and *Linum quadrifolium*. Stem simple, a span in height, somewhat quadrangular, jointed. Leaves in whorls, linear, only a little broader towards the end, bluntish; the length of the internodes. Peduncles terminal, five; the fifth intermediate; each having two small, opposite bractes in the middle, and at the end three flowers on pedicels. Flowers eight-cleft as in the first species, but the segments narrower.—Found in the south of Europe, by Alstroemer.

^a Withering.

^b Linn. suppl.

^c Linn. spec.

4. Calyx

4. Calyx twelve-cleft; leaflets linear, erect. Corolla longer than the calyx, divided into twelve lanceolate segments. Stamens twelve, growing to the corolla, the length of the calyx; anthers oblong, spiral. Germ roundish. Style long, intorted; stigma simple^d.

It is a native of Virginia.

PROPAGATION AND CULTURE.

These may easily be propagated from seeds, and require only common care in the cultivation. Our common Yellow Centaury however does not thrive well in a garden, and though rather impatient of cold, yet if sheltered, it becomes mildewed^e.]

[CHLORANTHUS. (From *χλωρός*, pale, and *ανθος*, a flower.)

Lin. gen. Schreb. n. 1730. p. 793. L'Herit.

fert. 35. t. 2. Swartz in Phil. trans. vol. 77.

part 2. p. 359. t. 14. Juss. 423. Nigrina.

Thunb. gen. 58. jap. 5.

Class. 5. i. Tetrandria Monogynia.

Nat. order of *Aggregatæ* ð.

GENERIC CHARACTER.

CAL. none, but an ovate, acute, concave scale, on which the germ is placed.

COR. one three-lobed, convex petal, inserted into the out-side of the germ.

STAM. Filaments none. Anthers four, inserted into the lobes of the petal on the edges towards the inside and bivalve.

PIST. Germ obovate, prominent in front, and bearing the petal. Style unequal, very short, angular. Stigmas three, very minute, erect.

PER. Drupe oblong.

SEED. Nut oblong, smooth.

ESSENTIAL CHARACTER.

Cal. none. Cor. a petal three-lobed by the side of the germ. Anthers growing to the petal. Drupe one-seeded.

SPECIES.

1. Chloranthus inconspicuus.

Philos. trans. 77. 2. for 1787. p. 360. t. 14.

L'Herit. fert. angl. p. 1. & 35. t. 2. Ait. hort.

kew. 1. 160.

Nigrina spicata. Thunb. japon. 65.

DESCRIPTION, &c.

As described by Swartz, it is an herbaceous plant. Stems many from the root, half a foot high, spreading, suberect, a little branching, round, smooth: branches opposite, spreading, round, striated, smooth. Leaves petioled, decussated, opposite, lanceolate-ovate, serrate, nerved, veiny, rather succulent, very smooth, pale green. Petioles shortish, channelled above, smooth. Stipules between the petioles, having two minute teeth on each side, membranaceous, permanent. Flowers panicled. Panicle terminal, erect, simple. Racemes or spikes opposite, decussated, erectish, subfastigate. Flowers opposite, decussated, sessile, solitary, minute, the size of a pin's head, somewhat succulent, whitish yellow. Pollen yellow. Stigmas whitish. Berry black, the size of Pepper.

According to L'Heritier, it is a stoloniferous undershrub. Stems procumbent at the base, knotted, gray; the knots near the ground rooting, sometimes alternately leafless, but annulated with stipules like the rest. Leaves oblong-ovate, acute, the ferratures mortified at the end, revolute, somewhat wrinkled, the same colour on both sides, spreading, flat, permanent, from two to three inches long, and from eighteen to twenty lines broad. Petioles one-fourth of the length of the leaves, ending at the base in a ring, connecting two subulate erect stipules. Panicles lax, composed of spreading decussated spikes, an inch and half long. Flowers herbaceous, a line in length. Bractes sessile, lanceolate, acute, concave, pressed close, permanent, under the spikes. Perianth double; the lower more properly a bracte, the upper only a scale. Style scarcely any. Stigma capitate, subbivalved, sometimes two-lobed.

^d Gronovius.

^e English Botany

Fruit an oval berry, acuminate with the style, pellucid at the base.

It has some similitude to, and analogy with *Viscum* or *Loranthus*. It is said to be called *Cbu-Lan* or *Tchu-lan*, by the Chinese, but must not be confounded with the *Tsjulang* or *Camunium Chinense* of Rumphius, which is the *Vitex pinnata* of Linneus.

This plant has long been introduced into the royal garden at Kew as a native of China, where we are told it is cultivated in their gardens, though it seems not to have any qualities either palatable or odoriferous, nor has it a beautiful appearance^f.

Dr Lind asserted, that the Chinese mix it with their Tea, to give it a pleasant smell: but this plant in itself has no smell whatever^g.

Introduced 1781, by James Lind, M.D.^h It flowered on board the Atlas on the voyage.

PROPAGATION AND CULTURE.

It is preserved in the stove, and may be increased readily by its runners.

CHLOROXYLON. See *Laurus*.

CHOCOLATE-NUT-TREE. See *Theobroma*.]

CHONDRILLA. (Chondrilla. Plin. *Χονδρίλλα*; Diosc. From *χονδρός*, a billock of earth, a clot or cluster.)

Lin. gen. n. 910. Reich. 989. Schreb. 1235.

Gartn. t. 158. Tourn. 268. Vaill. A. G. 1721.

12. Juss. 169.

Class. 19. i. Syngenesia Polygamia Æqualis.

Nat. order of *Compositæ Semisiliculosæ*. *Clethraceæ* Juss.

GENERIC CHARACTER:

CAL. Common calyced, cylindric; scales of the cylinder very many, parallel, linear, equal; those of the base few, very short.

COR. Compound imbricate; uniform; corollæ hermaprodite very many, equal, in several rows.

Proper monopetalous, strap-shaped, linear, truncated, four or five-toothed.

STAM. Filaments five, capillary, very short. Anthers cylindric, tubular.

PIST. Germ subovate. Style filiform, length of the stamens. Stigmas two, reflex.

PER. none. Calyx cylindric, oblong.

SEEDS solitary, ovate, compressed, muricated. Pappus hairy, stipe long, attenuated above.

REC. naked.

ESSENTIAL CHARACTER.

Cal. calyced. Floscules in many rows. Seeds muricated. Pappus simple, stipitated.

SPECIES.

1. Chondrilla juncea. Rushy Gum-Succory.

Lin. spec. 1120. syst. 713. Reich. 3. 627. hort.

cliff. 383. Gartn. fruct. 2. 363. Hall. herb.

n. 17. Pollich pal. n. 731. Villars dauph. 3.

149. Jacqu. austr. 5. 12. t. 427. Gouan. hort.

monsp. 409. illustr. 54. Bauh. pin. 130. n. 1.

D'Affo aragon. n. 757. Ger. 226. f. 5. emac. 288.

f. 5. Mor. f. 7. t. 6. f. 21.

Ch. viminea. Bauh. hist. 2. 1021. f. 1. Raii hist. 223.

C. juncea viminea arvensis. Tabern. ic. 178.

C. prima Dioscoridis. Col. phyt. 9. t. 3.—t. 10. (edit. 1592.)

C. viminalibus virgis. Clus. hist. 144. 2. Park. 782. f. 2.

Radical leaves runcinate, stem-leaves linear entire.

[2. Chondrilla crepoides.

Lin. syst. 713. Reich. 628.

Leaves sagittate, stem-clasping, stem simple, flowers subsessile lateral.

3. Chondrilla nudicaulis.

Lin. syst. 714. Reich. 628. mant. 278.

Lactuca nudicaulis. Murr. in comm. gott. 1772. p. 73. t. 4.

Scape naked, flowers panicled.

DESCRIPTIONS, &c.

1. Root perennial. Stem much branched, from two to three feet high, erect; at bottom strigose, towards the top smooth, bright green. Radical and lower leaves ovate-lanceolate, pinnatifid, sinuate-tooth-letted, decurrent, scabrous with few hairs:

^f Swartz.

^g L'Heritier.

^h Hort. kew.

leaves higher on the stem and on the branches linear, tongue-shaped, obtuse, quite entire (sometimes with a toothlet or two), sessile, smooth, glaucous-green. Flowers at the top and sides of the stem and branches sometimes solitary, but usually in bunches sessile, but sometimes on short peduncles. Calyx slender, striated, roughish. Corollas slender, yellow, like those of Lettuce¹. Seeds, according to Gærtner, oblong; thicker upwards, obscurely angular, with ruggedly tubercled streaks, rufescent. Egret silky-white, fugacious; style bristle-shaped, half as long again as the seed.

Native of France, Switzerland, Germany, Austria, Italy, Spain; flowering in July, and ripening its seeds in September.—Cultivated 1633^k.

The juice of the whole plant is extremely bitter: in Spain however it is used as a salad herb.

2. Stem simple, usually absolutely so, a foot and a half high, purple at the base, striated, set with a few white bristles. Leaves resembling those of *Turritis*, undivided, oblong, rough about the edge but especially along the keel with whitish hairs, the upper surface glossy; the lowest leaves toothletted. Flowers alternate, on a peduncle scarcely so long as the calyx, with one or two bractes. Calyx striated, set with black tubercles and a white bristle: calycle very short, with subulate, permanent leaflets. Corolla yellow, purplish underneath, the length of the calyx. Annual.—It might be placed in the genus *Crepis*¹.

3. Radical leaves runcinate, obtuse at the end, glossy, toothlet-ciliated. Scapes few; a foot long, panicled, straight, round, glossy, with a small leaf or two on them. Calyx eight-leaved, glossy, imbricated below with a few leaflets. Corolla pale yellow, consisting of about twenty-four corollules, all forming the ray, and obtusely five-toothed. All the styles forming the disk of the flower are concolor. Pappus sessile. Seeds black^m. The calycle is not permanent, but falls offⁿ.—Native of the East Indies; not of North America; and by the Egyptian pyramids; as Linneus supposed.]

PROPAGATION AND CULTURE.

1. The first sort is seldom preserved in gardens, because the roots are very apt to spread, and become troublesome weeds. The downy seeds also are carried by the wind to a considerable distance, and fill the ground with plants. The roots strike deep, and spread out with thick fibres on every side; each of these, when cut or broken, will shoot up; so that, when this plant has once got possession of the ground, it is very difficult to root it out.

[The two other species have not been introduced into our gardens.

CHONDRILLA. See *Apargia*, *Cacalia*, *Catananche*, *Centaurea*, *Crepis*, *Erigeron*, *Lactuca*, *Lapsana*, *Leontodon*, *PeEtiis*, *Prenanthes*, *Scorzonera*, *Sonchus*.

CHONDRILLÆ GENUS. See *Cichorium*.

CHOUANNA-MANDARU. See *Bauhinia*.

CHRISTIANA RADIX. See *Astragalus*.]

CHRISTMAS-ROSE, or FLOWER. See *Helleborus*.

[CHRISTOPHORIANA, or Herb Christopher. See *Aëtea*, *Adonis*, and *Aralia*.

CHRIST'S-THORN. See *Rhamnus Paliurus*.

CHRYSANthemOIDES. See *Osteospermum*.]

CHRYSANthemUM. (*Χρυσάνθεμον*, *Diosc.* from *χρὸς*, gold, and *ἄθος*, a flower.)

Lin. gen. n. 966. *Reich.* 1048. *Schreb.* 1307.

Juss. 183. *Gærtner.* t. 168. *Tourn.* 280.

Leucanthemum. *Tourn.* *Bellidioides.* *Vaill.*

A. G. 1720. f. 17. 23. 31.

Class. 19¹ 2. Syngenesia Polygamia Superflua.

Natural order of *Compositæ Dioscoideæ*. *Corymbifera* *Juss.*

GENERIC CHARACTER.

CAL. Common hemispherical, imbricate; scales close incumbent; the interior ones larger by degrees; the innermost terminated by a parched scale.

COR. Compound radiated; corollets hermaphrodite tubular, numerous, in the disk. Females more than twelve in the ray.

Proper of the hermaphrodites funnel-form, five-cleft, patulous, length of the calyx.

Of the females strap-shaped, oblong, three-toothed.

STAM. In the hermaphrodites, filaments five, capillary, very short. Anthers cylindric, tubular, shorter than the corolla.

PIST. In the hermaphrodites; Germ ovate. Style filiform, longer than the stamens. Stigmas two, revolute.

In the females, Germ ovate. Style filiform, equal with the hermaphrodites. Stigmas two, obtuse, revolute.

PER. none. Calyx unchanged.

SEED solitary, oblong, without any pappus.

REC. naked, dotted, convex.

Obs. In *Leucanthemum* of *Tournefort*, the female corollets are lanceolate, and the calycine membranes narrow.

In *Chrysanthemum* of *Tournefort*, the female corollets are ovate-truncate, and the calycine membranes ovate.

Ch. flosculosum is destitute of the ray.

Ch. *Leucanthemum* has black seeds with white streaks, and a yellow cylindric hollow head. R.

Ch. *Balsamina* has a calyx almost like *Achillea*, and no pappus. R.

Ch. *Myconis* has seeds with a membranaceous crown. R.

ESSENTIAL CHARACTER.

CAL. hemispherical, imbricated; the marginal scales membranaceous: Pappus margined. Receptacle naked.

SPECIES.

* *Leucanthema*: with white corollas.

1. *Chrysanthemum frutescens.* Canary Ox-eye.

Lin. spec. 1251. *Reich.* 3. 844. *hort. cliff.* 417. 5.

Leucanthemum canariense, *sapores pyrethri.* *Waltb.* *hort.* 31. t. 24.

Pyrethrum frutescens. *Gærtner. fruct.* 2. 431.

Chamæmelum canariense ceratophyllum fruticosius, &c. *Mor. hist.* 3. 35. n. 7.

Bellis canar. frut. fol. crassis, pyr. sap. *Raii suppl.* 221.

Bupthalmum canar. &c. *Pluk. alm. t.* 272. f. 6. Shrubby; leaves fleshy linear pinnate toothed trifid at the end.

2. *Chrysanthemum serotinum.* Creeping-rooted Chryf.

Lin. spec. 1251. *Reich.* 3. 844. *Jacqu. obs.* 4.

p. 8. t. 90.

Aster fol. profunde dentatis, & quasi laciniatis, ramofus. *Raii suppl.* 162. and

Bellis americana frutescens ramosa. *hist.* 1865.

B. major, rad. repente, fol. latioribus ferratis: *Mor. hist.* 3. 29. f. 6. t. 9. f. 11. *Raii hist.* 351.

B. amer. procerior serotina ramosa, fl. amplissimo. *Pluk. alm. t.* 17. f. 2.

Leaves lanceolate, serrate at top, acuminate at both ends.

[3. *Chrysanthemum atratum.* Fleshy-leaved Chryf.

Lin. spec. 1252. *syst.* 772. *Reich.* 3. 844. *Allion.*

pedem. n. 684.

Bellis alpina major, fol. rigido. *Baub. pin.* 261. *prodr.* 120. *Baub. hist.* 3. 115. *Hall. belv.* n. 98. a.

β. B. alp. minor, fol. non rig. *Baub. hist.* 3. 115.

B. montana maj. fol. acuto. *Baub. pin.* 261. *prodr.* 121.

All the leaves wedge-shaped oblong gashed fleshy.]

4. *Chrysanthemum alpinum.* Alpine Ox-eye.

Lin. spec. 1253. *syst.* 772. *Reich.* 3. 845. *Ger.*

prov. 206. *Gouan. illustr.* 70. *Barrel. ic.* 421,

457? 458. f. 3. *Allion. pedem. n.* 685. *D'Asso.*

aragon. n. 844. *Villars dauph.* 3. 203.

Pyrethrum. *Hall. belv. n.* 96.—& 97. *sec. Allion.*

Chamæmelum alpinum. *Baub. pin.* 136.

Leucanthemum alp. *Clus. hist.* 1. 335. 2.

Leaves wedge-shaped pinnatifid, segments entire; stems one-flowered.

¹ Pollich.

^k Hort. kew. from Gerarde.

¹ Linn. syst.

^m Linn. mant.

ⁿ Murray.

5. *Chrysanthemum Leucanthemum*. Common Ox-eye, or great Daisy.
Lin. spec. 1251. *syst.* 772. *Reich.* 3. 845. *fl. suec.* n. 763. *mat. med.* 188. *Huds. angl.* 371. *With.* 928. *Curt. lond.* 5. 62. *Lightf.* 488. *Relb.* n. 624. *Pollich pal.* n. 812. *Allion. pedem.* n. 683. *Gärtn. fruct.* 2. 421. *Blackw. t.* 42. *Pt. rust.* t. 109.
Matricaria. *Hall. helv.* n. 98. *Scop. carn.* n. 1041.
Bellis sylvestris, caule folioso, major. *Baub. pin.* 261.
B. major. *Fuchsf.* 148. *Camer. epit.* 635. *Ger.* 509. *emac.* 634. *Baub. hist.* 3. 114. *f.* 2, 3. *Raii hist.* 350. *syn.* 184. — *vulgaris f. sylvestris*. *Park.* 528. 1.
β. B. montana fol. obtuso crenato. *Baub. pin.* 261. *prodr.* 121. *Barrel. ic.* 458. *f.* 2. *Ger. prov.* 206.
γ. Leucanthemum vulgare, caule villis canescente. *Tourn. inst.* 492. *Barr. ic.* 437. *Pluk. alm.* t. 17. *f.* 3. *Gouan illustr.* 70. α.
Leaves stem-clasping oblong, the upper serrate, the lower toothed.
6. *Chrysanthemum montanum*. Mountain Ox-eye.
Lin. spec. 1252. *syst.* 772. *Reich.* 3. 846. *Gouan hort. monsp.* 448. *Jacqu. obs.* 4. p. 9. t. 91. *Allion. pedem.* n. 689. t. 37. *f.* 2. *D'Affo. aragon.* n. 843.
Bellis montana minor. *Baub. hist.* 3. 115. *Magn. monsp.* 36.
Leucanthemum mont. minus. *Tourn. inst.* 492.
Bottom leaves spatulate-lanceolate serrate, upper linear.
7. *Chrysanthemum graminifolium*. Grass-leaved Ox-eye.
Lin. spec. 1252. *Reich.* 3. 846. *Gouan. hort. monsp.* 448. *illustr.* 70. *Jacqu. obs.* 4. t. 92.
Bellis mont. gramineis fol. *Magn. monsp.* 291. *hort.* t. 31.
Leucanth. gramin. folio. *Tournef. inst.* 493.
Leaves linear; toothed at the end, or the whole length.
8. *Chrysanthemum monspeliense*. Montpellier Ox-eye.
Lin. spec. 1252. *Reich.* 3. 846. *Gouan. hort. monsp.* 448. *Jacqu. obs.* 4. p. 10. t. 93.
Bellis mont. major, fol. chrysf. cretici angustioribus. *Magn. monsp.* 306.
Leucanth. mont., fol. chrysanthem. *Tourn. inst.* 492.
Lower leaves palmate, leaflets linear pinnatifid.
[9. *Chrysanthemum Balfamita*.
Lin. spec. 1252. *syst.* 772. *Reich.* 3. 847. *Jacqu. obs.* 4. p. 8. t. 89.
Leucanth. orientale, costii hortensis fol. *Tourn. cor.* 37.
Bellidioides balfamitæ majoris folio facie & odore. *Vaill. aët.* 1720. p. 282.
Leaves ovate oblong serrate eared.
10. *Chrysanthemum inodorum*.
Lin. spec. 1253. *Reich.* 3. 847. *Leers herb. n.* 648. *Pollich pal.* n. 813. *Fl. dan.* t. 696. *With.* 929.
Matricaria inodora. *Lin. suec.* n. 765. *Huds. angl.* 372. *Allion. pedem.* n. 697.
Chamæmelum inodorum. *Fuchsf.* 144. *Baub. hist.* 3. 120. *f.* 2. *Pet. brit.* t. 19. *f.* 12. *Raii syn.* 186. n. 6.
Leaves pinnate multifid, stem branching diffused.
11. *Chrysanthemum Achilleæ*. Milfoil-leaved Chrysf.
Lin. syst. 772. *Reich.* 3. 847.
Parthenium fol. tenuissimis, Achilleæ cæsuris. *Mich. gen.* 34. t. 29.
Leaves bipinnate, pinnae imbricate; stem stiff and straight many-flowered.
12. *Chrysanthemum corymbosum*. Corymbled Chrysan.
Lin. spec. 1251. n. 2. *Reich.* 3. 848. *Gouan. hort. monsp.* 449. *Jacqu. austr.* 4. t. 379. *Leers herb. n.* 649. *Pollich pal.* n. 811.
Pyrethrum corymbosum. *Scop. carn.* n. 1043. *Hall. helv.* n. 95. — *corymbiferum*. *Gärtn. fruct.* 2. 430.
Tanacetum inodorum. *Baub. pin.* 132. *Clus. pann.* 551. 2. *hist.* 338. *f.* 2.
T. leucanthemum. *Tabern. ic.* 131.

- Bellis montana minor tanacetifol.* *Pluk. alm.* t. 82. *f.* 1.
β. T. inodorum fl. majore. *Baub. pin.* 132. *Clus. pan.* 550. 1. — *hist.* 338. 1.
T. latifolium inod. magno bellidis fl. *Barr. ic.* 781.
Leaves pinnate gash-serrate, stem many-flowered.
** *Chrysanthema*: with yellow corollas.
[13. *Chrysanthemum indicum*.
Lin. spec. 1253. *Reich.* 3. 848. *Tbunb. jap.* 320. *Lour. cochinch.* 499.
Matricaria sinensis. *Rumph. amb.* 5. 259. t. 91. *f.* 1. *Tsjetti-pu*. *Rheed. mal.* 10. t. 44.
β. C. maderaspatanum. *Pluk. alm.* t. 160. *f.* 6.
Matricaria indica. *Mor.* 3. 33. — *sinensis fl. monstrofo*. *Vaill. aët.* 1720. p. 285. *Lin. zeyl.* n. 421. — *zeylanica hortensis fl. pleno*. *Raii suppl.* 224.
Leaves simple ovate sinuate angular serrate acute.
14. *Chrysanthemum pinnatifidum*. Cut-leaved Chrysf.
Lin. syst. 773. *suppl.* 377. *Ait. hort. kew.* 3. 231.
Shrubby, leaves smooth, drawn to a point at the base, pinnatifid; segments gashed.
15. *Chrysanthemum arcticum*.
Lin. spec. 1254. *Reich.* 3. 849.
Pyrethrum. *Gmel. sib.* 2. 203. t. 84.
Leaves simple wedge-form subpalmate multifid obtuse.
16. *Chrysanthemum pectinatum*.
Lin. spec. 1255. *Reich.* 3. 849.
Chamæmelum. *Barr. ic.* 457. (flower and habit) — *Leucanthemum*. *Barr. ic.* 422. (leaves). *C. alpinum*, according to Haller.
Leaves pinnate linear parallel acute quite entire, peduncles solitary one-flowered.
17. *Chrysanthemum fegetum*. Corn Marygold.
Lin. spec. 1254. *Reich.* 3. 849. *fl. suec.* n. 762. *Huds. angl.* 371. *With.* 930. *Curt. lond.* n. 63. *Lightf.* 489. *Relb.* n. 625. *Fl. rust.* t. 110. *Pollich pal.* n. 814. *Clus. hist.* 1. 334. 2. *Mor. hist.* 3. 15. *f.* 6. t. 4. *f.* 1. row. 2. *Pet. brit.* t. 19. *f.* 6. *Ger. emac.* 743. *f.* 1. *Park.* 1370. *f.* 1. *Raii hist.* 339.
Leaves stem-clasping, the upper laciniate, the lower tooth-serrate.
[18. *Chrysanthemum Myconis*. Tongue-leaved Chrysf.
Lin. spec. 1254. *syst.* 773. *Reich.* 3. 850. *Jacqu. obs.* 4. 10. t. 94. *Dalechamp. hist.* t. 873. 2.
C. latifolium. *Baub. hist.* 3. 105.
Bellis lutea, fol. subrotundis. *Baub. pin.* 262.
Leaves tongue-shaped obtuse serrate, scales of the calyx equal.
19. *Chrysanthemum italicum*.
Lin. syst. 773. *Reich.* 3. 850. *mant.* 116. *Allion. pedem.* n. 690.
Parthenium. *Mich. gen.* 34. n. 6. t. 29. see n. 11.
Leaves bipinnate serrate; rays of the flowers the length of the disk; stem procumbent.
20. *Chrysanthemum millefolium*.
Lin. syst. 773. *Reich.* 3. 850.
Anthemis Millefolia. *Lin. spec.* 1263.
Achillea. *Mill. fig.* 6. t. 9. — *tanacetifolia*. *diët.* n. 7.
Pyrethrum. *Gmel. sib.* 2. 207. t. 86. *f.* 1, 2.
Leaves bipinnate toothed, stem decumbent, rays of the corolla shorter than the disk.
[21. *Chrysanthemum bipinnatum*.
Lin. spec. 1255. *Reich.* 3. 851.
Pyrethrum. *Gmel. sib.* 2. 205. t. 85. *f.* 1.
Leaves bipinnate serrate villose, rays shorter than the disk.
22. *Chrysanthemum coronarium*. Garden Chrysanthemum. *Chrysanthemum creticum*, or Cretan Corn Marygold.
Lin. spec. 1254. *Reich.* 3. 851. *hort. cliff.* 416. 1. *Gärtn. fruct.* 2. 420.
C. creticum. *Clus. hist.* 1. 335. *Mor.* 3. 16. *f.* 6. t. 4. *f.* 2, 3. *Park. parad.* 297. *f.* 1. *Beisl. eyf.* aët. V. t. 6. *f.* 2, 3. *Zanon. hist.* t. 51.
C. fol. matricariæ & majus fol. profundius laciniato, magno flore. *Baub. pin.* 134.
Matricaria. *Hall. helv.* n. 99.
Leaves pinnate gashed broader outwards.
23. *Chrysan-*

23. *Chrysanthemum flosculosum*. *Bastard Chrysanth.*
Lin. spec. 1255. *syft.* 773. *Reich.* 3. 851. *Gouan.*
hort. monsp. 449.

Tanacetum fol. integris rigidis dentatis, scapo unifloro. *Hall. goett.* 370.

Balsamita fol. Agerati. *Vaill. aët.* 336.

Bellis spinosa. *Baub. pin.* 262. *Alp. exot.* 327.
t. 326. *Mor.* 3. 29. *f.* 6. *t.* 9. *f.* 16.

[*β.* *Cotula grandis*. *Lin. spec.* 1257. *mant.* 473.
Jacqu. obs. 4. p. 4. *t.* 81.

Chr. discoideum. *Allion. pedem. n.* 687. *t.* 11. *f.* 1.
All the florets uniform hermaphrodite.

24. *Chrysanthemum japonicum*.

Lin. syft. 773. *Thunb. jap.* 321.

Leaves petioled, gashed at the tip, and toothed.

25. *Chrysanthemum ceratophylloides*.

Allion. pedem. n. 686. *t.* 37. *f.* 1.

Stem one-flowered; pinnae deeply cut.

26. *Chrysanthemum aragonense*.

D'Affo. aragon. n. 845. *t.* 9. *f.* 1. *Barrel. ic.* 421.

C. pallidum. *Mill. dict. n.* 12.

Stem one-flowered; root-leaves beaped, linear, silky, slightly three-toothed at the tip; upper stem-leaves quite entire, acute.

- [27. *Chrysanthemum procumbens*.

Lour. cochinch. 499.

Matricaria finensis, minore flore, petalis & umbone ochroleucis. *Pluk. amalib.* 142. *t.* 430. *f.* 3.

Leaves sinuate-gashed, blunt, stem procumbent.

DESCRIPTIONS, &c.

1. Stem shrubby, near two feet high, dividing into many branches. Leaves of a grayish colour, cut into many narrow segments. Flowers axillary, standing upon naked peduncles singly, and greatly resembling those of common Chamomile. There is a succession of these great part of the year, for which this plant is chiefly esteemed. It grows naturally in the Canary islands.

[Cultivated 1699 in the Oxford garden^a.

2. Root perennial. Stem branched, erect, somewhat villose. Leaves sessile, smooth; on some plants with many acuminate serratures beyond the middle, on others very few towards the end only, others again quite entire. The flower approaches in size to that of *Ch. Leucanthemum*, but is sometimes only one third of the size^b.]

The roots creep far under the surface. The stems are strong, and three or four feet high. The flowers appear in september.

[Cultivated 1731, by Mr. Miller^c.

3. Radical leaves wedge-form, lobed at the tip; stem leaves lanceolate, ferrate. Stem one-flowered: Calyx with a dark edge^d. Haller makes this a variety of *Ch. Leucanthemum*, and Allioni says that it scarcely deserves to be distinguished from it.—It is found in the pastures of the Alps in Switzerland and Savoy, and in Austria. Perennial.—Introduced 1775, by Dr. Pitcairn and Fothergill^e.

4. Stems stoloniferous. Leaves petioled, pinnatifid, with seven acute, distant segments. Terminal stems entirely simple, scarce a span in length, with three or four linear leaves, usually undivided, especially the uppermost^f. Scales of the calyx black and scariose^g. Radical leaves now only toothed, now deeply cut with sharp segments, now with a kind of palmated end; at some times they are a little hoary, at others smooth: but these differences are owing to situation^h.

In the south of France, Switzerland, the Valais, Savoy, about Tubingen, on the Pyrenees, in Aragon, &c. Perennial.—Cultivated 1759, by Mr. Millerⁱ.

5. Root perennial, somewhat creeping. Stem from twelve to eighteen inches and upwards, erect, rigid, angular, at bottom often purplish and hairy, above naked, simple or little branched. Root-leaves on long petioles, obovate, scarcely pubescent,

deeply ferrate: stem-leaves alternate, sessile or stem-clasping, oblong, wedge-shaped or lanceolate, serrate, sometimes toothed, or even pinnatifid at the base. Flowers terminal, solitary, large and showy; on Peduncles finely grooved, and somewhat thicker at top. Calyx a flattened hemisphere: outer scales oblong-ovate, bluntish, the edge membranous and brown; inner lanceolate and pointed. Corolla disk yellow and convex; ray white and spreading; florets about sixteen, oblong, obtuse, having commonly three notches at the end, but sometimes entire; the styles saffron-coloured. Seeds attenuated to the base, deeply grooved all round, and purplish black^k: or, according to Linneus, black with white streaks; and a yellow cylindric hollow head: and, as Scopoli says, ten angles. By the accurate Gærtner they are described as from ovate inversely pyramidal or turbinate, at first ferruginous, beautifully variegated with ten milk-white ridges; but afterwards blackish; with the ridges pale bay-colour; the top is bald.

Very common in dry meadows and pastures, sometimes on walls, and in corn fields; flowering from may to july, and increasing greatly by seed.—The fresh leaves chewed discover a sweetish, unpleasant, slightly aromatic taste, somewhat like Parsley, but not hot or biting; they have been recommended in disorders of the breast, both asthmatical and phthical, and as diuretics, but are now seldom called for^l.—Allioni, however, speaks with some respect of it.—The young leaves may be eaten in salads^m; and John Bauhin relates that they use them for this purpose at Padua. According to Linneus, horses, sheep and goats eat it; cows and swine refuse it.—Mr. Curtis mentions it as a singularity, that as so many beautiful varieties of the common Daisy are met with in almost every garden, we never see this plant in a similar state. He has, however, been credibly informed that two double varieties of this exist near Air in Scotland. Haller affirms that the varieties of this plant are innumerable, and he mentions several; among others one in which the florets of the ray are fistulous: it is highly probable, therefore, that culture would produce as many varieties of this as the common Daisy has afforded. Parkinson makes mention of it with double flowers.—Besides the common names of *Great* and *Ox-eye Daisy*, Dr. Withering mentions that the plant is called *Moon-flower*, and the flowers *Moons*.—Gerard gives us the name of *Maudlin-wort*.

6. Perennial. Stems many, erect, very hirsute at bottom, and somewhat villose at top, simple and one-flowered, but in a state of cultivation becoming branched, and approaching to *Ch. Leucanthemum*. Leaves smooth. Flower only half the size of the foregoing in its wild state, but equalling it in cultivationⁿ. According to Gerard, this is only a variety of the foregoing: and Allioni is of opinion that it is scarcely different. Upon the whole, then; it seems to be only a variety of that mutable species, arising from its high situation.] Mr. Miller says, that he received it from Verona; near which place it grows in plenty.

7. [Perennial. Stems several, almost upright, simple, one-flowered. All the leaves narrow or sublinear, or else the lowest are spatulate, obtuse and ferrate. The calyx has scales somewhat black: Ray of the corolla white^o.

Gouan affirms, that in all the plants which he has examined, except a few small ones growing from the fissures of rocks, the root-leaves were toothed from end to end; those indeed were only three-toothed at the tip, as in Jacquin's figure.

8. An elegant plant, without scent. Perennial; very smooth and slightly villose, with erect, branching stems. Lower leaves bipinnatifid, upper pinnatifid, one or two at top quite entire. The flowers are very like those of *Ch. Leucanthemum*^p.

9. Perennial. Stems many, erect, roundish, very slightly villose. Leaves obtuse or acute, unequally

^a Hort. kew.

^b Jacquin.

^c Hort. kew.

^d Linn. syft.

^e Hort. kew.

^f Linn. spec.

^g Syft.

^h Allioni.

ⁱ Hort. kew.

^k Curtis, With. Woodw. Mff. Scop.

^l Curtis.

^m Withering.

ⁿ Jacquin.

^o Ibid.

^p Ibid.

ferrate, smooth, attenuated to the base, sessile: when handled they smell like those of *Tan. Balsamita*, with which they agree also in colour and substance¹.

According to Linneus, it resembles *Tanacetum Balsamita* very much, but is radiated.—Stem subangular, branched. Leaves lanceolate-ovate, bluntish, subtomentose, petioled, with a small ear on each side. It has a flower like the *Aster annuus*; the calyx of *Achillea*; a white ray with a yellow disk; and no pappus².—It was found by Tournefort in the Levant.

10. This obscure plant is easily distinguished from *Anthemis Cotula*, which it very much resembles, by having no chaffs on the disk of the flower: from *Matricaria Chamomilla* by its flattish calyx; its scales brown and uneven at the edge; and its hemispherical, not conical, receptacle; the ray of the flower spreading, but not bent down; and its flowers being thrice as large. *Lin. suec.*

Stem much branched, smooth, striated, sometimes purplish. *Leaves*, pinnae distant, twice or thrice divided, the extreme segments filiform: mid-rib broad, membranaceous, and somewhat stem-clasping, narrowing upwards. *Flowers* large, terminating. *Calyx*, scales bluntly lanceolate, unequal, with a green line along the back. Middle row of the scales largest, all more or less membranaceous and skinny. *Florets* of the ray bent back, sublinear, three-toothed, eight or nine lines long, twenty or more; of the disk very numerous. Greenish at the base, yellow above, segments lanceolate, spreading. *Receptacle* conical. *Seeds* truncate at each end, with four whitish prominent angles³: or, as Dr. Stokes describes them, oblong-wedge-shaped, slightly compressed, brown, with three sides and three angles, the outer side broadest, convex, somewhat prominent along the back, with a brownish red circular gland in each corner at the top, resembling the eyes of some insects; the two inner sides concave; the angles sharp, prominent and whitish, crowned with a very shallow, whitish, membranaceous border.

In corn fields and by road sides, flowering from July to September. Annual.

Old authors usually rank this plant with the Chamomiles; Linneus had placed it among the Matricarias; but on account of the scariose or skinny edge of the calycine scales, he has removed it into this genus.

11. *Stem* erect, somewhat angular, a foot high. *Leaves* like those of Milfoil, only eight times as large, with eminent but scarcely visible dots scattered over them, and a few white hairs underneath; the ends finish in a whitish point. Native of Italy. Perennial⁴. Probably this and the *italicum* are one species.—Introduced 1775, by M. Thouin⁵.

12. *Stem* erect, from eighteen inches to two or three feet high, and more. *Leaves* alternate, pinnae pinnate to the middle, the segments sharply toothed. Scales of the *calyx* closely imbricate; green with a dark edge, membranaceous; and rounded at the tip. Florets of the ray to twenty in number, white, three-toothed. Disk flat. *Seeds* crowned with their proper calycle, which is membranaceous and toothletted. The whole plant is without smell or taste⁶. Perennial; flowering in July and August.—South of France, Switzerland, Germany, Austria, Carniola, Hungary, Siberia, in mountainous woods.—Cultivated 1759, by Mr. Miller⁷.

13. Root perennial. Stem herbaceous, annual, four feet high, upright, round; branches oblique, subdivided, smooth and even. Leaves pinnate-gashed; the segments ferrate, acute, unequal, smooth, waved. Flowers subterminating, on long peduncles, commonly one-flowered and solitary. All the florets ligulate. Their colours are white, red, purple, violet, yellow, orange. The flowers are

three inches and more in diameter: their smell is of no great account.

The many varieties of this species differ not only in colour, but in size, and doubleness. These are cultivated through the whole empire of Japon, for the beauty of their flowers, which display themselves during the summer and autumnal months⁸. Also in China and Cochinchina.

14. Resembles the foregoing so much as to seem only a variety; but the leaves of this are oblong, not ovate, and nearly four times the size, as indeed all vegetables are in these islands. Found by Masson on the highest rocks of the island of Madeira, near the torrents⁹.—As the *indicum* is so apt to vary, this may perhaps be no more than a variety.—Introduced 1777¹⁰.

15. *Stems* weak, diffused, herbaceous, branching at bottom. *Leaves* on long petioles, somewhat fleshy, glossy, three-lobed, sinuate-angular. *Flowers* terminating, solitary, the same size as in the *coronarium*, on a subvillose peduncle. Native of Kamtschatka and Siberia¹¹.

16. *Stems* very short, thickish, prostrate, creeping. *Leaves* small, like those of the shrubby Tanfy, and pubescent. Peduncle very long, with a subulate leaf or two at the base. Native of Spain and Italy. Perennial¹².

17. Whole plant smooth. *Stem* a foot or more in height, upright, striated, branched. *Leaves* alternate, half-stem-clasping, glaucous, varying in figure, distantly ferrate towards the base, usually deeply toothed or jagged, with frequently three clefts at the end. Each branch is terminated by one large yellow flower. Peduncle nearly upright, hollow, thicker at top. *Calyx* convex; scales ovate, blunt, glaucous, the inner ones gradually larger, with membranaceous edges. *Florets* of the ray sixteen or eighteen, oblong, truncate, about half an inch long, marked with two lines, and with three irregular teeth at the end. *Seeds* oblong, slightly striated, truncate, a little bent, pale brown or whitish¹³. Besides the names of *Corn-Marygold*, and *yellow* or *golden Corn-flower*, it is called *Yellow-bottle* in Kent; *Buddle*, which is a corruption of bottle, in Norfolk; *Golds*, or as it is more commonly pronounced *Goulds* or *Gowls*, in the midland counties. *Goulans* or *Goldins* in the north of England; and *Gules*, *Gools*, *Guills*, or *yellow Gowans* in Scotland; from the golden colour of the flowers, which however they may give a brilliancy to the fields in tillage, and please the eye of the passing traveller, as Linneus observes, are no very agreeable sight to the farmer; this plant being a very troublesome weed in sandy soils. Linneus informs us, that it was imported into Sweden along with corn from Jutland, about the end of the last century, and that there is a law in Denmark to oblige the farmers to extirpate it.—A large quantity, which grew on arable land, was cut when in flower, dried, and eaten by horses as a substitute for hay¹⁴. The Germans use it for dying yellow¹⁵. Linneus observes that the flowers follow the sun remarkably. They appear from June to October, and the plant is annual.

18. This resembles the foregoing very greatly, but the *stem* is erect, even and roundish. *Leaves* broader outwards, obtuse, obtusely ferrate, even, half-stem-clasping. *Peduncle* terminating, striated, darker, not thicker at top. *Calyx* with scales scariose at the tip. *Corolla* deep yellow: ray short, three-toothed. Crown of the *seed* membranaceous¹⁶. Native of Portugal, Spain and Italy. Annual.—Introduced 1775, by Monf. Thouin¹⁷.

19. This resembles the next species very much, but the stem is more branched, many-flowered, and more erect. The ray of the flower is white, the length of the disk. Observed in Italy by Arduini¹⁸. There is the same reference to Micheli in this and

¹ Jacquin.

² Linn. syst.

³ Syst.

⁴ Woodw. Mss. & With.

⁵ Hort. kew.

⁶ Pollich.

⁷ Hort. kew.

⁸ Thunberg.

⁹ Linn. suppl.

¹⁰ Hort. kew.

¹¹ Linn. spec.

¹² Ibid.

¹³ Woodw. Mss. With. Curtis.

¹⁴ Hollefer in Withering.

¹⁵ Stokes in With.

¹⁶ Linn. syst.

¹⁷ Hort. kew.

¹⁸ Linn. mant.

the eleventh species; perhaps they are the same plant repeated¹.

20. Disk of the flower entirely without chaffs. It differs from the next species in the diameter of the disk not exceeding the length of the calyx; whereas in that the disk is twice as broad. It borders on the foregoing species^m. The habit is that of Milfoil; the leaves resembles those of Milfoil, but are a little larger. It has the flowers of *Anthemis tinctoria*, but small, and pale yellow. Native of Siberiaⁿ. This plant is low and bushy, but the flower-stems rise near two feet high. It begins to flower in June, and continues till September. Tournefort first discovered it in the Levant^o.

21. Habit of *Anthemis tinctoria*. Pinnules of the leaves sub lanceolate, hirsute, almost like those of Tanfy. Peduncles axillary, naked, one-flowered, pubescent, the length of the leaves. Observed in Siberia by Gmelin^p.

22. Stem furrowed, leafy, branching, three feet high. Leaves smooth, stem-clasping; pinnas either pinnate or pinnatifid, the end one very large, bifid, with the pinnules sharply gashed. Peduncles terminating, one-flowered. Scales of the calyx ovate, scarious. Florets of the ray very large, broad, and short, obtusely three-toothed; in the wild plant yellow^q. According to Gartner, the receptacle is subparabolic, higher than the border of the calyx, tessellated with decussated streaks, naked, smooth. Seeds inversely pyramidal, a little compressed, grooved and angular, smooth, very pale straw-colour, bald.

He observes, that in the gardens the ray of this species is always barren.

He removes all the species of *Chrysanthemum* which have the seeds crowned with a manifest margin to the genus *Pyrethrum*: as *frutescens*, *serotinum*, *atratum* ^β, *alpinum*, *inodorum*, *corymbosum*, *Myconis*, *bipinnatum*, *arcticum*; with *Matricaria asperoides*, and *Achillea pubescens*. Of *Pyrethrum* he remarks, that it is only *Tanacetum* with a ray.—Native of Crete, Sicily, the Lower Valais, and M. Fréla.]

Of this plant there are single and double flowers, both white and yellow. There is also a variety with fistular florets, called quill-leaved *Chrysanthemum*; but the seeds of this degenerate to the common sort.

23. [A procumbent, ever-green under shrub. Leaves obovate, gradually narrowing into the petiole, sinuate-toothed, stiffish. Flowers small, terminating, solitary^r, of a deep yellow colour.

Native of the Cape of Good Hope, and was introduced before 1605, by Parkinson^s.

β. Ever-green. Stem simple, erect, eighteen inches high, angular, purplish. Upper branches elongated, one-flowered; lower barren, leafy. Leaves stem-clasping, spatulate, finely tooth-ferrate, obovate, sinuate-toothed, somewhat rigid. Flower terminating, solitary. Florets five-cleft^t. Calyx hemispherical, composed of scales in three or four triangular rows closely imbricate, the end entire reddish brown, the inner ones scarious. Disk flat. Seeds crowned, not with a membrane, but an excavated ring. Perennial^u.

24. Stem simple, erect, striated, villose. Leaves alternate, oblong, smooth, green above, pale underneath, two inches long^x.

25. Approaches very much to *Ch. alpinum*, but differs from it in having the leaves on long petioles, and not only pinnatifid, but reaching to the very petiole; they are simple, bifid or trifid. The whole plant is extremely smooth. Stem simple, one-flowered, leafy, straight, growing to a foot in height. Flower of *C. alpinum*, but larger. Florets of the ray marked with lines, and gashed. On the mountains Tende and Briga. Perennial^y.]

26. Stems low and shrubby, seldom above a foot

high, putting out several slender woody branches; with narrow pale-green leaves. From the end of each branch a naked peduncle is produced six inches long, sustaining one flower of a sulphur colour. The flowers appear in June and July, but the seeds seldom ripen in England.

[Stems hoary, naked at top. Root-leaves usually three-toothed, but sometimes there are four or five teeth; they are always sharp: the lower stem-leaves are like these, but the upper ones are quite entire, and even linear. Scales of the calyx silky, with membranaceous edges. Florets in the ray three-toothed. Seeds oblong. In la Sierra de Villaroya; near Purujosa, in Aragon^z.

Query? whether different from *alpinum*.

27. Stem perennial, three feet high, frequently creeping, slender, and very much branched. Leaves ovate, deeply sinuate, subtomentose, petioled. Peduncles many-flowered, terminating. There are many varieties, but the flowers of all are small.

It is found both wild and cultivated in China and Cochinchina^a.]

PROPAGATION AND CULTURE.

1. This plant will perfect seeds in England, when the seasons are favourable; but as cuttings take root very easily during any of the summer months, the seeds are rarely sown.

Being a native of warm countries, it will not live in the open air in England during the winter; therefore when the cuttings have made good roots, they should be each planted into a separate pot, and placed in the shade till they have taken fresh root; then remove them to a sheltered situation till autumn, and thence into the green-house; giving them free air in mild weather, and frequently refreshing them with gentle waterings in winter. In summer they will require more moisture, and should be treated in the same manner as other hardier exotics.

2. Multiplies very fast by its creeping roots, and will thrive in any soil or situation.

6. Sow the seeds in a shady border; they will come up in about six weeks. Transplant them, when fit to remove, into another shady border, where they may remain, and keep them clean from weeds.

7, 12. These rarely perfect seeds in England, but being perennials, may easily be increased by parting the roots: the best time for this is in autumn.

8. This sort ripens every year in England, by which the plant is easily propagated; for if the seeds are sown in the spring on a common border, the plants will come up in six weeks; when these are fit to remove, they may be transplanted into a nursery-bed at about a foot distance every way, and kept clean from weeds till autumn, when they may be removed to the places where they are designed to remain. As these plants extend their branches pretty far on every side, they should be allowed at least two feet room; therefore they are not very proper furniture for small gardens, where there is not room for these large growing plants; but in large gardens, these may have a place for the sake of variety.

If these plants are planted in poor dry land, or upon lime-rubbish, they will not grow so vigorous as in good ground; but they will endure the cold better, and continue longer; when very succulent they are apt to rot in winter, but where they grow from the joints of old walls, they continue in vigour several years.

[17. In order to destroy this weed, Linneus recommends to dung the ground in autumn; then to give the land a summer fallow, and to harrow in about five days after sowing.]

20. Is very hardy, will live in the open air, and may be increased easily by slips; but does not perfect seeds in England unless in warm dry seasons.

22. These plants are always esteemed as annual, so the seeds are usually sown upon a slender hot-bed

¹ Reichard.

^m Linn. syst.

ⁿ Linn. spec.

^o Mill. fig.

^p Linn. spec.

^q Haller.

^r Gouan.

^s Hort. kew. from Lobel.

^t Linn. mant. & syst.

^u Allioni.

^x Thunberg.

^y Allioni.

^z D'Affo.

^a Loureiro.

in the spring, and the plants treated in the same manner as the African Marigold, for the culture of which we shall refer the reader to the article *Tagetes*: but as the plants which rise from seeds, do many of them produce single flowers, although the seeds are saved from the best double flowers, therefore many persons now propagate these plants from cuttings, whereby they continue the double sorts only; these cuttings, taken from the plants the beginning of september, and planted in pots, will readily take root; and if they are placed under a hot-bed-frame to screen them from the frost in winter, letting them have free air in mild weather, they will live through the winter; and in the spring these plantes may be transplanted into the borders of the flower-garden, where they will flower in june, and continue in succession till the frost puts a stop to them; by this method all the varieties may be continued without variation, but the plants which are propagated this way by cuttings will become barren soon, and will not produce seeds.

23. May be increased and treated as n. 1.

26. May also be propagated the same way, but the cuttings do not so readily take root. This sort must be sheltered under a common frame in winter, for unless the season prove favourable, it will not live in the open air here.

[CHRYSANthemum. See *Anellus*, *Anacyclus*, *Anthemis*, *Arctotis*, *Athanasia*, *Baltimora*, *Bidens*, *Brunia*, *Buphthalmum*, *Cacalia*, *Carpesium*, *Chrysogonum*, *Coreopsis*, *Cotula*, *Eclipta*, *Ethulia*, *Helenium*, *Helianthus*, *Osteospermum*, *Othonna*, *Polymnia*, *Protea*, *Senecio*, *Silphium*, *Spilanthus*, *Verbesina*.

CHRYsis. See *Helianthus*.

CHRYsitrix. (From χρυσος golden, and σείξ hair.)
Lin. gen. Reich. n. 1281. Schreb. 1610.
Juss. 27.

Class. 23. 3. Polygamia Dioecia.

Nat. order of *Calamariae*. *Cyeroideae* Juss.

GENERIC CHARACTER.

* Hermaphrodite Plant.

CAL. Glumes bivalve, many, imbricate; valvelets ovate-oblong, close, cartilaginous, permanent.

COR. Chaffs extremely numerous, heaped into a fascicle, fetaceous, membranaceous, coloured, bright, longer than the calyx, permanent.

STAM. Filaments solitary, between the chaffs, capillary, the length of the chaffs.

Anther linear, growing on each filament (except the tip of the filament).

PIST. Common Germ oblong, obtuse; Style filiform; length of the stamens. Stigma simple.

PER.

SEED

* Male in a distinct individual.

CAL. COR. STAM. as in the hermaphrodite.

ESSENTIAL CHARACTER.

HERMAPH. Glume bivalve. Cor. of numerous, fetaceous chaffs. Stam. many, solitary, between the chaffs. Pist. one.

MALE as in the hermaphrodite. Pist. none.

SPECIES.

1. Chrysitrix capensis.

Lin. syst. 921. Reich. 4. 363. mant. 304.

DESCRIPTION, &c.

Root perennial. Stature of *Sisyrinchium*. Leaves ensiform, equitant, even, a palm or foot in length. Scape very much like a leaf, compressed-membranaceous, terminated by a bivalve spathe, one valve straight as if it were continued from the scape; the other, which is the lower, gaping and ovate. The flower comes forth from the upper edge of the scape, like a fastigate fascicle of golden bristles straitened by a cartilaginous perianth^a.

Jussieu remarks, that this herb has grassy root-leaves; a compressed ancipital scape towards the top cloven on one side at the edge, putting forth a single sessile head, with a one-valved coriaceous spathe below it; and that the germ is sometimes abortive. The stigmas are five, according to Koenig. It has the habit of the *Cyeroideae*, but the charac-

^a Linn. mant.

ter is a little different. The fruit is probably one-seeded. Native of the Cape of Good Hope.]

CHRYSOBALANUS. (From χρυσος, gold, and βάλανος, a drupe. Lin.—βάλανος is an acorn, and is put also for other fruits, as chestnuts, beech-mast, &c.)

Lin. gen. 621. Reich. 677. Schreb. 850. Juss.

340. Icaco. Plum. gen. 1. 5. Jacqu. amer. 154.

Span. Icaco. Fr. Prunier Icaque.

Class. 12. 1. Icosandria Monogynia.

Nat. order of *Pomaceae*. *Rosaceae* Juss.

GENERIC CHARACTER.

CAL. Perianth one-leaved, bell-shaped, five-cleft, divisions expanding, withering.

COR. Petals five, oblong, flat, spreading, inserted by their claws into the calyx.

STAM. Stamens very many, placed in a circle, erect, inserted into the calyx. Anthers small, twin.

PIST. Germ ovate. Style of the shape and length of the stamens; inserted laterally at the base of the germ. Stigma obtuse.

PER. Drupe ovate, large, one-celled.

SEED. Nut ovate, marked with five furrows, wrinkled, five-valved.

OBS. Allied to *Hirtella* in the inflorescence, flower, and insertion of the style.

ESSENTIAL CHARACTER.

Cal. five-cleft. Pet. five. Style lateral. Drupe with a five-furrowed, five-valved Nut.

SPECIES.

1. Chrysobalanus Icaco. Cocoa Plum.

Lin. spec. 681. syst. 464. Reich. 2. 490. Jacqu.

amer. 154. t. 94. pict. 76. t. 141. Catesb.

car. 1. t. 25? Mill. dict. n. 1.

Guajeru. Martogr. bras. l. 2. c. 14. fig.

α. Icaco fructu ex albo rubescente. Plum. gen. 44-ic. 158.

β. I. fr. nigro. Plum. gen. 44.

γ. I. fr. purpureo. Plum. gen. 44.

C. purpurea. Mill. dict. n. 2.

δ. C. fruticosus. Brown. jam. 250. t. 17. f. 5.

DESCRIPTIONS, &c.

[1. It is described by Jacquin, as an irregular shrub, from three to ten feet high, covered with a ferruginous bark with pale spots. Leaves ovate-roundish, obtuse, entire, coriaceous, shining, on very short petioles, alternate, two inches long. Racemes branched, corymbed, lax, terminating and axillary, short; the last common peduncles three-flowered. Flowers inodorous, small, with white petals, having almost the character of the Plum. Fruits roundish, about an inch in diameter, either quite entire, or with five, six or seven grooves; red, purple, yellow, whitish or variegated, but never blue, as Catesby describes it. Whence the shrub of the Bahama islands may perhaps be a different sort. The skin is very thin, and the pulp is small, white, with very little smell, adhering very firmly to the nut, the consistence of a baked apple, the taste sweet with some austerity, but not unpleasant. They are sold in the markets in the West-Indies, and are eaten both raw and preserved. The nut or stone varies in form, but approaches to the ovate-acuminate, and sometimes has six or seven angles.

Native of the Caribbee islands, and the neighbouring continent, near the sea.]

γ. Leaves compounded of several winged leaflets, branched out opposite, each having six or seven pairs of pinnae, the stones of the same shape with those of the other. Native of Jamaica.

[δ. Height seven or eight feet. Fruit like a plum, black or white, insipid, but containing a large nut, which incloses a kernel of a very pleasant flavour. It thrives best in a cool moist soil, and when planted in a dry sunny exposure, the nut is covered only by a thin skin. This shrub is very common in St. Elisabeth's and Portland, in Jamaica^b.—Cultivated 1752, by Mr. Miller^c.

Linneus being acquainted only with the last, doubts whether all these be different species, or varieties only of one.—Of δ. he says, that it has

^b Brown.

^c Hort. kew.

not a scabrous stem; that the leaves are alternate, roundish, quite entire, submarginate; that the flowers are in a panicle; and that the peduncles are rounded on the outside, and flat within.]

PROPAGATION AND CULTURE.

As these trees are natives of the hot parts of America, they will not thrive in England unless they are kept in a warm stove. They are propagated by seeds, which must be obtained from the countries where the plants naturally grow; these must be sown in the spring in small pots filled with light earth, and plunged into a hot-bed of tanner's bark, observing frequently to water the pots, but not to let them have much at each time. In six weeks the plants will come up, and, if properly managed, will be fit to remove in a month after, when they should be carefully separated, and each planted into a small pot filled with light kitchen-garden earth, and then plunged into the hot-bed again, observing to shade them from the sun till they have taken fresh root; after which they must have air every day in proportion to the warmth of the season, and their waterings during the summer should be frequent, but sparing. In the autumn the plants must be removed into the bark-stove, and plunged into the tan-bed; and in winter the plants must not have too much water, lest it occasion their throwing off their leaves. In summer they must have a good share of air, and the plants in the stove should be constantly treated in the same manner as other tender plants from the same countries.

CHRYSOCOMA. (*Chrysocoma*, *Plin.* χρυσόκομη, *Diosc.* From χρυσός, gold, and κομη, the head of hair; the head, flowering or leafy top of trees and herbs.)

Engl. *Goldy-locks.*

Lin. gen. 939. *Reich.* 1019. *Schreb.* 1275.

Gærtn. t. 166. *Juss.* 180. *Chrysocome.* *Dill.*

gen. 14. *Coma aurea.* *Boerb.* 1. p. 121.

Class. 19. 1. Syngenesia Polygamia Aequalis.

Nat. order of Compositæ Discoideæ. Corymbiferae Juss.

GENERIC CHARACTER.

CAL. Common hemispherical, imbricate, scales linear, outwardly convex, acuminate.

COR. Compound tubular, longer than the calyx; Corollas hermaphrodite, tubular, numerous, equal.

Proper funnel-form, border five-cleft, revolute.

STAM. Filaments five, filiform, very short; Anthers cylindric, tubular.

PIST. Germ oblong, crowned. Style filiform; scarce longer than the florets. Stigmas two, oblong, depressed, involute.

PER. none. Calyx scarcely changed.

SEEDS solitary, ovate-oblong, compressed. Pappus hairy.

REC. naked, flat.

OBS. *C. Linosyris* is distinguished by its squarrose calyx.

ESSENTIAL CHARACTER.

Cal. hemispherical, imbricate. Style scarcely longer than the florets. Pappus simple. Recept. naked.

SPECIES.

* Shrubby.

[1. *Chrysocoma oppositifolia.* Opposite-leaved Goldy-locks.

Lin. spec. 1177. *syft.* 739. *Reich.* 3. 724. *amæn.* 6. *afr.* 49. p. 97.

Eupatorium divaricatum. *Berg. cap.* 229.

Cyanus arb. minor, fol. majoranæ. *Breyn. ic.* t. 17. f. 2.

Shrubby; leaves opposite, obovate, flowers fascicled, peduncled.]

2. *Chrysocoma comaurea.* Great shrubby Goldy-locks.

Lin. spec. 1177. *Reich.* 3. 725.

Conyza. Pluk. alm. t. 327. f. 2.

Elichrysum. Volk. norib. t. 148.

Shrubby; leaves linear, straight, smooth, decurrent by the back.

[3. *Chrysocoma sericea.*

Lin. syft. 739. *suppl.* 360.

Shrubby, silky-white; leaves linear, channelled; small branches panicled at top.

4. *Chrysocoma montana.*

Vabl. symb. 1. 70.

Shrubby, leaves oblong, quite entire, flowers solitary.

5. *Chrysocoma patula.*

Lin. syft. 739. *Reich.* 3. 725. *mant.* 280. *Berg. cap.* 234.

Undershrubby; leaves linear, smooth; branches divaricate.]

6. *Chrysocoma cernua.* Small shrubby Goldy-locks.

Lin. spec. 1177. *Reich.* 3. 725. *hort. cliff.* 397. 3.

Coma aurea africana fruticans, fol. linearæ angustis, major. Comm. hort. 2. 89. t. 45.

Shrubby; leaves linear, recurved, subscabrous; flowers during impregnation drooping.

7. *Chrysocoma ciliata.* Heath-leaved Goldy-locks.

Lin. syft. 1177. *Reich.* 3. 725.

Coma aurea frut. ericæ fol. Comm. 2. 95. t. 48.

Undershrubby; leaves linear, straight, ciliate; branches pubescent.

[8. *Chrysocoma tomentosa.*

Lin. syft. 739. *Reich.* 3. 726.

Undershrubby; leaves and branches tomentose.

9. *Chrysocoma scabra.*

Lin. spec. 1177. *Reich.* 3. 726.

Baccharis. Lin. hort. cliff. 404. 2.

Conyza africana. Dill. elth. 104. t. 88. f. 103.

Undershrubby; leaves lanceolate-ovate, recurved, toothlet-ferrate; peduncles pubescent.]

*** Herbaceous.

10. *Chrysocoma Linosyris.* German Goldy-locks.

Lin. spec. 1178. *Reich.* 3. 726. *fl. suec. n.* 729.

Gærtn. fruct. 2. 403. *Hall. helv. n.* 144.

Pollich pal. n. 778. *Allion. pedem. n.* 634.

t. 11. f. 2. D'Asso. Arag. n. 803. *Villars*

dauph. 3. 188.

Chrysocome diofcoridis & plinii. Col. ecphr. 1. 81.

t. 82. Park. 688. f. 1.

Linosyris nuperorum. Lob. hist. 223. ic. 1. 409.

Ger. emac. 553. f. 9.

Osyris austriaca. Clus. hist. 1. 325.

Linariæ tertium genus. Trag. 358.

L. folioso capitulo luteo, major & minor. Bauh. pin.

213.

L. aurea. Gér. 442. 8. *Raii hist.* 292.

Herbaceous; leaves linear, smooth; calyces lax.

11. *Chrysocoma biflora.* Two-flowered Goldy-locks.

Lin. spec. 1178. *Reich.* 3. 726.

After. Gmel. sib. 2. 189. t. 82. f. 1.

Conyza. Amm. ruth. 192.

Panicled; leaves lanceolate three-nerved dotted naked.

[12. *Chrysocoma villosa.*

Lin. spec. 1178. *Reich.* 3. 727. *Pall. itin.* 1. 73.

Gærtn. fruct. 2. 403. *Lour. cochinch.* 486.

After. Gmel. sib. 2. 192. t. 82. f. 2, 3.

Leaves lanceolate, villose, calyces close.

13. *Chrysocoma purpurea.*

Forst. florul. austr. n. 286.

Herbaceous; leaves elliptic-lanceolate subserrate pubescent; panicle terminating corymbed.

DESCRIPTIONS, &c.

1. A shrub, with brachiate distorted branches. Leaves subpetioled, subtomentose, extremely obtuse. Flowers yellow, terminating. Calyces cylindric, obtuse, shorter than the corolla. This differs as much from its congeners, as it agrees with *Pteronia oppositifolia* in outward appearance, calyces, stem, &c. but the receptacle is naked*. Native of the Cape.]

2. The second sort grows also naturally at the Cape of Good Hope. This rises with a ligneous stalk about a foot high, dividing into many small branches, which are garnished with narrow leaves, of a deep green, coming out on every side without order; the back part of each leaf has a small short appendix, which runs along the stalks. The flowers are produced at the end of the branches, on slender naked foot-stalks, and are of a pale yellow. This plant flowers great part of the year, for which it is

* Linn. amœn. & syft.

chiefly esteemed; and the seeds ripen very well in autumn.

[Cultivated 1748, by Mr. Miller^b.

3. This is easily distinguished by its very white silky leaves, branches and peduncles, and by its yellow flowers. Leaves long, flaccid. Branchlets simple, but with panicles of flowers at the ends: the shorter branchlets terminated with a few-flowered panicle. Calyxes smooth; with subulate, yellow scales. The bark and wood have an acrid pungent taste. It differs from *C. tomentosa* in its panicked branches, not one-flowered; in having leaves near an inch in length, and flowers much smaller; besides being so much whiter.—These two are natives of Spain, and this is used by the inhabitants against the tooth-ach^c.

4. Stem shrubby, with round villose branches. Leaves acute, villose. Flowers single at the ends of the branches. The outer scales of the calyx oblong, obtuse, coloured at the tip, spreading; the inner longer, linear, acute. Egret the length of the calyx, ferruginous. Forskal gathered it on mount Horeb^d.

5. Stem compound, with the branches by threes or fours, even. Leaves obtuse, spreading. Flowers terminating, solitary, scarcely peduncled. Nearly related to *C. Comaurea*, but distinguished by the extreme divaricating of the branches, and the flowers being scarcely peduncled. Native of the Cape^e.]

6. The sixth sort is a native of the Cape of Good Hope; this is a less plant than the second; it has a shrubby stalk, branching out in the same manner; the leaves are shorter, and a little hairy; the flowers are not half so large, of a pale sulphur colour, and nod on one side before they are blown. This also flowers great part of the year, and ripens seeds very well.—[Cultivated 1739, by Mr. Miller^f.]

7. The seventh sort is also a native of the same country; this has a low shrubby stalk, which branches out on every side, leaves very narrow, short, rough, and reflexed; the flowers stand single on the top of naked peduncles, which arise from the upper part of the branches; these flowers are larger than those of the last, and stand erect.

[Introduced 1774, by Mr. Fr. Maffon^g.

8. Leaves linear, straight. Flowers as in the others^h.

9. Height nine or twelve inches, about the middle dividing into many woody branches covered with a brown bark, and these into smaller green ones, on which are very narrow, subhirsute, alternate leaves. Peduncles long, slender, with a few small leaves on them. Heads of flowers at first roundish, not hirsute; afterwards longer, and contracted towards the end. Scales of the calyx many, narrow, green. Corollas very small, yellow. It flowers in august and september; and is a native of the Capeⁱ.]

10. The tenth sort grows naturally in Germany, Switzerland, France, Italy, &c.; this has a perennial root; the stalks rise two feet and a half high, are round, stiff, and closely garnished with long, narrow, smooth leaves, which come out without any order, of a pale green colour; the upper part of the stalk divides into many slender peduncles, each sustaining a single head of flowers, of a bright yellow, and disposed in form of an umbel.

[The peduncles swell under the flower, according to Haller and Pollich; this Allioni denies.—Very short bristles on the receptacle. Pappus grows reddish by age. The plant, when handled, sends forth a very fine aromatic smell^k.—Cultivated 1683, by Mr. James Sutherland^l.]

11. Root perennial, creeping, spreading on every side to a considerable distance, sending up many erect stalks, with flat spear-shaped leaves, ending in points; these are rough, and have three longitudinal veins; the upper part of the stalks branch out,

^b Hort. kew.

^c Linn. mant.

^d Linn. syst.

^e Linn. suppl.

^f Hort. kew.

^g Dillenius.

^h Hort. kew.

ⁱ Yahl.

^j Ibid.

^k Allioni & Pollich.

and form loose panicles of yellow flowers, which are larger than those of the former sort. This flowers in june and july, and the seeds ripen in autumn.

[Cultivated 1759, by Mr. Miller^m.

12. Stem a foot and half high, upright, round, hoary, branched. Leaves quite entire, hoary, alternate, sessile. Lower part of the stems naked; flowering-branches scarcely an inch long, and not much subdivided, sometimes three inches long and more subdivided; all of them however reach the top of the stem, so as that the flowers together form a sort of umbel. Flowers yellow. Calyx hairy. Seeds small, hirsute, crowned with dun-coloured hairs. Native of Siberiaⁿ.

13. Found in the isle of Tanna the 12th of august 1774^o.]

PROPAGATION AND CULTURE.

Most of these plants are perennial, and natives of the Cape of Good Hope. They may be increased by cuttings, which, if planted in a common border in any of the summer months, and covered with hand-glasses, will easily take root, provided they are shaded from the sun, and duly watered: when these have gotten good roots they should be carefully taken up, and each planted in a separate pot, filled with light earth, placing them in the shade till they have taken new root; then they may be exposed with other hardy exotic plants till autumn, when they must be removed into the green-house during the winter season; they should enjoy a large share of free air in mild weather, for they only require protection from frost, and must not be too tenderly treated.

Some of them, as the second and sixth, ripen their seeds very well, and may be increased by sowing these in the spring on a border of light earth; but the way of raising them by cuttings is more expeditious, and therefore most common.

10. In favourable seasons the seeds of this sort will ripen in september; but the seedling plants do not flower till the second or third year: the most general method therefore of increasing it, is by parting the roots. The best time for this, and for removing the plants, is soon after the stalks decay in autumn, that the plants may get fresh roots before winter. In a dry loose soil, it will increase very fast by the roots, and live in the open air; but in strong wet land the roots often rot in winter.

11. Propagates too fast by its creeping roots to be admitted into the flower-garden, for the roots will often extend two or three feet every way in the compass of one year, so that they will interfere with the neighbouring flowers; but as the plants will grow in any soil or situation, a few roots may be planted on the side of extensive rural walks round the borders of fields, where they will require no care, and their flowers will make a good appearance, and continue long in beauty.

[CHRYSOCOMA. See *Gnaphalium*.

————— *dichotoma*. See *Conyza Inuloides*.

————— *graminifolia*. See *Solidago lanceolata*.

CHRYSOCOME. See *Chrysocoma*, *Gnaphalium*, *Xeranthemum*.

CHRYSOGÖNUM. (*χρυσόγονον*, Diosc. From *χρυσός*, gold, and *γόνυ*, the knee, or a joint. *q.* Golden-joint.)

Lin. gen. n. 988. *Reich.* 1071. *Schreb.* 1337.

Gertn. t. 174. *Juss.* 188.

Class. 19. 3. *Syngenesia Polygamia Necessaria*.

Nat. order of Compositæ Oppositifoliæ. Corymbiferae Juss.

GENERIC CHARACTER.

CAL. *Common* five-leaved, flat, spreading; *leaflets* lanceolate, nearly the length of the flower.

COR. *Compound* radiate. *Corollas* hermaphrodite, very many in the disk; *females* five in the ray.

Proper, in the Hermaphrodites funnel-form, five-toothed, erect.

In the *Females* ligulate, oblong, truncate, three-toothed.

^m Hort. kew.

ⁿ Gmelin. & Loureiro.

^o Forster.

STAM. In the Hermaphrodites, *filaments* five, very small. *Anthers* cylindrical, tubular.

PIST. In the Hermaphrodites *Germ* very small. *Style* fetaceous, length of the corollet. *Stigma* obscure.

In the females *Germ* larger, covered with its proper perianth. *Style* shorter. *Stigmas* two, revolute.

PER. None. *Calyx* unchanged.

SEEDS of the Hermaphrodites none.

Of the Females solitary, inverse-heart-shaped, depressed-quadrangular, with the sides widish; crowned with a three-toothed scale gaping inwards, contracted towards the base. Each seed lies concealed within its proper four-leaved *Glume*, the outward scale being ovate and wider; the three remaining ones very narrow, closely converging, and gaping when the seed is ripe.

REC. chaffy, flat; chaffs linear, obtuse.

ESSENTIAL CHARACTER.

Cal. five-leaved. *Seed* involved in a four-leaved calycle. *Pappus* one-leaved, three-toothed. *Recept.* chaffy.

SPECIES.

1. *Chrysogonum virginianum*.

Lin. spec. 1303. *Reich.* 3. 923. *hort. cliff.* 424.

Gron. virg. 133. 106. *Gärtn. fruct.* 2. 436.

Chrysanthemum virg. villosum, disco luteo, quinipetalis crenato. *Pluk. alm.* t. 83. f. 4? & t. 242. f. 3. *Raii suppl.* 213.

DESCRIPTION, &c.

Leaves resembling those of *Lamium purpureum*, or common Baum, moderately hairy, opposite on long petioles. On the top a golden flower^s.

Chaffs of the receptacle difform: those of the disk simple, linear-oblong, obtuse, concave, pubescent on the outside, one to each floret; those of the ray compound, four to each floret, united into a sheath for the seed, the outer one larger than the rest, obovate, convex on one side, concave on the other, lying on the back of the seed, the three inner ones narrow, linear-oblong, closing the aperture left by the outer, so that two cover the sides of the seed, whilst the third is on the middle of the belly, and bears the germ of the barren floret before it. Seeds obovate, convex without, concave within, having two obscure grooves on them, and of a pale bay colour. *Pappus* membranaceous, one-leaved, turbinate, shorter by half than the seed, opening inwards, and having six teeth or fewer on the upper margin^s.

Native of Virginia, where it was first observed by Gronovius.

CHRYSOGONUM. See *Leontice* & *Zinnia*.]

CHRYSOPHYLLUM. (From χρυσός & φύλλον; golden leaf.)

Lin. gen. 263. *Reich.* 282. *Schreb.* 355. *Brown.* 171.

Juss. 152. *Cainito Plum.* 9. *Jacqu. amer.* 51.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Dumosæ. Sapotæ* *Juss.*

GENERIC CHARACTER.

CAL. *Perianth* five-parted, small: *leaflets* roundish, obtuse, permanent.

COR. monopetalous, bell-shaped: *border* five-cleft; (ten-cleft. *Juss.*) *segments* roundish, very much expanded, shorter than the tube.

STAM. *Filaments* five, subulate, placed on the tube, converging. *Anthers* roundish, twin, incumbent.

PIST. *Germ* roundish. *Style* very short. *Stigma* obtuse, subquinquefid.

PER. Berry globular, ten-celled, large.

SEEDS solitary, bony, compressed, marked with a scar, shining.

ESSENTIAL CHARACTER.

Cor. bell-shaped, ten-cleft; *segments* alternate, spreading. *Berry* ten-seeded.

SPECIES.

1. *Chrysophyllum Cainito*. Broad-leaved Star-apple.

Lin. spec. 278. *Juss.* 231. *Reich.* 535. *hort. cliff.*

491. *Jacqu. amer.* 51. t. 37. f. 1. *piet.* 30. t. 51.

* *Raii suppl.* from Bobart.

* *Gärtner.*

α. *Cainito*. *Lact. amer.* 390. *Plum. gen.* 10. ic. 69.

Sideroxylon Pacurero. *Loefl. it.* 204.

β. *C. jamaicense*, fructu purpureo. *Jacqu. amer.* 52.

piet. 31. *Brown. jam.* 171. t. 14. f. 2.—*Lin.* γ.

See n. 4:

Anona. *Sloan. jam.* 2. 170. t. 229. *Raii dendr.* 78.

γ. *C. (cæruleum)* fr. cær. globoso. *Jacqu. amer.* 52.

t. 37. f. 1. *piet.* 31. t. 52.—*Lin.* δ.

δ. *C. (microphyllum)* fol. minoribus. *Jacqu. amer.*

53. t. 37. f. 2. *piet.* 31. t. 53.

Leaves ovate, striated in parallel lines, tomentose and shining underneath.

2. *Chrysophyllum argenteum*. Narrow-leaved Star-apple.

Lin. syst. 232. *Jacqu. amer.* 53. t. 38. f. 1.

piet. 31. t. 54.

Leaves sickle-ovate, shining and tomentose underneath.

3. *Chrysophyllum glabrum*. Smooth-leaved Star-apple.

Lin. spec. 278. *Juss.* 232. *Reich.* 536. *Jacqu.*

amer. 53. t. 38. f. 2. *piet.* 31. t. 55.

Leaves quite smooth on both sides.

Species from Swartz.

[4. *Chrysophyllum monopyrenum*.

Swartz prodr. 49.

Ch. 2. *Brown. jam.* 171.

Leaves elliptic acuminate, golden-tomentose beneath, fruit ovate one-seeded.

5. *Chrysophyllum microcarpum*.

Swartz prodr. 49.

Leaves ovate smooth, pubescent beneath, berries oblique oblong one-seeded.

6. *Chrysophyllum rugosum*.

Swartz prodr. 49.

Leaves oblong acuminate smooth on both sides, fruit acuminate wrinkled.

DESCRIPTIONS, &c.

1. *Leaves* alternate, petioled, quite entire. *Peduncles* lateral, one-flowered, numerous, very short^s. —Cultivated 1739, by Mr Miller^s.

Browne has two species of *Chrysophyllum*, which he calls 1. Star Apple-tree, and 2. Damson Plum. The latter is made a distinct species by Swartz. *Seeth.* 4. Both have the leaves ferruginous underneath. The fruit of the first is larger and globular: of the second, smaller and smooth. The last, he says, is found wild in many parts of Jamaica, but seldom grows to any considerable size: the first is cultivated all over the country, and thrives with very little care; it rises commonly to a considerable size, and spreads much; but its branches, like those of the other sort, are very slender and flexible, and hang down when charged with fruit. This, like the *Achras*, (to which it is very nearly allied) is full of milk, and the fruit retains it even in the most perfect state; but though this juice be rough and astringent in the bark, &c. and even in the fruit before it ripens; yet when it grows to full perfection, it becomes sweet and gelatinous, with an agreeable clamminess, and is very much esteemed. The juice of this fruit, a little before it is perfectly ripe, being mixed with a small quantity of orange juice, binds the body extremely, and doubtless would make a very powerful remedy on many occasions; or eating the two fruits together would have the same effect. Perhaps the action of the fire might take off much of the native roughness of the juice, if it were to be inspissated by that means. The germ has ten distinct cells, but most of the seeds are abortive, and when the fruit is ripe, it seldom contains above four or five^s.

These vary chiefly in the fruit, which in α is very large, flattish, rose-coloured, with a slight mixture of yellow and green; the rind is thin and smooth; the pulp softish, somewhat glutinous, milky before it is ripe, flesh-coloured near the circumference, dirty white within, of a sweet intipid taste. The Americans are fond of it, but it is rarely eaten by the Europeans. Seeds brown, with a white rough edge; seldom more than three or four ripen. Native of Martinico and Domingo.

* *Linn. spec.*

* *Hort. kew.*

* *Brown. jam.*

β. The fruit of this is subovate, with a green or purple rind; the pulp also purple, and somewhat better flavoured than the foregoing. Native of Jamaica, where it is called Star-apple.

γ. Fruit almost globular, entirely blue, and only one-third of the size of the other. Pulp blue, softer, but nearly of the same taste. Native of Martinico.

δ. This is an erect shrub, growing scarcely ten feet in height; and the leaves hardly an inch and half in length. It is common in the Havannah^a.

Miller refers to the *argenteum* and *glabrum* of Jacquin, but by his descriptions he intends the *Damson-Plum* of Browne by his first, and the *Star-Apple-tree* of the same author by his second species. See n. 1. α and β, which last is the same with n. 4.

2. The leaves of this are green and smooth on their upper surface, without the parallel lines which mark the foregoing; underneath they are of a silvery shining green. The fruit is roundish, of a dirty blue purple, the size of a middling plum, and eatable; the pulp is soft, blueish, slightly milky, and has the taste of the others. It is a native of Martinico^z.

According to Mr. Aiton's catalogue of the royal garden at Kew, it was cultivated by Mr. Miller in 1758.

3. This tree grows fifteen feet in height, erect and branching. Leaves ovate, acute, quite entire, shining on both sides, petioled, hardly two inches in length. Fruit blue, the form and size of a small olive, with the taste of the foregoing; but seldom eaten except by slaves and children^γ.

4, 5, 6. These, with the other species, are natives of the West-Indies. The fourth is the same with variety β of the first species. The fifth is found in Hispaniola; and the sixth in Jamaica^z.]

PROPAGATION AND CULTURE.

These trees are preserved in several curious gardens for the beauty of their leaves, especially the first sort, whose under sides shine like satin, the upper sides are of a deep green. The leaves continue all the year, and make a very pretty appearance in the stove at all seasons.

These trees, being natives of the hottest parts of the world, cannot be preserved in this country, without being kept in the warmest stoves; and should always remain in a hot-bed of tanners bark, otherwise they will make but little progress. They are propagated by seeds, which must be procured from the places of their growth, for they do not produce fruit in Europe. These seeds must be fresh, otherwise they will not grow; and if they are sent over in sand, it will preserve them from drying too much; when the seeds arrive, they must be sown as soon as possible in small pots filled with light fresh earth, and plunged into a good hot-bed of tanners bark. If the seeds are good, and the bed in a proper temperature of warmth, the plants will appear in five or six weeks; and in about two months after, will be strong enough to transplant; in doing which, the plants, with all the earth, should be shaken out of the pots very carefully, and separated with their roots entire, and each planted into a single small pot filled with fresh rich earth, and plunged again into a hot-bed of tanners bark, watering and shading them until they have taken fresh root. If the hot-bed in which these plants are plunged, is from time to time stirred, and a little fresh tan added to it, to renew the heat when it declines, the plants will make good progress, and in three or four months will be near a foot high, and may then be shifted into pots a small size larger than those they before were in. If these plants are constantly kept in a warm bed in the stove, and shifted twice a year, to renew the earth to their roots, they will thrive very fast, and put out their side branches, so as to make a handsome appearance in the stove, with other curious plants of the same country; for though they do not produce

either flowers or fruit, yet as they keep their leaves through the year, which are so very beautiful, they deserve a place in the stove, better than most other plants. The chief care they require, is to keep them constantly in a proper degree of heat, and never to put them into too large pots; and in winter they should not have too much water, about twice a week will be often enough to water them; and in the depth of winter they should not have much at each time.

These trees are frequently propagated in the West-Indies, by planting their branches (as I have been informed by persons of credit;) but I have not heard of their being propagated in England by that method.

[CHRYSOPLYLLUM. See *Jacquinia* & *Sideroxylon*.

Chrysoplenii foliis. See *Difandra*.]

CHRYSOSPLENIIUM. (From χρυσός and σπλήν, the spleen; on account of the golden colour of the flowers, and the supposed virtue of the plant in diseases of the spleen.) Golden Saxifrage.

Lin. gen. n. 558. Reich. 607. Schreb. 763. Gertn.

t. 44. Tournesf. 60.

Class. 10. 2. Decandria Digynia.

Nat. order of Succulentæ. δ.

GENERIC CHARACTER.

CAL. Perianth four or five-parted, spreading, coloured, permanent: divisions ovate, the opposite ones narrower.

COR. none, unless the coloured calyx be called so.

STAM. Filaments eight or ten, subulate, erect, very short, placed in an angular receptacle. Anthers simple.

PIST. Germ inferior, ending in two subulate Styles, the length of the stamens. Stigmas obtuse.

PER. Capsule two-beaked, two-parted, one-celled, two-valved, surrounded with the green calyx.

SEEDS very many, very small.

OBS. The terminating flower is five-cleft; the others are larger and four-cleft.

ESSENTIAL CHARACTER.

Cal. four or five-cleft, coloured. Cor. none. Caps. two-beaked, one-celled, many-seeded.

SPECIES.

1. Chrysosplenium alternifolium. Alternate-leaved Golden Saxifrage.

Lin. spec. 569. Reich. 2. 307. fl. lapp. n. 151.

succ. n. 365. hort. cliff. 149. Gertn. 1. 208.

Huds. angl. 179. With. 404. Lightf. 219.

Sowerby Engl. Bot. t. 54. Hall. herb. n. 1543.

Scop. carn. n. 487. Pollich pal. n. 400. Leers.

herb. n. 312. Allion. pedem. n. 2067. Oed.

dan. t. 366. Berg. phyt. t. 57. Villars dauph.

3. 659.

C. fol. pediculis oblongis infidentibus. Tourn. inst. 146.

Saxifraga aurea. Raii hist. 206. syn. 158. Pet. brit.

t. 6. f. 10. Baub. hist. 3. 707. f. 1. Best. cyst.

hyem. t. 6. f. 5.

Sedum palustre luteum majus, &c. Mor. hist. 477.

f. 12. t. 8. f. 8.

Leaves alternate.

2. Chrysosplenium oppositifolium. Opposite-leaved Golden Saxifrage.

Lin. spec. 569. Reich. 2. 308. Huds. angl. 178.

With. 405. Curt. lond. 2. t. 27. Lightf. 220.

Hall. herb. n. 1549. Pollich pal. n. 401. Neck.

gallob. 190. Leers. herb. n. 313. Oed. dan.

t. 365. Sabb. hort. 2. t. 51. Villars dauph.

3. 659.

C. fol. amplioribus auriculis. Tourn. inst. 146.

C. f. Saxifraga aurea. Tabern. hist. 1224.—ic. 841.

Saxifraga aurea. Dod. pempt. 316. 2. Lob. hist.

336. 1. ic. 612. Ger. emac. 841. 2. Park. 425. 2.

Pet. brit. t. 6. f. 9.

Sedum pal. lut. fol. subrotundis sessilibus. Mor.

f. 7.

Leaves opposite.

DESCRIPTIONS, &c.

[1. This is so much larger in all respects than the second species, that it may easily be distinguished.

^a Jacquin.

^z Ibid.

^γ Ibid.

^z Swartz.

guished. *Root* has off-sets, but no creeping suckers. *Leaves* all deeply notched: root-leaves two or three, kidney-shaped, bluntly notched, on long hairy petioles: stem-leaves two or three on petioles decreasing in length as they approach the top; the upper smooth. *Stem* three-cornered with imperfect angles, hairy below, smooth upwards, near the top forked: the forks bare of leaves. *Branches* one or two very short ones, just above the root-leaves, with alternate leaves similar to them: *subdivisions* of the upper not so regularly forked as in *C. oppositifolium*. *Flowers* solitary and in umbels; the first on a short peduncle on one of the branches a little above the forks; the latter with a leaf at their base. *Stamens* eight; four from the base of the segments, the other four from the fissures. *Seeds* roundish, shining, not readily shaking out, brownish^a. According to Gartner, the capsule is small, fastened to the calyx up to the middle, obcordate, compressed like a lens, opening into two parts down to the middle, the segments emarginate, spreading out horizontally. Seeds about fifty, fastened by capillary threads to the bottom of the capsule, ovoid, marked with a filiform scar on one side, smooth, lucid, ferruginous-red or chestnut-coloured.

Several modern botanists affirm, that the terminating flower, as well as the side ones, is generally four-cleft, and has eight stamens: others even insist that it is always so; and accordingly have removed this genus into the class *Octandria*.

Moist shady places, and by the sides of rivulets in Lapland, Sweden, Denmark, Germany, Switzerland, Carniola, Italy, Siberia, Japan; and with us in Britain with *C. oppositifolium*, but not so common: as near Bingley and about Esholt, eight miles from Leeds, in Yorkshire. Porland heath near Norwich, in Worcestershire, and Scotland.—A black boggy soil by rills in wet woods is the favourite situation of this plant.

2. Linneus almost doubts whether this be a distinct species.—*Stems* creeping at bottom, square, very tender, erect, about four inches in height, beset with a few stiffish hairs; branched and forked at top. *Leaves* connate, petioled, spreading, roundish, with a few white stiffish hairs on the upper surface, crenate, somewhat fleshy, yellowish green, whitish underneath; the upper more deeply notched. *Flowers* yellow, in a sessile, fastigate corymb: segments of the calyx nearly equal: what Linneus calls the angular receptacle is more properly a nectary; it is a scale with a crenate edge, surrounding the germ: the stamens proceed from beneath, not out of it: the anthers are double and roundish. *Seeds* of an orange colour*. *Stem* erect, round, with two opposite deep furrows, but not quadrangular; and two or three pairs of opposite leaves: dichotomous at the top, without any leaves at the division: each branch is again dichotomous, with a leaf at each division, and a single flower on a short peduncle; from these arise small leafy umbels of sessile flowers. *Leaves* all alike, circular, with the base truncate on each side, indistinctly and irregularly notched, with a few hairs on the upper surface, but none on the under: root-leaves several, on short hairy petioles: upper leaves smooth.

According to late observations, the terminal flower of this species also has rarely more than four divisions of the calyx, and eight stamens; some say never, but others affirm that they have seen five divisions, and ten stamens. Dr. Withering has sometimes observed only six or seven. Mr. Woodward affirms, that both species in Britain are truly octandrous: that in April 1785 he examined great numbers of both in their native places of growth, and did not find a single primary flower decandrous; that the calyx has four divisions, in which four of the stamens are placed, and the other four in the centre of each segment; so that the flower cannot be decandrous, unless the calyx has accidentally five divisions.

^a Woodw. MII.

* Curtis.

This is found in like places with the other, in Denmark, Holland, Switzerland, Germany: with us it is much more common; as on Hampstead heath; in the boggy part of Charlton wood; Poling-land heath, near Norwich; Selborne, Hants.

These flower in April, or early in May, and ripen their seeds in May or June; they are perennial.]

PROPAGATION AND CULTURE.

If any person has curiosity to cultivate these plants in a garden, they must be planted in very moist shady places, otherwise they will not thrive. [They succeed best in pots filled with bog earth, set in a pan of water, and placed under the shade of a wall or hedge.

CHU-LAN. See *Chloranthus*.

CHYTRACULIA. See *Calyptranthes*.]

Cibouls or Chibouls. See *Allium*.

[CICCA.

Lin. gen. Reich. n. 1146. Schreb. 1417. Juss. 386.

Class. 21. 4. Monoecia Tetrandria.

GENERIC CHARACTER.

* Male flowers scattered.

CAL. *Perianth* four-leaved: *leaflets* roundish, concave. COR. none.

STAM. *Filaments* four, setaceous. *Anthers* subglobular, the length of the calyx.

* Female flowers scattered on the same plant.

CAL. as in the males. (three-leaved. *Syst.*)

COR. none.

PIST. *Germ* roundish. *Styles* four two-parted, subulate, the length of the germ. *Stigmas* acute, permanent.

PER. *Capsule* subglobular, tetracoccus, elastic.

SEEDS solitary.

OBS. *This genus bears an affinity to Phyllanthus.*

ESSENTIAL CHARACTER.

MALE. *Calyx* four-leaved. COR. none.

FEM. *Calyx* three-leaved. COR. none. *Styles* four.

* *Caps.* tetracoccus.

SPECIES.

1. *Cicca disticha*.

Lin. syst. edit. 14. 848.—ed. 13. 708.—ed. 12. 621. mant. 124. Reich. 4. 125. Suppl. 416.

C. racemosa. Lour. cochinch. 556.

Averrhoa acida. Lin. syst. ed. 13. 357. Terme Gartn. 2. 487. t. 180.

DESCRIPTION, &c.

A shrub. *Leaves* alternate, petioled, distich, ovate, acuminate, glossy. *Racemes* simple; the floccules being heaped and mixed at every point, and placed on pedicels, scarcely so big as those of *Clusia*, to which this is allied. Native of the East-Indies^b.

A tree, with long simple branches. *Leaves* alternate, distich: the lower rounded-ovate, smaller; the upper ovate-lanceolate, acuminate, entire, very smooth. *Flowers* proceeding from the lowest part of the branches, after the falling of the leaves, and occupying their places; aggregate in sessile heads, male and female on the same tree, but on different branches: *males* more aggregate, small, like those of *Phyllanthus*, white, four-cleft: *females* less, not so aggregate; calyx four-parted; germ ovate; styles reflected; pericarp an ovate berry, not elastic like the capsule of *Phyllanthus*. It seems however to be a true species of *Phyllanthus*, except in the number of parts, and having a berry for the fruit: it remains a doubt, therefore, whether this genus of *Cicca* should remain^c.

Loureiro describes his *Cicca racemosa* as a middle-sized tree with ascending branches, the leaves ovate subacuminate quite entire, smooth alternate petioled distich, the flowers in compound short subterminating racemes, the males and females on different branches; neither have any calyx, the corolla is bell-shaped, four-parted, the segments ovate, spreading, red, dotted with white; filaments shorter than the corolla, anthers two-celled; the fruit is a roundish berry, half an inch in diameter, pale, smooth, acid, eatable, containing four ovate seeds.

^b Linn. mant.

^c Linn. suppl.

Loureiro observes, that what Linneus calls the calyx is rather the corolla, on account of its colour and tenuity. It is frequent in the kingdom of Champava; and is cultivated, but rarely, in the metropolis of Cochinchina.

Gärtner describes the fruit of his *Terme*, which is the Javanese name, as a small fleshy drupe; the stone or shell is stony, depressed a little, at top pyramidally four-sided with a short point, thence with a cross-shaped furrow; having at bottom eight swellings in pairs, and perforated in the middle of the base with a four-cornered canal; it is four-celled and valveless. Seeds solitary, ovate, acuminate upwards, convex on one side, angular on the other, with a little umbilical pit in the middle of the angle.

It is doubtful whether the *Cicca* and the *Averrhoa acida* be the same species, the descriptions of the fruit given above being so different. It certainly is not an *Averrhoa*.]

CICELY. See *Chærophyllum*.

CICER. (Of uncertain origin, unless it be from the Greek *κίκυς*, strength. The Cicerones had their name from this pulse, as the Pisones had from the Pisum or Pea, and the Lentuli from the Lens or Lentil.)

Lin. gen. n. 875. Reich. n. 949. Schreb. 1189.

Juss. 361. Gärtn. t. 151. Tourn. t. 210.

Lens. Tourn. t. 210.

Class. 17. 4. Diadelphia Decandria.

Nat. order of Papilionaceæ, or Leguminosæ.

GENERIC CHARACTER.

CAL. Perianth five-parted, length of the corolla: segments four, incumbent on the banner: the two middle converging longitudinally: the lower under the keel.

COR. papilionaceous. Banner flat, roundish, larger, bent in on the sides. Wings obtuse, half the length of the banner. Keel shorter than the wings, sharpish.

STAM. Filaments diadelphous (one and nine) rising. Anthers simple.

PIST. Germ ovate. Style simple, rising. Stigma obtuse.

PER. Legume rhomboid, turgid, inflated.

SEEDS two, roundish, gibbous, with knots on the sides, crooked and bent in at top.

ESSENTIAL CHARACTER.

Cal. five-parted, length of the corolla: the four upper segments incumbent on the banner. Legume rhomboid, turgid, two-seeded.

SPECIES.

1. *Cicer arietinum*. Chick-pea.

Lin. spec. 1040. Reich. 3. 478. hort. cliff. 370.

ups. 224. mat. med. 173. Gärtn. fruct. 2. 327.

Hall. herb. n. 399. Villars dauph. 3. 405.

Blackw. t. 557. Dod. pempt. 525. 1. Riv.

t. 19. Baub. hist. 2. 292.

C. fativum. Baub. pin. 347. Camer. epit. 204.

Raii hist. 917. Ger. 1047. emac. 1222. Park.

1076.

Leaflets serrate.

DESCRIPTION, &c.

[Annual. Stem from a foot to eighteen inches in height, erect, leafy, branched. Stipules large, unequally gashed, with some very sharp teeth. Leaves hirsute, composed of eight (seven to nine) pairs of leaflets, with an odd one, ovate, and finely serrate. Peduncles one-flowered, axillary, recurved. Corolla purple or white. Calyx hirsute^a. Legume ovate-rhomboid, villose. Seeds two, sometimes perfectly globular, with a short beak at the navel, sometimes angular, and resembling a ram's head, whitish or rufescent^c.

Native of the South of Europe, the Levant, and Africa: where it is frequently eaten both raw and boiled.

Cultivated 1551, at Kew, by William Turner, M.D.^f. Gerarde says, it is sown in our London gardens, but not common: and is named in English common Cich or Ciches, red Cich, or Sheep's

^a Haller.

^c Gärtner.

^f Hort. kew.

Ciche, Pease or Peason. Parkinson adds the names of Cicers and Rammes Ciches.]

PROPAGATION AND CULTURE.

The seeds of this plant may be sown in the spring, in the same manner as Pease, making drills with a hoe, about an inch and a half deep, in which the seeds should be sown at about two inches asunder, then with a rake draw the earth into the drill to cover the seeds. The drills should be made at three feet distance from each other, that there may be room for their branches to spread, when the plants are fully grown, as also to hoe the ground between them, to keep it clean from weeds, which is all the culture these plants require.

This plant flowers in June, and the seeds ripen in August; but unless the season proves warm and dry, the plants decay in this country before the seeds are ripe.

[CICER. See *Asragalus*, *Ervum*, *Galega*, *Ononis*.

CICERA. See *Latyrus*.

Ciceri affinis. See *Asragalus*.

Cichorio affinis. See *Siegesbeckia*.]

CICHORIUM. (Originally, according to Pliny, an Egyptian name, and adopted by the Greeks. It is written sometimes *Κικχόριον*, whence Horace has

—Cichorée levefque *Malva*:

sometimes *Κικχόριον* or *Κικχόριον*. It is supposed to have this name *κατὰ τὸ διὰ τῶν χυρίων νέειν*, from its creeping through the fields.—Others derive it from *κικχίω*, invenio; on account of its being so readily found, or so common.)

Engl. Succory.

Fr. Chicorée.

Lin. gen. n. 921. Reich. n. 1000. Schreb. 1251.

Gärtn. t. 157. Juss. 171. Tournef. t. 272.

Vaill. mem. 1721. 9. 10.

Class. 19. 1. Syngenesia Polygamia Æqualis.

Nat. order of Compositæ Semisfoculosæ. Cinarocephalæ

Juss.

GENERIC CHARACTER.

CAL. Common calyced cylindric: scales eight, narrow-lanceolate, equal, forming a cylinder: and five others incumbent and shorter.

COR. Compound flat, uniform: corollules hermaphrodite twenty, in a ring.—Proper monopetalous, ligulate, truncate, deeply five-toothed.

STAM. Filaments five, capillary, very short. Anther cylindric-pentagon, tubulous.

PIST. Germ oblong. Style filiform, the length of the stamens. Stigmas two revolute.

PER. none. Calyx cylindric, converging at top.

SEEDS solitary, compressed, with sharp angles. Pappus obscurely hairy, slightly five-toothed. (many-leaved, and as it were composed of a double row of leaves. G.)

REC. somewhat chaffy.

ESSENTIAL CHARACTER.

Cal. calyced. Pappus slightly five-toothed, obscurely hairy. REC. somewhat chaffy.

SPECIES.

1. *Cichorium Intybus*. Garden and wild Succory.

Lin. spec. 1142. Reich. 3. 665. fl. succ. n. 711.

hort. cliff. 389. 2. mat. med. 179. Gärtn.

fruct. 2. 357. Hudf. angl. 348. With. 862.

Curt. lond. 4. t. 56. Hall. herb. n. 1. Scop.

carn. n. 991. Neck. gallob. 334. Pollich pal.

n. 758. Allion. pedem. n. 752. Fl. dan. t. 907.

Villars dauph. 3. 59.

C. sylvestre f. officinarum. Baub. pin. 125. Blackw.

t. 183, 177.

C. sylv. & fativum. Baub. hist. 2. 1007. fig. 1008.

Raii hist. 255.

C. sylvestre. Ger. emac. 284. 1. Park. 776. 2.

Mor. f. 7. t. 1. f. 2.

Intybus sylvestris. Cam. epit. 285. Fuchf. 679.

Flowers twin sessile, leaves runcinate.

2. *Cichorium Endivia*. Broad-leaved Succory, or Common Endive.

Lin. spec. 1142. syst. 772. Reich. 3. 665.

hort. cliff. 389. 3. ups. 247. mat. med. 180.

Lour. cochinch. 478.

Intybus fativa latifolia f. *Endivia vulgaris*. Baub.

pin. 125. 1. α 1. fat. angustifolia. n. 2.

- Intybum fativum. *Dod. pempt.* 634.—latifolium & angustifolium. *Baub. hist.* 2. 1011.
- Intybus fativa. *Ger. emac.* 282. *Raii hist.* 254. 1, 2.
- Endivia fativa. *Park.* 774. f. 1.—& minor angustifolia. f. 2.
- β. C. crispum. *Mill. dict. n.* 4. *Curled Endive.*
- Intybus crispa. *Baub. pin.* 125. *Raii hist.* 254.
- Endivia crispa. *Ger.* 221. 4.
- Flowers solitary peduncled, leaves entire crenate.*
3. Cichorium spinosum. *Prickly Succory.*
Lin. spec. 1143. *Reich.* 3. 666. *hort. cliff.* 388. 1.
Baub. pin. 126. *Baub. hist.* 2. 1011. f. 3.
Ger. emac. 283. f. 5. *Raii hist.* 255.
- C. spin. creticum. *Baub. prodr.* 1. 62. *Park.* 776. f. 3.
- Chondrillæ genus elegans, cæruleo fl. *Clus. hist.* 2. 145. 1.
- Stem dichotomous, spiny; flowers axillary, sessile.*

DESCRIPTIONS, &c.

[1. *Root* perennial, yellow on the outside, tapering, branched, the thickness of the finger, from a span to a foot in length, milky. *Stem* from one to three feet in height, upright, rigid, crooked, angular, roughish to the touch, and generally very much branched. *Leaves* radical, numerous, runcinated, roughish: those of the stem smoother, alternate, half-stem-clasping, lanceolate, toothed towards the base, fringed with bristly hairs terminating in globules; the teeth and ends finishing in a sharp stiff awn. *Flowers* generally in pairs, sessile, in the bosom of the upper leaves. *Calyx*, outer scales five or six, bent back, edged with glandular hairs: inner narrow, equal, forming an angular clammy cylinder, set along the back with similar hairs, woolly at the ends. *Florets* of a fine blue; frequently white, and sometimes red: tube white, dilated and hairy at top; border ribbed on the under side and villose. *Anthers* deep blue. *Germ* subconic, crowned with very short hairs. *Stigmas* blue. *Seeds* irregularly five-cornered², obovate, flattened a little, obscurely striated, smooth, straw-coloured. *Pappus* many-leaved, the leaflets chaffy, acuminate, very short, white. *Receptacle* flattish, sometimes with minute depressed papillas, sometimes with small distant bristles, and obscure little pits between them³. The fine blue colour of the florets is convertible into a brilliant red by the acid of ants⁴.—The flowers open at eight, and close at four⁵. Common on the borders of corn-fields, flowering from July to September, and increasing itself much by seed.

This plant has generally been regarded in the light of a noxious weed; it has however for several years past been cultivated in France as food for cattle. *Monf. Cretté* is said to have been the first who introduced it there, at least to any extent, for field culture; and he published a memoir on the subject. For its introduction into England for the same purpose we are indebted to *Arthur Young, Esq.* who first brought the seed from France in the year 1788, and has since cultivated it to a considerable extent with great success. In Lombardy it is sown mixed with other herbs of pasture, and cut three or four feet high. It is reputed there to increase both the milk and flesh of cattle, and to be very nutritious when made into hay. Horses eat it greedily; and it is an important object for summer-soiling both them and cattle. It is also freely eaten by sheep.

Succory or Chicory, as the agriculturists affect to call it from the French name *Chicorée*, defies drought, being of early growth, and the first large and spreading leaves covering the ground so as to retain the moisture. The stalks are so thick and stiff as to support themselves against winds and the heaviest rains. The most severe cold does not injure it. The quickness of growth renders it very valuable, because it furnishes abundance of salutary fodder at a season when green food is scarce. It has been found to grow seven inches in three weeks,

whilst Saintfoin and Burnet grew only four inches. Two cuttings may be made of it the first year, and three or four according to the season every year after, in April, June, August and October, or in May, July and October, never letting it stand till it becomes hard and sticky: or it may be cut continually, by beginning again when the whole piece is gone over, and thus yield a constant supply of fresh food during seven or eight months.

The produce is said to be superior upon the whole to that of Lucerne in the proportion of three to one. A piece of ground sown with Succory was found to yield by the acre the year of sowing at two cuttings, July the 24th, and October the 17th

19 tons, 4 cwt.

Second year, at three cuttings, May

21st. July 24th. and Dec. 3d. 38 9

And the whole average produce of four years was near thirty tons.

In our moist climate this succulent plant seldom dries well for hay, unless the season be very favourable.

The quantity of seed produced on an acre has been, the first year, an hundred and an half; the second, two hundred weight, and the third, from three hundred and an half to four hundred and an half¹.

Upon the whole, allowing for the partiality with which novelties are commonly viewed, as far as our present experience has extended, Succory seems to be a valuable object of culture, as fresh feed for horses, kine and sheep. The leaves blanched are eaten early in the spring in salads; and the roots, gathered before the stem shoots up, are eatable, and when dried may be made into bread^m. Dried and pulverized they are used in Germany, to mix with coffee, one part of Succory roots to two parts of coffee, which it is said to increase in strength, taste and salubrityⁿ.

Succory is a useful detergent, aperient and attenuating medicine; acting without much irritation, tending rather to cool than heat the body, and at the same time corroborating the tone of the intestines. The juice taken in large quantities, so as to keep up a diarrhoea, and continued for some weeks, has been found to produce excellent effects in scorbutic and other chronical disorders^o.

2. Stem herbaceous, annual, two feet high, upright, round, thick, branched. Root-leaves many, large, subcuneiform, sinuate-toothed, smooth on both sides; the uppermost lanceolate, small. Flowers pale blue, solitary, peduncled.^p

This differs from the first sort in its duration, being at most biennial; and if the seeds be sown in the spring, the plants will flower and produce seeds the same year, and perish in the autumn: the leaves also are broader, rounder at the top, and not lacinated on the sides, the branches are more horizontal, and the stalks never rise so high.

[Native of China and Japan. Cultivated 1562^q.

Jacquín (*Obs.* 4. t. 80.) has described and figured a *Cichorium*, under the name of *C. humile*, which is allied to this species^r.]

3. The third sort grows naturally on the sea-coasts in Sicily, and the islands of the Archipelago. This sends out from the root many long leaves, which are indented on their edges, spreading flat on the ground; from between these arise the stalks, which have very few leaves, and those small and entire: the stalks are divided in forks upward, from between these come out the flowers, which are of a pale blue, and are succeeded by seeds shaped like those of the common sort; the ends of the smaller branches are terminated by star-like spines, which are very sharp. The plant is biennial with us in England, and in cold winters is frequently killed. It flowers

¹ *Young's Annals*, vol. 6. p. 48. 11. p. 145. 12. p. 186.

13. p. 252. 16. p. 377. 17. p. 202. 18. p. 316. 23. p. 383.

^m *Withering*.

ⁿ *Young's Annals*, vol. 13. p. 544.

^o *Lewis*.

^p *Loureiro*.

^q *Hort. kew.* from *Turner*.

^r *Linn.*

² *Curtis & Withering*.

³ *Gærtner*.

⁴ *Haller & Curt.* from *Tragus*.

⁵ *Linn.*

and seeds about the same time with the first sort, and may be treated in the same way as the Endive.

[It was cultivated here in 1633^o.

PROPAGATION AND CULTURE.

1. The common Succory, or rather a highly improved variety of it, for in its ordinary wild state it is dry, hard and juiceless, is now introduced into field culture to great advantage. The proper quantity of seed to be sown on an acre, either alone or with spring corn, is twelve pounds; but if it be sown with various other seeds, the quantity of Succory or Chicory seed must be less, in proportion to the quantity of such seeds. When sown with Barley or Oats, with either of which it succeeds very well, it must be sown of course at the usual time of sowing these grains; but alone it may safely be put into the ground at any time from march to september. It should not be mixed with Clover, unless the latter is expected to fail. Chicory does not stool, tiller, or thicken on the ground. It flourishes best where it has most room and air; it should seem therefore that the drill husbandry would be most suitable to it. Thus cultivated, after the first year, it may be mown four times a year.

If sown for seed only, it should be drilled alone; or at least drilled across corn before it is up, but it is better sown by itself.]

2. The plain broad-leaved Endive is not much cultivated in the English gardens, for the curled Endive being more tender and not so bitter, is generally preferred to it: but it is still cultivated in Italy.

The curled Endive is now much cultivated in the English gardens, being one of the principal ingredients in autumn and winter salads.

The first season for sowing the seeds is in may, for those which are sown earlier, generally run up to seed before they have arrived to a proper size for blanching; and it frequently happens that the seeds sown in may in the rich ground near London will run to seed the same autumn; but in situations which are colder, they are not so apt to run up; therefore there should be some seeds sown about the middle or end of the month. The next sowing should be about the middle of june; and the last in the middle of july. From these three crops there will be a supply for the table during the whole season; for there will be plants of each sowing, very different in their growth, so that there will be three different crops from the same beds.

When the plants come up they must be kept clean from weeds, and in dry weather duly watered, to keep them growing till they are fit to transplant, when there should be an open spot of rich ground prepared to receive the plants, in size proportionable to the quantity intended. When the ground is well dug and levelled, if it should be very dry, it must be well watered to prepare it to receive the plants; then the plants should be drawn up from the seed-bed carefully, so as not to break their roots, drawing out all the largest plants, leaving the small ones to get more strength; which, when they have room to grow, by taking away the large ones, they will soon do. As the plants are drawn up, they should be placed with their roots even, all the same way, and every handful as they are drawn, should have the tops of their leaves shortened, to make them of equal length: this will render the planting of them much easier, than when the plants are promiscuously mixed, heads and tails: then the ground should be marked out in rows at one foot asunder, and the plants set ten inches distant in the rows, closing the earth well to their roots, and let them be well watered; and repeat this every other evening, till the plants have taken good root, after which they must be kept clean from weeds.

When the plants of the seed-bed have been thus thinned, they should be well cleaned from weeds and watered, which will encourage the growth of the remaining plants, so that in ten days or a fortnight

• Hort. kew.

after, there may be another thinning made of the plants, which should be transplanted in the same manner. And at about the same distance of time, the third and last drawing of plants may be transplanted.

Those plants which were the first transplanted, will be fit to blanch by the latter end of july at farthest; and if they are properly managed, in three weeks or a month, they will be sufficiently blanched for use, which will be as soon as these salads are commonly required; for during the continuance of good Cos Lettuce, few persons care for Endive in their salads; nor, indeed, is it so proper for warm weather. If any of the plants should put out flower-stems, they should be immediately pulled up and carried away, being good for nothing. As the quantity of roots necessary for the supply of a middling family is not very great, there should not be too many plants tied up to blanch at the same time, therefore the largest should be first tied, and in a week after those of the next size; so that there may be three different times of blanching the plants, on the same spot of ground. But as in some large families there is a great consumption of this herb for soups, the quantity of plants should be proportionably greater, at each time of planting and blanching.

Blanching Endive.

In order to this you should provide a parcel of small Osier twigs (or bass mat) to tie up some of the largest heads; which should be done in a dry afternoon, when there is neither dew nor rain to moisten the leaves in the middle of the plants, which would occasion their rotting soon after their being tied up. The manner of doing it is as follows: you must first gather up all the inner leaves of the plant in a regular order, into one hand, and then take up those on the outside that are sound, pulling off and throwing away, all the rotten and decayed leaves which lie next the ground; observing to place the outside leaves all round the middle ones, as near as possible to the natural order of their growth, so as not to cross each other: then having got the whole plant close up in your hand, tie it up with the twig, bass, &c. at about two inches below the top, very close; and about a week after go over the plants again, and give them another tie about the middle of the plant, to prevent the heart leaves from bursting out on one side; which they are subject to do, as the plants grow, if not prevented this way.

In doing this you need only tie up the largest plants first, and so go over the piece once a week, as the plants increase in their growth; by which means you will continue the crop longer, than if they were all tied up at one time: for when they are quite blanched, which will be in three weeks or a month after tying, they will not hold sound and good above ten days or a fortnight, especially if the season proves wet: therefore it is that I would advise to sow at three or four different seasons, that you may have a supply as long as the weather will permit. But in order to this, you must transplant all the plants of the last sowing under warm walls, pales, or hedges, to screen the plants from frost; and if the winter should prove very sharp, you should cover them with some Pease haulm, or such other light covering, which should be constantly taken off in mild weather: these borders should also be as dry as possible, for these plants are very subject to rot, if planted in a moist soil in winter.

Although I before directed the tying up of the plants to blanch them, yet this is only to be understood for the two first sowings; for after october, when the nights begin to be frosty, those plants which are so far above ground will be liable to be much prejudiced thereby, especially if they are not covered in frosty weather; therefore the best method is, to take up your plants of the latter sowings in a very dry day, and with a large flat-pointed dibble, plant them into the sides of trenches of earth, which should be laid very upright, planting them sideways, on the south side of the trenches, towards the sun, with the tops

tops of the plants only out of the ground; so that the hasty rains may run off, and the plants be kept dry, and secured from frosts.

The plants thus planted, will be blanched fit for use in about a month or five weeks time, after which they will not keep good more than three weeks, before they will decay; you should therefore continue planting some fresh ones into trenches every fortnight or three weeks, that you may have a supply for the table; and those which were last transplanted out of the seed beds, should be preserved till february, before they are planted to blanch; so that from this you may be supplied until the beginning of april, or later: for at this last planting into the trenches, it will keep longer than in winter, the days growing longer; and the sun, advancing with more strength, dries up the moisture much sooner than in winter, which will prevent the rotting of these plants; but if the weather should prove frosty, these latter plantations of Endive should be covered with mats and straw to preserve them, otherwise the frost will destroy them, but the coverings must always be taken off when the weather is favourable.

When your Endive is blanched enough for use, you must dig it up with a spade; and after having cleared it from all the outside green and decayed leaves, you should wash it well in two or three different waters to clear it the better from slugs, and other vermin, which commonly shelter themselves amongst the leaves.

But in order to have a supply of good seeds for the next season, you must look over those borders where the last crop was transplanted, before you put them into the trenches to blanch; and make choice of some of the largest, soundest, and most curled plants, in number according to the quantity of seeds required: for a small family, a dozen of good plants will produce seeds enough; and for a large, two dozen or thirty plants.

These should be taken up and transplanted under a hedge or pale, at about eighteen inches distance, in one row about ten inches from the hedge, &c. This work should be done in the beginning of march, if the season is mild, otherwise it may be deferred a fortnight longer. When the flower-stems begin to advance, they should be supported with a packthread, which should be fastened to nails driven into the pale, or to the stakes of the hedge, and run along before the stems, to draw them upright close to the hedge or pale, otherwise they will be liable to break with the strong winds. Observe also to keep them clear from weeds, and about the beginning of july your seeds will begin to ripen; as soon as you find the seeds are quite ripe, you must cut off the stalks, and expose them to the sun upon a coarse cloth to dry; and then beat out the seeds, which must be dried, and put up in bags of paper, and preserved for use in some dry place. But I would here caution you, not to wait for all the seeds ripening upon the same plant; for if so, all the first ripe and best of the seeds will scatter and be lost before the others are near ripe; so great a difference is there in the time when the seeds of the same plant are ripe.

[CICHORIUM. See *Crepis*, *Lapsana*, and *Picris*.

CICLA. See *Beta*.]

CICUTA. (Signifies the internode or space between two joints of a reed; the hollow stem of any plant, which the shepherds used for making their rural pipes; such stems in our old and rural language we call *Kecksies*.)

"Est mihi disparibus septem conjuncta *Cicutis*
"Fistula ———— (Virg.)

Lin. gen. n. 354. Reich. n. 384. Schreb. 486.

Gartn. t. 22. Juss. 223.

Class. 5. 2. Pentandria Digynia.

Nat. order of *Umbellatae*, or *Umbelliferae*.

GENERIC CHARACTER.

CAL. Umbel universal roundish: rays very many equal. Partial roundish, with very many, equal, setaceous

rays.—Involucre universal none: partial many-leaved: leaflets bristly, short.

Perianth proper scarcely visible.

COR. universal uniform: floscules all fertile.—Proper of five ovate, inflected, nearly equal petals.

STAM. Filaments five, capillary, longer than the corolla: Anthers simple.

PIST. Germ inferior. Styles two, filiform, longer than the corolla, permanent. Stigmas headed.

PER. none. Fruit subovate, furrowed, bipartite.

SEEDS two, subovate, convex and striated on one side; flat on the other.

ESSENTIAL CHARACTER.

Fruit subovate, furrowed.

SPECIES.

1. *Cicuta virofa*. Long-leaved Water Hemlock.

Lin. spec. 366. Reich. 702. mant. 355. hort. cliff. 100. fl. suec. n. 253. lapp. n. 103. mat. med. 82. Hudf. angl. 122. With. 299. Lightf. 164. Pollich pal. n. 294. Krock. silf. n. 442. Oed. dan. t. 208. Gunn. norv. n. 42. t. 2. Villars dauph. 2. 390. Blackw. t. 574. Plenck, ic. t. 213.

C. aquatica. Wepfer monogr. Philos. transf. 44. 237. t. 4, 5. abr. X. 769. f. 135, 136.

Cicutaria. Riv. pent. t. 76.

Sium. Hall. helv. n. 781. Mor. hist. 3. 283. f. 9. t. 5. f. 4. umb. t. 5. Baub. pin. 154. n. 3. Dod. 589. 3. Lob. obs. 105. 2. ic. 1. 208. 2. Ger. emac. 256. 4. Park. 1241. 3. Pet. brit. t. 28. f. 1. Baub. hist. 3. 175. f. 2. Raii hist. 450. syn. 212. n. 7.

Umbels opposite-leaved, petioles margined obtuse.

2. *Cicuta bulbifera*.

Lin. spec. 367. Reich. 702.

Ammi. Gron. virg. 31, 42.

Umbellifera aquatica, &c. Raii suppl. 260.

Branches bulbiferous.

3. *Cicuta maculata*.

Lin. spec. 367. syst. 286. Gron. virg. 44. Gartn. fruct. 1. 100. Riv. pent. t. 75. Blackw. herb. t. 451. & 573. a. b. Hall. helv. n. 766.

Ægopodium. Gron. virg. 32.

Angelica. Pluk. alm. t. 76. f. 1. Mor. hist. 3. 281. t. 3. f. 9.

Myrrha. Mitch. gen. 18. Aët. nat. cur. 8. app. 217.

Serratures of the leaves mucronate, petioles membranaceous two-lobed at the end.

DESCRIPTIONS, &c.

1. [Stem round, hollow. Leaves pinnate; leaflets lanceolate ternate, the serratures white at the tip. Umbel spreading, red at the base: involucels many-leaved, setaceous, short. Flowers white, hermaphrodite: styles erect, white, in the fruit divaricated: stigmas simple. Fruit compressed, glossy, truncate, opening transversely^a.

Stem two, three, and even four feet high, striated, smooth, reddish towards the bottom, dichotomous. Leaves sheathing, a foot and half long, and near a foot broad; the lower on long hollow petioles, the upper almost sessile; bipinnate: some of the pinnae simple, others bifid or trifid: the serratures sometimes brown; the end leaf cut into three to the bottom: all smooth. Universal umbel wide, of fourteen rays or more: partial almost semiorbicular, of about forty-eight rays. Universal involucre usually none, though sometimes there is a leaflet or two: partial has about ten leaflets, some longer, some shorter than the umbellule. Calyx tolerably distinct. Petals heart-shaped, bifid, nearly equal, yellowish pale green. Anthers white or reddish purple. Styles at first short and very close, after flowering much longer; stigmas white, obtuse^b.

This plant generally grows near the sides of large stagnant waters, or in shallow flow rivers. Towards the end of autumn, the root for the succeeding summer is formed out of the lower part of the stalk: this is divided transversely into many large unequal cells; so that it becomes specifically lighter than water, and in winter, when the rivers or pools swell,

^a Linn. mant.

^b Withering, Pollich, Krock.

is buoyed up. The old root then rots, floats all the winter, and in rivers is frequently carried to great distances. In the spring the old root is washed away, and the new one, on coming near the soil, sends out many slender fibres, by which it is again fixed, grows, and flowers^c.

It is an inhabitant of the northern part of Europe, from Lapland to Germany and Switzerland. In Britain it is not very common; but it is found at Isleworth, in the Coln near Colnbrook and Uxbridge, on Hounslow-heath, in the isle of Ely, Lovingland in Suffolk, near Norwich and Yarmouth, Hatton in Shropshire, Brereton-mere in Cheshire, near Northwich, in Nottingham-park, in the Trent near Abbot's Bromley, near Stafford, and in Scotland, and Wales: flowering in July and August.

This plant is one of the rankest of our vegetable poisons. Numerous instances are recorded of its fatality to the human species by Wepfer, Haller, &c. and in the Philosophical Transactions, by Dr. Watson^d.

Linneus (in flor. suec.) relates its fatal effects on kine: and Dr. Withering observes, that early in the spring, cows often eat of it, and are killed by it; but that, as the summer advances, and its scent becomes stronger, they carefully avoid it: that goats however devour it greedily with impunity, and that horses and sheep eat it with safety.

Strong emetics are the most approved remedy to this poison.

2. The leaves are divided into very minute capillary segments. The umbels terminate the stem and branches, and at the origin of the rays the stem and branches which support them are surrounded with like capillaceous leaflets. The flowers are white, with the smell of Cumin flowers^e.

Native of Virginia and Canada, in watery places. Cultivated by Mr. Miller, in 1768.

3. Stem thick, spotted with purple, three feet high and more. Leaves black, shining, triply pinnate, the last pinnules somewhat bluntly toothed. Umbels many. Flowers white^f. Fruit middle-sized, ovate-globular, thick, gibbous, distantly ribbed. Seeds ovate, narrower upwards, very gibbous, ending in a short conical tubercle bearing the style, and the waved rudiment of the calyx: ribs five, three dorsal and two lateral, white, subflexuose, much raised, and compressed so as to be almost membranaceous; interstices smooth, bay-rufescent; ventral parts flat^g.

Native of Virginia, Switzerland, &c. in watery places. Cultivated by Mr. Miller in 1759.]

PROPAGATION AND CULTURE.

The first sort will not grow well, unless there be a considerable depth of water for it to root in.

The second and third sorts may be propagated by seeds, which should be sown in autumn on a shady border: the plants will come up in the spring, and require no other care but to keep them clean.

CICUTA. See *Æthusa*, *Chærophyllum*, and *Conium*.

CICUTARIA. See *Æthusa*, *Chærophyllum*, *Cicuta*, *Conium*, *Ligusticum*, and *Phellandrium*.

[CIMICIFUGA. (*Quod cimices fugat*; from its quality of driving away bugs.)

Lin. gen. Reich. n. 740. Schreb. 933. syst. n. 1282. p. 505. Gært. t. 140. Juss. 234.

Class. 13. 4. Polyandria Tetragnia.

Natural order of *Multifloræ*. *Papaveraceæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved: *leaflets* roundish, concave, caducous.

COR. *Nectaries* four, petal-shaped, urceolate, cartilaginous.

STAM. *Filaments* twenty, filiform. *Antthers* twin.

PIST. *Germ*s four to seven. *Styles* recurved. *Stigmas* longitudinal on the style.

PER. *Capsules* oblong, opening with a lateral future.

SEEDS very many, covered with spreading scales.

OBS. It varies extremely in the number of parts in the calyx, corolla and pistils; nor is either the sex or proportion constant.

ESSENTIAL CHARACTER.

Cal. four or five-leaved. Nect. four, urceolate. Capsules four to seven.

SPECIES.

1. *Cimicifuga foetida*.

Lin. syst. 505. Reich. 2. 618. Gært. fruct. 2. 275.

Actæa cimicifuga. Lin. spec. 722. amæn. 7. t. 6. f. 2. Gmel. fib. 4. 181. t. 70.

Thalictroides foetidissimum, *cristophorianæ facie*. Amm. ruth. 102.

DESCRIPTION, &c.

Linneus remarks, that it bears a great resemblance to *Actæa racemosa*. Root perennial, thick knotty short, with many thickish fibres creeping transversely. Stem sometimes two yards in height, red at the base, thence pale green, slightly hirsute, scarcely striated, soon dividing into two, one branch naked for the space of three inches, then swelling into a knot, and subdividing into three hirsute branchlets, each sustaining a pinnate glutinose leaf, the pinnae serrate, hairy on the rib, pale green, veined; the other branch near the base bears a leaf similar to the other, with more following which are gradually smaller, till the uppermost becomes entire. Flowers in long terminating racemes, alternate, globular, on very short pedicels^h. Capsules four, sometimes fewer, sometimes twice as many, netted, beaked with the style which is very short and curved back, one-celled, opening on the interior or ventral future. Seeds several oblong, covered all round with membranaceous linear-oblong flexile pale scales, and fastened along the whole of the opening futureⁱ.

The flowering spike hangs down at first, but becomes erect as the flowers open. The whole plant has a strong virose smell, occasioning the head-ach.

Native of the farther Siberia, from the river Jenisea: flowering the middle of July, and ripening its seed the middle of August^k.

It was introduced here in 1777, by Messrs. Gordon and Græfer^l.]

PROPAGATION AND CULTURE.

See *Actæa*.

CINARA. See *Cynara*.

[CINAROIDES. See *Protea*.

CINCHONA. (*So named from the Countess del Cinchon, lady of a Spanish Viceroy, whose cure is said first to have brought the Peruvian Bark into reputation.*)

Lin. gen. n. 228. Reich. n. 245. Schreb. 301.

Gært. t. 33. Juss. 201. Quinquina. Condam. art. gall. 1738.

Class. 5. 1. Pentandria Monogynia.

Nat. order of *Contortæ*. *Rubiaceæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* one-leaved, superior, short, five-toothed, permanent: teeth sharp.

COR. monopetalous, funnel-shaped, five-cleft: tube long, obscurely angular: segments lanceolate or linear, equalling the tube.

STAM. *Filaments* five, in the middle of the tube. *Antthers* linear, erect.

PIST. *Germ* inferior, turbinate, obscurely angular. *Style* the length of the stamens. *Stigma* thick, bifid or entire.

PER. *Capsule* crowned with the calyx, bipartite, opening into two parts inwardly; the partition parallel.

SEEDS many, oblong, compressed, surrounded by a membranaceous wing.

ESSENTIAL CHARACTER.

Capf. inferior, two-celled, bipartite, the valves parallel to the partitions opening inwardly.

^c Watson in philos. transf.
^e Gronovius and Linn. suppl.

^d Withering.
^f Haller. ^g Gærtner.

^h Gmelin.

ⁱ Gærtner.
^k Hort. kew.

^l Gmelin.

C I N

SPECIES.

* *Flowers tomentose, stamens included.*

1. *Cinchona officinalis*. Common Jesuit's-bark, or officinal Cinchona.

Lin. spec. 244. *syft. ed.* 10. 929. *Reich.* 1. 476. *mat. med.* 61. *Vahl in aët. havn.* 1. 1. p. 17. t. 1. *Gärtn. fruct.* 1. 169. *Swartz obs.* 72. *Commerf. noric.* 1744. p. 217. t. 1. f. 3. *Plenck, ic. t.* 131. *Woodv. med. bot.* 546. t. 200.

Quinquina. *Condamine in aët. par.* 1738. fig.

Arbor febrifuga peruviana. *Raii hist.* 1796.

Leaves ovate-lanceolate smooth, capsules oblong.

2. *Cinchona pubescens*. Pubescent Cinchona.

Vahl in aët. havn. 1. 1. p. 19. t. 2.

Leaves ovate elongated at the base pubescent underneath, capsules cylindrical.

3. *Cinchona macrocarpa*. Long-fruited Cinchona.

Vahl in aët. havn. 1. 1. p. 20. t. 3.

C. officinalis. *Lin. syft. ed.* 12. 164. *ed.* 14. 213. *suppl.* 144.

Leaves oblong pubescent underneath ribbed.

** *Corollas smooth, stamens standing out.*

4. *Cinchona caribæa*. Caribbean Cinchona.

Lin. spec. 245. *syft.* 214. *Reich.* 477. *Jacqu. amer.* 61. t. 169. t. 95. *piët.* 35. t. 63. *obs.* 2. 27. t. 47. *Vahl in aët. havn.* 1. 1. p. 21. *Swartz obs.* 72. *Gärtn. fruct.* 1. 169. *Pluk. phyt.* t. 103. f. 3. *Plenck, ic. t.* 132.

C. jamaicensis f. *caribbeana*. *Wright in philos. transf.* vol. 67. p. 504-506. t. 10.

Peduncles axillary one-flowered.

5. *Cinchona corymbifera*. Corymbiferous Cinchona.

Lin. syft. 214. *suppl.* 144. *Forster in nov. aët. upf.* 3. 175. *flor. austral. n.* 88. *Vahl in aët. havn.* 1. 1. p. 22.

Leaves oblong-lanceolate, corymbs axillary.

6. *Cinchona lineata*.

Vahl in aët. havn. 1. p. 22. t. 4.

Panicle terminating, leaves ovate acuminate smooth, capsules five-cornered.

7. *Cinchona floribunda*.

Swartz prodr. 41. *Vahl in aët. havn.* 1. 23. *Philos. transf.* vol. 74. p. 452-456. t. 19.

C. montana. *Magaš. bot.* 6. 96. t. 3.

Kinkina. *Piton. aët. nat. cur.* 1787. *Rozier journ. de phys.* 1781. p. 169-179. & 1789. p. 129-132. t. 1.

Panicle terminating, capsules turbinate smooth, leaves elliptic acuminate.

8. *Cinchona brachycarpa*.

Swartz prodr. 42. *Vahl in aët. havn.* 1. p. 24.

Panicle terminating, capsules obovate ribbed, leaves elliptic obtuse.

9. *Cinchona angustifolia*.

Swartz prodr. 42. *aët. holm.* 1787. p. 117-123. t. 3. *Vahl in aët. havn.* 1. p. 25.

Panicle terminating, capsules oblong five-cornered, leaves linear-lanceolate pubescent.

DESCRIPTIONS, &c.

The Cinchonas are trees. The branches are round except at the top, where they are obscurely four-cornered: the flowering-branches are alternately compressed. The leaves are opposite, undivided and quite entire. Stipules are interposed between the leaves, and pressed close to the branches. The inflorescence in most of the species is a brachiate panicle, with trifid peduncles.

Swartz proposes to divide the species into such as have a short, or an elongated tube to the corolla.

1. Officinal Cinchona is a tall tree, with a trunk rather bigger than a man's thigh. The branches are covered with a purplish brown bark, frequently rugged with obliquely transverse chinks, and scarred by the fallen leaves. These are ovate or ovate-lanceolate, sharp, even, smooth on both sides, veinless above, obliquely nerved, the lower nerves opposite; beneath they are a little paler and veined: they are about two inches long, approximating at the ends of the branches, but remote on the flowering-branches; they spread very much. The petioles are half an inch in length, channelled above,

C I N

convex beneath, towards the base wrinkled and rugged. Stipules in pairs on each side, minute, sharp. Panicle terminating, spreading, trichotomous. Peduncles and pedicels slightly tomentose; pedicels one-flowered. There is a minute bracte at the base and in the middle of the pedicel. Calyx a superior rim, with very short teeth. Corolla tomentose on the outside, the segments acute, woolly within, shorter than the tube. Filaments also shorter than the tube: with anthers the length of it. Germ tomentose: stigma thickened at the top and slightly bifid. Capsules oblong, smooth, half an inch in length, marked with obscure raised lines^a.

It is a native of Peru, growing most abundantly on a long chain of mountains extending to the north and south of Loxá; between two and five degrees of S. latitude. Here the trunks of these trees frequently exceed in size the body of a man. The soil in which they thrive best is a red clayey or rocky ground, especially on the banks of small rivers or torrents. The most proper season for cutting the bark is from september to november, which is the only time of some intermission from rain. On a spot where the trees abound, having made a road to it from the nearest plantation in the low country, they build huts for the workmen, and a large hut for the bark. Each Indian is provided with a large knife, and a bag that will hold about fifty pounds of green bark: he cuts down the bark as high as he can reach from the ground; he then fastens a stick about half a yard long, with tough withs to the tree like the step of a ladder, and having sliced off the bark as high as he can reach with this, he fixes a new step, and thus mounts to the top, another Indian below gathering up what he cuts: this they do by turns, going from tree to tree until the bag is full. Care is taken not to cut the bark wet, and if it should happen to be so, it is carried directly to the low country to dry, for otherwise it loses its colour, turns black and rots; and if it lie any time in the hut without being spread, it runs the same risk; so that if the weather permit, it remains as short a time there as possible, and whilst the Indians are cutting, the mules are employed in carrying the bark to the drying place, where it is spread in the open air and frequently turned^b.

The trees are said soon to perish on being stripped of their bark, and hence a scarcity of it has been apprehended. Condamine however asserts, that the young trees do not die by losing their bark, but send out fresh shoots from the base; and as the trees which stand to any considerable age, probably increase by seed, the fear that this valuable bark may be exhausted seems to be groundless.

We have no satisfactory account at what time, or by what means the medicinal efficacy of the Peruvian Bark was first discovered. Some of the tales which are commonly related have too fabulous an air to justify the recital of them here.

Geoffroy relates, that the use of the Bark was first learned from the following circumstance. Some Cinchona trees being thrown by the winds into a pool of water, lay there till the water became so bitter that every body refused to drink it, till one of the neighbouring inhabitants being seized with a violent paroxysm of fever, and finding no other water to quench his thirst, was forced to drink of this, by which means he became perfectly cured; and afterwards relating his case to others, they made use of the same remedy.

The use of this excellent medicine was very little known till about the year 1638, when a signal cure having been performed by it on the Spanish Viceroy's lady, the Countess del Cinchon, at Lima, it came into general use, and hence was distinguished by the appellation of *pulvis Comitissæ*, *cortex china china* or *chinchina*, *kina kina* or *kinkina*, *quina quina* or *quinquina*. The Countess, on her recovery, is said to have distributed a large quantity of the Bark among

^a Vahl.

^b Arrot, in philos. transf. vol. 40. p. 83.

the Jesuits, in whose hands it acquired still greater reputation, and by them it was first introduced into Europe, and thence called Jesuit's Bark, *cortex s. pulvis jesuiticus, pulvis patrum*^c, and also Cardinal de Lugo's powder; that charitable prelate having bought a large quantity of it at a great expense for the use of the poor at Rome.

This Bark is brought to us in pieces of different sizes, some rolled up into short quills, and others flat. Those who affect to be nice in the choice of their drugs, prefer such pieces as are rolled up about the size of a common quill. The outside is brownish and sometimes whitish: the inside of a fine ferruginous brown. To the taste it is astringent and bitter, and it has an advantage over other bitters in being aromatic. To enumerate its virtues would require the extent of a volume. Morton, the contemporary of Sydenham, was one of the first who made considerable use of the Bark. From us it was carried into France, where the Dauphin was cured by it. Boerhaave restrains the use of the Bark with almost innumerable cautions, while Hoffman and others are as boundless in its praise, and indeed all the prejudices in its disfavour are entirely done away, and its character has long been universally established. This Bark gives out its virtues both to cold and boiling water; but the decoction is thicker, and gives out its taste more readily. Its principal use however is in substance, and it may be employed in very considerable doses with the most perfect security. Sometimes it is necessary to join opiates with it, in order to prevent its passing off too suddenly by acting as a purgative. A very elegant tincture of the Bark is kept in the shops under the title of Huxham's tincture: in which preparation the Bark is rendered still more efficacious by the addition of orange-peel and snake-root.

It is not only in fevers of every kind that the Bark is so highly successful a remedy, but also in numerous other cases, and particularly in mortifications. It has also been much used of late in cases of acute rheumatism, especially after the violence of the disease has in some degree been moderated by the antiphlogistic treatment, or when an evident remission has taken place. In the fluor albus, profluvia, and hæmorrhages of every kind, the decoction of the Bark is of excellent use; and the tincture taken in water of various parts, as chalybeate, &c. is extremely useful in cases of decayed appetite. In short, if any medicine deserved the title of a panacea, the Bark would have the fairest claim. Cases however sometimes occur in which its liberal exhibition is found hurtful: viz. where symptoms of congestion, or topical inflammation of the head appear, which are shewn by the redness of the eyes, phrenitic delirium, &c. It has also been sometimes accused of causing a degree of difficulty of breathing.

The other species of *Cinchona* approach in some degree to the virtues of the Peruvian or common officinal Bark, but seem less efficacious, and their power less perfectly ascertained in practice. The red Bark indeed has been often considered as of still higher efficacy than the common, and has been thought to be the Bark which, according to Arrot, the Spaniards called *Cascarilla colorada*, and was probably the kind brought originally to Europe, and which proved so successful in the hands of Sydenham, Morton, and Lister; it appearing from the testimony of the oldest practitioners, that the Bark first employed was of a much higher colour than the common Bark.

2. The branches of this are pubescent towards the end. Leaves a short span in length, a hand in breadth, obtuse, decurrent a little along the petiole at the base, tender, veined, pubescent beneath along the nerves: petiole two inches long, pubescent, convex underneath. Panicle terminating, brachiate, pubescent: partial peduncles twice trifid: pedicels very short, one-flowered. Bractes minute, at the

base of the pedicels. Calyx a superior rim, with minute ovate sharp teeth. Tube of the corolla thicker in the middle. Capsule an inch long, cylindric only a little narrowing at each end.

Native of Peru. Communicated to Vahl, by Jussieu.

3. Branches jointed, the size of a swan's quill, villose-tomentose. Leaves more than a hand in length, oblong, the younger ones elliptic, somewhat coriaceous, the upper surface smooth and shining, the lower pubescent and ribbed, the ribs villose-tomentose; the younger ones hairy above, especially along the nerves: petioles an inch long, flat above, convex beneath. Stipules lanceolate, deciduous, longer than the petiole, connate at the base, smooth within. Panicle terminating, trichotomous, pubescent. Peduncles compressed three-flowered an inch and half in length. Flowers subsessile. There is a linear-lanceolate bracte on each side at the divisions of the universal peduncle, an inch in length; and another, which is small and awl-shaped at the base of each flower. Calyx bell-shaped, pubescent, silky within, commonly five-toothed, sometimes but seldom six-toothed, the teeth obscure but sharp. Corolla coriaceous, an inch and half long, tomentose with minute hairs pressed close: segments of the border lanceolate, blunt, the length of the tube. Filaments very short: anthers linear standing just above the throat. Germ five-cornered: stigmabifid. Capsule cylindric, two inches long, smooth, a little narrower at the base: the valves opening in a sinus at top and bottom.

Native of Santa Fé. Vahl received it from Ortega.

It is described in the latter editions of the *Systema vegetabilium* under the name of *C. officinalis*; and is there said to have been received from Mutis.

4. According to Jacquin, this is an erect branching shrub ten feet high: from fifteen to twenty feet in height, as Swartz affirms. Branches round below, with an ash-coloured bark, at the end somewhat compressed, purplish brown with ash-coloured dots. Leaves petioled an inch and half in length, ovate (ovate-lanceolate or lanceolate) acuminate, smooth, veined: petioles short, (lax, smooth.) Stipules small, acuminate, broader than long, ciliate. Peduncles axillary solitary opposite the length of the petioles. Calyx a rim with five minute teeth. Corolla smooth: segments of the border linear, the length of the tube. Stamens the length of the corolla. Style the length of the stamens: stigma thickened undivided. Capsule oblong smooth and even^d.

Jacquin says, that the leaves are from two to three inches long, and reflex at the end; that the flowers are of a very pale flesh-colour, and exceedingly sweet-scented; and the capsules before they are ripe green, very bitter, and abounding in a juice that excites a heat and irritation on the lips and nostrils.

Swartz adds, that the leaves are chiefly crowded at the ends of the twigs, that they are decussated, and channelled along the midrib; that the stipules are blackish: that the peduncles are both terminating and axillary, one-flowered and smooth: that the tube of the corolla is an inch long and quin-quangular; the segments reflex, revolute at the edge: that the filaments are inserted towards the base of the tube; the anthers narrow, almost the length of the filaments.

Dr. Wright informs us, that the Jesuit's Bark tree of Jamaica and the Caribbees rises only to twenty feet, with a trunk not thick in proportion, but hard, tough, and of a yellowish-white colour in the inside. The leaves are of a rusty-green, and the young buds of a blueish-green hue. The flowers are of a dusky yellow colour, and the pods black: when ripe they split in two, and are, with their flat brown seeds, in every respect similar to those of *Cinchona officinalis*. The bark in general is smooth and gray on the outside, though in some rough and

scabrous: when well dried, the inside is of a dark-brown colour. Its flavour at first is sweet, with a mixture of the taste of horse-radish and of the aromatics of the east, but when swallowed, of that very bitterness and astringency which characterizes the Peruvian Bark. It grows near the sea-shore, and is called in Jamaica Sea-side Beech.

Linneus, in the thirteenth edition of *Systema Vegetabilium*, doubts whether this species belongs to the genus *Cinchona*.

It is a native of the West Indies, and was introduced in 1780, by W. P. Perrin, Esq.^e

5. Trunk upright round smoothish, a fathom or more in height, the thickness of the human arm: branches round spreading opposite, the upper ones herbaceous, compressed at the joints. Leaves acuminate, spreading, smooth and even, a hand in length, deep green, with the midrib purple underneath: petioles round, spreading, longer than the interstices of the leaves, scarcely an inch in length. Stipules membranaceous, acute. Peduncles solitary, axillary, round except at the tip where they are compressed, the length of the leaves. Corymb large, trichotomous. Partial peduncles three, angular, trifid, from the wings of the floral leaves, an inch in length. Floral leaves opposite, at the divisions of the corymb, like the branch-leaves, an inch long. Pedicels one-flowered, two, three, four or more together, round, slender, erect, half an inch in length. Bractes membranaceous, solitary, acute, very minute, at the base of each pedicel. Flowers white, red on the outside: before they open they appear of a dusky purple. The bark is extremely bitter, and subastringent, very like the common Jesuit's Bark.

Native of the islands of Tongatabu and Eaoowe, in the South Seas; where it is cultivated for the pleasant odour or elegance of the flowers^f.

6. Branches round at bottom, with an ash-coloured bark, purplish at top. Leaves on very short petioles, an inch and half long, not at all shining, bluntish, marked with lines on the upper surface along the nerves. Stipules ovate acute. Panicle trichotomous; peduncles compressed, three-flowered. Bracte bristle-shaped at the base of the pedicels. Teeth of the calyx bristle-shaped, the length of the germ. Corolla and stamens as in the next species. Germ five-cornered.

It differs from *C. floribunda* in having the leaves by no means shining, rounded at the base, smaller, marked with lines on the upper surface: the panicle small: the segments of the calyx bristle-shaped and the length of the germ: the capsules not even, but marked with five raised lines.

Native of the island of Dominica.

7. The whole of this species is very smooth. The branches are round at bottom, but obscurely four-cornered at top and purplish. Leaves resembling those of the Coffee shrub, frequently a short span in length, spreading very much, lanceolate-elliptic, on the upper surface even, shining, with a groove along the middle, on the under paler, veined, nerved, the nerves oblique and but little raised: petiole half an inch in length, convex beneath. Stipules oblong, obtuse, sheathing. Panicle brachiate, spreading, peduncle alternately compressed, and a little below the ramifications. Calyx a superior rim, with very short subulate teeth. Corolla as in *C. caribæa*, with the tube an inch long; segments of the border linear. Filaments capillary, the length of the tube. Style the length of the filaments. Stigma ovate, undivided^g.

Native of St. Lucia, Martinico and Hispaniola. In the first of these islands it was discovered by Mr. Alexander Anderson, about the year 1779, in the woods near the Grand Cul de Sac.

The tree there is nearly the size of a Cherry-tree, seldom thicker than the thigh, and tolerably straight; the wood is light and porous, without any of the bitterness and astringency of the bark. The flowers,

which appear in June, are in small tufts, at first white, but afterwards purplish. The bark is of a lighter red, than what was sent to St. Lucia under the name of Red Bark; inclining more to the colour of Cinnamon. The tree grows in a stiff red clay; delights in a shady situation, a N. W. aspect, under larger trees, and is generally near the middle of a hill, by some running water^h.

8. The whole plant smooth as in *C. macrocarpa*; the leaves also nearly as in that, on very short petioles. The flowers only half the size of those of *C. floribunda*. Capsule obovate, with eleven ribs.—Native of Jamaicaⁱ.

9. This is a small tree from ten to fifteen feet in height, with an upright smooth trunk, covered with a wrinkled ash-coloured bark, which becomes brown and striated near the root. Branches long, subdivided, lax, smooth, covered with an ash-coloured bark: branchlets almost simple, round, pubescent. Leaves acuminate with a bluntish tip, spreading, nerved, somewhat veiny, dusky green but pubescent beneath. Petioles short, round, pubescent. Stipules minute, ovate, acute. Panicles trichotomous or trifid. Pedicels one-flowered, the length of the peduncles, erect; both they and the peduncles villose-pubescent. Calyx pubescent, ferruginous, with erect linear acute long segments. Corolla white, half as large again as that of *C. caribæa*, and odorous; tube an inch long, segments of the border the length of the tube. Stigma thickened, oblong, entire. Capsule oblong, roundish. Native of Hispaniola^k.]

CINERARIA. (From *cinis*, ash.—Ash-coloured: most of the species being gray, hoary, or the colour of wood ashes.)

Lin. gen. n. 957. Reich. 1036. Schreb. 1294.

Gartn. t. 170. Juss. 181.

Class. 19. 2. Syngenesia Polygamia Superflua.

Nat. order of *Compositæ Discoideæ*. *Corymbiferae* Juss.

GENERIC CHARACTER.

CAL. Common simple, many-leaved: leaflets equal.

COR. Compound radiated. Corollets hermaphrodite, equal, numerous in the disk: female ligulate, the same number with the leaves of the calyx, in the ray.—Proper of the hermaphrodite funnel-shaped, with an erect, five-cleft border: female ligulate, lanceolate, toothletted at top.

STAM. in the hermaphrodite, filaments five, filiform, short. Anther cylindric, tubulous, five-cleft at top.

PIST. in the hermaphrodite, germ oblong. Style filiform, the length of the stamens. Stigmas two, almost erect—females, germ oblong; style filiform, short; stigmas two, oblong, bluntish, revolute.

PER. none. Calyx unchanged.

SEEDS solitary, linear, quadrangular. Pappus hairy, copious.

REC. naked, flattish.

OBS. *C. glauca* and *purpurata* have a feathered pappus.

ESSENTIAL CHARACTER.

Cal. simple, many-leaved, equal. Pappus simple. Recept. naked.

SPECIES.

1. *Cineraria geifolia*. Kidney-leaved *Cineraria*.

Lin. spec. 1242. Reich. 3. 818. Berg. cap. 289.

Othonna geifolia. Lin. spec. edit. 1. 924.

Solidago. Lin. hort. cliff. 410. n. 7.

Jacobæa. Comm. hort. 2. 145. l. 73. Seb. mus. 1. 1. 22. f. 3. (good.)

Peduncles branching, leaves kidney-shaped suborbiculate sublobed toothed petioled.

[2. *Cineraria cymbalarifolia*.

Lin. spec. 1242. Reich. 3. 818. amæn. 6. afr. n. 81. p. 106.

β. *Jacobæoides afra*, *geranii columbini* fol. Vaill. art. 1720. p. 300.

Leaves lyrate, the end-leaf kidney-shaped toothletted; upper stem-leaves clasping lobed quite entire.

^h Davidson, in philos. trans. vol. 74. p. 452—456.

ⁱ Vahl.

^k Swartz.

^e Hort. kew.

^f Forster.

^g Vahl.

3. *Cineraria sibirica*. *Siberian Cineraria*.
Lin. spec. 1242. *syft.* 764. *Reich.* 3. 819. *mant.* 472.
Othonna. *Lin. hort. upf.* 273. n. 1.
Jacobæastrum cacaliæ folio. *Amm. ruth.* 221. t. 24.
Raceme simple, leaves cordate obtuse toothletted even, stem entirely simple one-leaved.
4. *Cineraria glauca*.
Lin. spec. 1242. *syft.* 764. *Reich.* 3. 819.
Solidago. *Gmel. fib.* 2. 166. t. 74.
Raceme simple, leaves spatulate-cordate quite entire, stem quite simple.
5. *Cineraria fonchifolia*.
Lin. spec. 1243. *Reich.* 3. 819.
Jacobæa. *Breyn. prodr.* 3. 31. t. 21. f. 1.
Leaves stem-clasping sinuate difform.
6. *Cineraria cordifolia*. *Heart-leaved Cineraria*.
Lin. syft. 764. *suppl.* 375. *Jacqu. austr.* 2. 47. t. 176. *Gouan. illustr.* 69.
C. alpina α. *Lin. spec.* 1243.
 β. *C. cordifolia auriculata*. *Jacqu. austr.* 2. t. 177. *Clus. hist.* 2. 23. f. 1.
Senecio alpinus. *Lin. suppl.* 371. *Hall. belv. n.* 63.
Panicle few-flowered, stem-leaves petioled cordate sharply serrate smooth, stem angular.
7. *Cineraria crispa*.
Lin. syft. 764. *suppl.* 376. *Jacqu. austr.* 2. 48. t. 178.
Flowers paniced, stem-leaves spatulate-oblong serrate obtuse clasping, dilated and toothed at the base.
8. *Cineraria integrifolia*. *Mountain Cineraria or Flea-wort*.
Lin. syft. 764. *Engl. bot.* 152. *Wilber. arr.* 920.
C. alpina. *Huds. angl.* 370. *Relb. cant. n.* 622. fig. *Lin. spec.* 1243. γ.
C. integr. pratensis. *Jacqu. austr.* 2. 48. t. 180.
Senecio. *Hall. belv. n.* 68.
Jacobæa montana non laciniata. *Raii hist.* 272. n. 4. *syn.* 178. n. 4. *Petiv. brit. t.* 17. f. 4. (Cambridge Ragwort.)
Leaves oblong, obscurely toothed (or almost entire) shaggy; flowers in a simple involucred umbel, (sometimes single.)
9. *Cineraria longifolia*.
Lin. syft. 765. *Jacqu. austr.* 2. t. 181. & t. 179.
Leaves obscurely toothletted, all oblong.
10. *Cineraria palustris*. *Marsh Cineraria*.
Lin. spec. 1243. *Reich.* 3. 820. *Gertn. fruct.* 2. 446. *Fl. dan.* t. 573. *Huds. angl.* 369. *With.* 919. *Engl. bot. t.* 151.
Othonna palustris. *Lin. suec. n.* 778.
Solidago. *Lin. hort. cliff.* 410. 10. *Gmel. fib.* 2. 158. t. 72.
Conyza. *Baub. pin.* 266. *Ger. emac.* 483. f. 5. *Park.* 126. 3. *Pet. brit. t.* 16. f. 6. *Raii syn.* 174. 3. *hist.* 264. 12.
Jacobæa. *Mor. hist.* 3. 110. f. 7. t. 19. f. 24.
Flowers corymbed, leaves broad-lanceolate tooth-sinuated, stem villose.
11. *Cineraria aurea*.
Lin. spec. 1244. *Reich.* 3. 822.
Flowers corymbed, leaves lanceolate serrate tomentose underneath.]
12. *Cineraria maritima*. *Sea Cineraria*.
Lin. spec. 1244. *Reich.* 3. 822. *Villars dauph.* 3. 225.
Othonna. *Lin. hort. upf.* 273. 2.
Solidago. *Lin. hort. cliff.* 140. 11.
Jacobæa maritima. *Baub. pin.* 131. *Ger.* 218. f. 2. *emac.* 280. f. 4. *Park.* 669. f. 7. *Raii hist.* 286. 6.
Cineraria. *Dod. pempt.* 642. not the figure.
 β. *C. tomentosa*. *Mill. dict. n.* 5.
Flowers paniced; leaves pinnatifid tomentose, divisions sinuated; stem shrubby.
- [13. *Cineraria canadensis*.
Lin. spec. 1244. *Reich.* 3. 822.
Jacobæa maritima f. *C. latifolia*. *Baub. pin.* 131. *prodr.* 69. f. 1.
Flowers paniced; leaves pinnatifid subvillose, divisions sinuated; stem herbaceous.
14. *Cineraria capillacea*.
Lin. syft. 765. *suppl.* 375.
Leaves pinnate, pinnae capillaceous entire.
15. *Cineraria linifolia*.
Lin. spec. 1244. *Reich.* 3. 822. *amæn.* 6. *afr. n.* 82. p. 106.
Peduncles one-flowered, leaves scattered, stem shrubby.
16. *Cineraria purpurata*.
Lin. syft. 765. *Reich.* 3. 822. *mant.* 285.
Stem subbiflorous, leaves obovate subtomentose.]
17. *Cineraria Ameloides*. *Blue-flowered Cineraria, or Cape Aster*.
Lin. spec. 1245. *syft.* 765. *Reich.* 3. 823. *Berg. cap.* 290. *Gertn. fruct.* 2. 446. *Curt. magaz.* t. 249.
Aster. *Mill. fig.* t. 76. f. 2. *Raii suppl.* 158. n. 19.
Peduncles one-flowered, leaves opposite ovate naked, stem undershrubby.
- [18. *Cineraria americana*.
Lin. syft. 765. *suppl.* 373.
Shrubby; panicles axillary, leaves alternate petioled broad-lanceolate serrate, smooth above and hoary underneath.
19. *Cineraria alata*.
Lin. syft. 765. *suppl.* 374.
Stem herbaceous; leaves obovate decurrent, flowers corymbed.
20. *Cineraria elongata*.
Lin. syft. 765. *suppl.* 374.
Leaves subcordate gnawn, peduncles very long subulate-scaly.
21. *Cineraria Cacalioides*.
Lin. syft. 765. *suppl.* 374.
Leaves columnar oblong fleshy, panicle terminal elongated few-flowered, peduncles alternate.
22. *Cineraria denticulata*.
Lin. syft. 765. *suppl.* 375.
Leaves lanceolate smooth toothletted, flowers paniced.
23. *Cineraria perfoliata*.
Lin. syft. 765. *suppl.* 375.
Leaves ovate cordate stem-clasping, peduncles one-flowered elongated.
24. *Cineraria lineata*.
Lin. syft. 765. *suppl.* 375.
Leaves lanceolate, tomentose underneath, serrated at the end, toothed at the base.
25. *Cineraria hastifolia*.
Lin. syft. 765. *suppl.* 376.
Leaves hastate, divisions lateral bifid divaricated.
26. *Cineraria japonica*.
Lin. syft. 766. *Thunb. jap.* 317.
Leaves sword-shaped toothed tomentose, flowers terminal.
27. *Cineraria rotundifolia*.
Forst. florul. austr. n. 294.
Brachyglottis rotundif. *Forst. char. gen.* 46. n. 2.
Panicles few-flowered, leaves petioled ovate-roundish quite entire tomentose underneath, stem arboreous.
28. *Cineraria repanda*.
Forst. fl. austr. n. 295.
Br. repanda. *F. char. gen.* 46. n. 1.
Panicles compound racemed diffused, leaves petioled ovate repand-sinuate, tomentose underneath, stem arboreous.
29. *Cineraria lanata*. *Woolly Cineraria*.
Curt. mag. t. 53. *L'Herit. fert. angl. n.* 5. t. 30.
Peduncles one-flowered; leaves cordate-roundish seven-angled lanuginous underneath.
30. *Cineraria humifusa*. *Trailing Cineraria*.
L'Herit. fert. angl. n. 1.
Aster fl. luteo, fol. cymbalariae. *Raii hist.* 3. 158.— & *afric. min. monanthes luteus*, &c. 161.
Peduncles one-flowered, leaves kidney-form somewhat angular, petioles eared or naked at the end.
31. *Cineraria viscosa*. *Clammy Cineraria*.
L'Herit. fert. angl. n. 2.
Peduncles one-flowered, leaves pinnatifid-lobed acute viscid somewhat fleshy.
32. *Cineraria populifolia*. *Poplar-leaved Cineraria*.
L'Herit. fert. angl. n. 6.
Cacalia appendiculata. *Lin. suppl.* 352.
Flowers corymbed; leaves cordate somewhat angular tomentose underneath; petioles having several pairs of appendices at the end.
33. *Cineraria*

33. *Cineraria aurita*. Purple-flowered *Cineraria*.
L'Herit. fert. angl. n. 7. t. 31.
Flowers corymbed; leaves cordate somewhat angular
tomentose underneath; petioles two-eared at the
base.
34. *Cineraria malvæfolia*. Mallow-leaved *Cineraria*.
L'Herit. fert. angl. n. 9. t. 32.
Flowers cymed; leaves cordate angular somewhat to-
mentose underneath; petioles simple.
35. *Cineraria cruenta*. Purple-leaved *Cineraria*.
L'Herit. fert. angl. n. 11. t. 33.
Flowers cymed; leaves cordate angular purple under-
neath; petioles eared at the base.
36. *Cineraria lobata*. Lobed *Cineraria*.
L'Herit. fert. angl. n. 13. t. 34.
Flowers subcorymbed; leaves roundish many-lobed
smooth; petioles eared at the base; calyxes sub-
calyced.
37. *Cineraria repanda*.
Lour. cochinch. 501.
Panicked diffused, leaves ovate-lanceolate serrate-re-
pand smooth.
38. *Cineraria minuta*.
Cavan. hisp. 21. n. 33. t. 33. f. 3.
Leaves pinnatifid, stem one-flowered capillary.
39. *Cineraria glabra*.
Swartz prodr. 113.
Flowers corymbed, calyxes cylindric, leaves oblong
acute somewhat toothletted nerveless smooth on both
sides and a little succulent, stem shrubby.
40. *Cineraria discolor*.
Swartz prodr. 114.
Flowers corymbed, leaves oblong-lanceolate acuminate
somewhat toothletted smooth, beneath white-tomen-
tose, stem shrubby.
41. *Cineraria japonica*.
Thunb. jap. 317.
Leaves ensiform toothed tomentose, flowers terminating.

DESCRIPTIONS, &c.

The leaves are commonly entire, but sometimes pinnatifid. Most of the species are tomentose. Some have two or three scalelets at the base of the calyx, as in *Senecio*. *C. Amelloides* recedes somewhat from the genus^a.

In general *Cineraria* is *Cacalia* furnished with a ray. The difference between this and *Jacobaea*, which border very much on each other, consists (according to Gærtner) not so much in the mortified scales of the calyx, as in the one having entire, the other pinnatifid leaves: hence he removes *C. maritima*, *canadensis*, and *capillacea*, into the genus *Jacobaea*.]

1. *Kidney-leaved Cineraria* has weak stalks trailing on the ground; but if supported rising four feet high. [They are herbaceous, round, striated, and have white hairs scattered over them. Leaves alternate, smoothish above, subhirsute beneath, especially the more tender ones, two inches long. Petioles roundish, hirsute, longer than the leaves. Stipules rounded, large, toothed. Corymb terminating, almost simple, naked, pubescent. Bractes linear-subulate. Common calyx roundish, truncate; scales very many, linear, acute, with scattered hairs on the outside, but very smooth within, upright, parallel, contiguous, with thin membranaceous edges, and a few small subulate scales at the base. Corolla yellow] in shape like that of common Ragwort. [Florets of the ray obtuse, emarginate, nerved, spreading. Germ obovate, compressed, rugged on the edge: style subulate. Pappus simple or very finely subplumose, sessile, the length of the corolla^b.

Native of the Cape of Good Hope. Cultivated in 1759, by Mr. Miller here^c: but in the Amsterdam garden in 1697, from seeds sent from Africa^d.

2. Root a solid bulb. Stem herbaceous, simple, even. Lower leaves having the petioles stem-clasping at the base, lyrate; upper stem-leaves sessile, clasping, cordate-lanceolate, scarcely toothed. Flowers peduncled, terminating, many. Ray of the

corolla purple. There is a variety with simple trifid leaves, and the lobes trifid.—Native of the Cape of Good Hope^e.

3. Root perennial. Stem undivided, the height of a man. Stem-leaves with petioles dilated at the base and clasping. At the base of the calyx are two oblong bractes, the length of the calyx and withering^f.

Native of Siberia, the Levant, and perhaps the Pyrenees. Introduced in 1784, by Mr. John Bell^g.

4. The leaves are of a glaucous hue, like those of *Crambe maritima*, and are rather fleshy; the petioles are edged in a spatulate form. The stem is yet higher than that of the foregoing sort, and the ray of the flower more copious. It is perennial, and a native of Siberia^h.

5. The lower leaves are sinuate, the upper simple and quite entire. Flowers large and purple. Native of the Cape of Good Hope.

6. Root perennial fibrose brown. Stem from one to two feet high, straight, obscurely angular, a little striated at top, fistulose, simple, almost smooth and green. Peduncles striated, slightly villose, varying in number, terminate the stem in a sort of umbel, supported by narrow lanceolate sessile leaves, and a few of them furnished with linear scales, especially at the base of the calyx, which consists of about twenty, sublinear, acute, concave, erect, equal, smooth scales. Corollas yellow: florets of the ray about twenty, sublinear, with two or three teeth at the end. Pappus, when viewed with a magnifier, toothletted.

But the difference between this, and n. 7, 8, 9, consists principally in the leaves; which are broad-cordate, serrate-crenate, veined, shining, more or less villose on the back, petioled: the petioles of the root-leaves and lower stem-leaves are long, keeled, naked and not in the least winged; the following stem-leaves are winged; the upper ones run into the petiole, and lose their cordate formⁱ.

Gouan remarks, that although this varies, yet it is sufficiently different from the other varieties of Linneus's *C. alpina*, in having all the leaves petioled cordate and doubly toothed, and commonly two stipules at the base of the petiole; the peduncles branched and many-flowered, with ligulate leaflets on them; the pedicels long and one-flowered^k.

The younger Linneus says, that it differs sufficiently from the third sort, in its panicked flowers not branching, in its petioled stem-leaves, and in its spreading calyx^l.

β. In the variety, as Murray observes, the petioles of the upper leaves are appendicled at the base, not in the middle; so that it does not seem to be the same with *Senecio alpinus* of the Supplement^m. This observation however does not seem to be well founded.

Native of Austria and Switzerland. Introduced in 1775, by Doctors Pitcairn and Fothergillⁿ.

7. This is two feet high. The peduncle and calyx are more villose than in the foregoing. Root-leaves cordate, decurrent along the whole of the petiole, and laciniate-gashed. Upper stem-leaves oblong, acute, sharply and unequally gath-serrate, sessile; all curled and waved about the edge.—Native of Austria^o.

8. According to Linneus, this plant is extremely variable. Jacquin has examined all the supposed varieties in their native places of growth, and has figured them from t. 176 to t. 181. of his Austrian Flora—t. 176. is *C. cordifolia*, n. 6.—t. 177. is var. β. of the same—t. 178. is *C. crispa*, n. 7.—t. 179. is probably the same with *longifolia*—t. 180. is our plant, only taller—t. 181. is *C. longifolia*, n. 9. according to Murray, in his edition of Lin. syst.—De La Chenal (act. helv. 8. p. 137.) is of opinion that Jacquin's plants may be comprehended under two species; 1. with leaves cordate-oblong,

^a Linn. amoen.^f Linn. mant.^g Hort. kew.^b Linn. spec. and syst.ⁱ Jacquin.^k Illustr.^l Suppl.^m Murr. in syst.ⁿ Hort. kew.^o Jacquin.^a Jusseau.^b Bergius.^c Hort. kew.^d Commelin.

and naked petioles : 2. with the lower leaves ovate-oblong, on petioles not naked but membranaceous ; the upper lanceolate elliptic or only ligulate, stem-clasping. The first containing t. 176 and 177. of Jacquin, and the Senecio of Haller helv. n. 63.—The second, t. 179, 180, 181 of Jacquin, and the Seneciones of Haller, n. 67 and 68. *C. alpina* α. Lin. spec. is *Senecio alpinus*, suppl. and n. 63. of Haller.

The several varieties are found on the Alps and Pyrenees, in Switzerland, Austria, about Montpelier, in Siberia, &c.

The plant which grows in high pastures or open chalky downs in some parts of England, as on Gogmagog-hills, Bartlow-hills, and Newmarket-heath, and near Basingstoke and Andover, has the radical leaves numerous, spreading on the ground, ovate, obovate or spatulate, obscurely toothed but always so more or less, and turned back on the edge, generally lengthened out at the base, and clothed with loose shaggy wool. Stem three to six inches high (sometimes eight, nine, or twelve) upright, simple, woolly, angular, or furrowed. Stem-leaves lanceolate, woolly, half-stem-clasping, subappressed, very entire, alternate. Flowers one to four, seldom more, yellow. Bractes (forming a sort of involucre) ligulate, tomentose, one at the base of each peduncle. Peduncles unequal. Florets of the ray ten to fifteen, nearly oval with a three-toothed top—of the disk numerous, prominent. Calyx furrowed with scariose edges. Seeds hirsute^p.—Perennial ; flowering in may and june.

9. All the leaves of this are oblong ; the root-leaves are attenuated into the petiole, and very slightly toothed. It differs very little from *C. integrifolia alpina* figured by Jacquin in t. 179. except that in the latter the leaves are much more toothed. Native of Austria^q.

10. Leaves thick, tomentose and almost clammy, covering the stem quite up to the flowers ; the lower cut, and scarcely semipinnatifid. Root perennial, large, fibrose, running deep in muddy ditches. Stem one to three feet high, stout, hollow, with a thick clammy long wool : with a few smaller ones, all erect, unbranched, angular and striated. Leaves varying extremely in form and manner of growth, with the same wool as the stem, sessile or half-stem-clasping, waved, sinuated, and sometimes barely toothed ; those immediately beneath the spike of flowers entire. All the hairs pellucid, and finely jointed like a *Conserva*. Peduncles branching. Bractes subulate, one on each peduncle. Calyx, scales nearly equal, lanceolate, woolly, membranaceous at the edge. Corolla pale yellow : florets of the ray oval, veined, with two or three teeth at the end, or entire ; four lines long, with a short narrow tube : of the disk somewhat shorter. Seeds small : pappus as long as the tube of the corolla, with few rays^r ; or, according to Gærtner, capillary, white, soft, scarcely toothed, four times as long as the seed. He describes the seeds as columnar, deeply marked with sharp grooves, alternately deeper. Receptacle slightly convex, with distant pits on it, the interstices fungose, dotted and naked.

Marshes in many parts of Europe : with us in Lincolnshire, about Marsh and Chatterers in the isle of Ely, near Norwich, Yarmouth, and Hadiscoe in Norfolk, about Pillin-moss in Lancashire, and Aberavon in Merionethshire.

β. A variety, with leaves not jagged is mentioned by Ray to have been found by him in Norfolk Hist. 263. n. 10. He looks upon it to be *Conyza belenitis mellita incana* Lob. ic. 1. 347. 1. which figure is reprinted in Ger. emac. 484. 8. and copied in Park. 126. 4. Mor. hist. f. 7. t. 19. f. 23. and Petiv. t. 16. f. 5. It is probably *C. alpina* δ. Helenitis. Lin. spec. 1244^s.

γ. A variety observed by Mr. Woodward near Ramsey in Huntingdonshire. Less woolly than α.

Stem slender, about eighteen inches high. Leaves ligulate-lanceolate, toothed ; the lower about four inches long, the upper two and a half to one and a half, and not more than one-fourth wide ; not so numerous as in α. Flowers smaller ; but the fructification perfectly similar^t.

11. Stature of *Senecio paludosus*, but the flowers twice as large, yellow, with a large ray. Pedicels with some linear bractes. Leaves equally and distinctly ferrate, tomentose underneath, obscurely villose above. Stem villose^u.

Siberia. Perennial.]

12. Stems many, woody, two or three feet high, divided in many branches, which have a white downy bark. Leaves very woolly, six or eight inches long, deeply sinuated, and jagged on their borders. The stems which support the flowers are a foot or more in length, having two or three small leaves on each, shaped like those below, and terminated by many yellow flowers growing in panicles, (or rather corymbs) shaped like those of common Ragwort ; these appear from june to august, and the seeds ripen the beginning of october.

[Gerard and Parkinson speak of this plant as a native of Britain. Johnson (Ger. emac.) corrected the error, and informs us that it then grew in the garden of Mr. Ralph Tugby. Ray says it is very common every where on the coast of the Mediterranean, but that you will look for it in vain in England or any of the northern countries of Europe. Yet Mr. Miller affirms that it grows naturally on the coasts of England and Wales.]

β. The stems of this variety are more woody, rise higher, and do not branch so much : the leaves are broader, not so much sinuated, and of a very dark green on their upper side : the flowers are produced in smaller bunches, and rarely produce seeds in England ; nor are the plants so hardy.

It is a native of the sea coasts of Dauphiné, Italy, and Sicily.

[13. The daughter of the foregoing ; the leaves however not tomentose, but only subvillose, especially underneath. The ray of the corolla spreading, but not revolute. Stem annual, not perennial. Scales of the calyx a little mortified at the end, which is not the case in that. Found in Canada, by Kalm^x.

14. This bears great resemblance to *Othonna Tagetes*, but the leaves are deeply divided and more slender. Observed at the Cape by Thunberg^y.

15. This differs from *Senecio linifolius*, in having the flowers solitary. Stem compound, rough. Leaves very much crowded, linear, very narrow. Peduncles filiform, longer than the leaves. Flowers small, yellow. Native of the Cape^z.

16. Stem simple, herbaceous, a foot high, tomentose, furrowed at bottom, ending at top in two very long petioles. Leaves alternate, at bottom crowded, petioled, having a few serratures and the edge bent down, obtuse, pubescent above, tomentose underneath, the size of *Chrysanth. Leucanthemum*. Peduncles terminal, two, the length of the stem, filiform, tomentose, erect, one-flowered. Flowers the size of *Amellus*, with a purple ray. Calyx, leaflets lanceolate, subequal, few, short, pubescent. Pappus plumose^a. Native of the Cape of Good Hope.

17. It is very nearly allied to *Amellus Lychnitis*, but the receptacle of this has no chaffs. Many of the floscules are abortive, but without any order, both in the disk and in the ray. The latter is blue. the leaves are petioled, ovate-oblong, green and not ash-coloured^b. Calyx hemispherical, with linear leaflets spreading out horizontally when ripe. Receptacle moderately convex, alveolate, somewhat rugged. Seeds elliptic, compressed, pale, surrounded with a gently swelling whitish rim. Pappus capillary, very minutely toothletted, white, twice as long as the seed^c. Stem purplish, rough, dividing into

^p Relh. Woodw. Mff. Engl. bot.
^r Woodw. Mff. and Engl. bot.

^q Jacquin.
^s Withering.

^t Woodw. Mff.

^y Linn. suppl.

^u Linn. spec.

^z Linn. spec. & amoen.

^b Linn.

^x Ibid.

^a Linn. mant.

^c Gærtner.

many branches near the root, so as to form a low bushy plant, seldom rising more than two feet high; but the branches extending more than a foot on every side. Leaves about an inch long, and a third part of an inch broad, thick, succulent, rough, sessile, generally two, but sometimes three at a joint, or even four, two being larger and two smaller. Towards the upper part of the branches arise the peduncles, from four to six inches long, naked, each supporting one flower, the ray of which is of a fine sky blue, and after it has been some time expanded, turns back towards the calyx. The whole plant is a little acrid to the taste. It is never without flowers the whole year^d.

The seeds were sent to Mr. Miller from the Cape in the year 1753, and vegetated the following spring in the Chelsea garden.

18. The whole plant is clothed with an epidermis of very fine wool, which may easily be rubbed off like a thin membrane; the branches, petioles, peduncles, and lower surface of the leaves are white with it. *Stems* woody. *Leaves* veined, the consistence of evergreens. *Pedicels* of the flowers scaly with bractes, seldom two-flowered. *Calyx* equal, and appearing as if it were one-leaved; it has a few irregular scales at the base.—Observed in South America, by Mutis.

19. *Stem* erect, sparingly branched, angular, even, two feet high; with a branch next the flowers farther progressive. *Leaves* quite entire, even, obovate, decurrent to the next, an inch in length. *Peduncles* on the top of the stem, leafless. *Calyx* six-parted, ovate, even. *Florets* about sixteen, some of the marginal ones naked and female. It forms the link between the *Cacalias* and the *Orthonnas*.

20. *Stem* erect, branched, a foot and half high, reddish, at the ramifications tomentose. *Leaves* petioled, distant, somewhat cut, unequally crenate, naked, bluntish, an inch in length. *Petioles* the length of the leaves, somewhat decurrent at the base. *Peduncles* terminal, one-flowered. *Calyx* entirely simple, divided into twelve or fourteen lanceolate leaves, the length of the flower. *Corolla* yellow, without any ray.

21. This very much resembles the *Cacalias* in the fleshiness of the herb.

22. Almost all the leaves are radical, and long; it has scarce any stem-leaves, except some small ones at the ramifications.

23. The whole plant is somewhat fleshy and glaucous.

24. *Stem* herbaceous, a foot high and more, erect, striated, hoary. *Leaves* alternate, subsessile, marked with lines, three-nerved underneath. *Panicle* decomposed, stiff, many times longer than the leaves, hoary, subfastigate. *Calyxes* small. *Ray* of the corolla yellow. *Pappus* twice as long as the calyx.

25. *Stem* erect, more than a span high. *Leaves* alternate, petioled, three-parted; the middle part lanceolate, with a toothlet sometimes on each side in the middle: petioles filiform, broader at the base. *Peduncle* elongated, with subulate scales. *Calyx* with about ten leaves. *Flower* yellow.—The seven last are natives of the Cape, and were detected by Thunberg, except this which we owe to Sparrmann^e.

26. *Stem* round, simple, erect, tomentose, a span high. *Leaves* alternate, acute, attenuated to both ends, erect; the lower a hand in length, the upper gradually shorter. *Flowers* solitary or tern, yellow. *Calyx* tomentose-woolly^f.

27, 28. Natives of New Zealand^g.

29. In the beauty of its blossoms, this species of *Cineraria*, lately introduced from Africa, by far eclipses all the others cultivated in our gardens; its petals exteriorly are of a most vivid purple, interiorly they are white. It flowers early in the spring;

^d Miller's figures.

^e Linn. suppl.

^f Thunb. jap.

^g Forster.

and, by proper management, may be made to flower the whole year through^h.

Found in the Canary islands by Masson, and introduced 1780ⁱ.

30. This is allied to *C. cymbalarifolia*, but the flowers are yellow, and both they and the calyxes are villose and somewhat rugged; whereas in that the flowers are purple, and both they and the calyxes smooth^k.

31. Perhaps this may be nothing more than a variety of the foregoing^l.

They are both natives of the Cape of Good Hope, were found there by Masson, and were introduced in 1774^m.

32. This is a shrub with an angular tomentose hoary stem. Leaves higher on long petioles (resembling those of white Poplar), not much emarginate at the petiole, nerved, veined, green and very smooth on the upper surface, but white on the under. Immediately below the leaf on the petiole are leaflets appendicled, or opposite in three pairs, very small petioled ovate quite entire, gradually smaller as they approach the leaf. Panicles terminating. Pedicels bracted. Flowers yellowⁿ. Found in the Canary islands by Masson. Introduced in 1780^o.

33. Flowers purple. Leaves resembling those of the Poplar; and varying with larger and smaller earlets^p.

Native of Madeira; found there by Masson, and introduced in 1777^q.

34. Native of the Canary islands, and S. Miguel one of the Azores. Found there by Masson, and introduced in 1777^r.

35. Native of the Canary islands. Introduced in 1777, by Masson^s.

36. This has the herb of a *Cineraria*, but having a bracte or two under the calyx, like a calycle, it can scarcely be distinguished from a *Senecio*^t.

Found at the Cape of Good Hope by Masson; and introduced in 1774^u.

37. *Stem* suffruticose, erect, round, smooth, four feet high, branched. *Leaves* alternate. *Flowers* yellow, terminating. *Calyx* simple, oblong, equal. *Corollets* of the ray about eight, bifid. It is allied to *C. palustris* and *aurea*, from which however it differs in having the stem and leaves smooth, and the panicle diffused.

Native of China, near Canton^x.

38. *Root* annual. *Stems* often two, capillary, two inches high, at first woolly but afterwards almost smooth, one-flowered. *Leaves* alternate, sessile, violet-coloured underneath. *Flowers* terminating, solitary. *Leaflets* of the calyx ten, villose, slightly keeled, converging, red at the tip, when fruiting thickened at bottom. *Corolla* yellow: *corollets* in the ray ten, trifid at the end. *Seeds* ovate-oblong, very small, with a sessile, plumose pappus. Native of Spain near Aranjuez; flowering in may^y.

39, 40. Native of Jamaica^z.

41. *Stem* round, simple, erect, tomentose, a short span in height. *Leaves* alternate, acute, attenuated to both ends, erect, the lower ones a hand in length, the higher ones gradually shorter. *Flowers* solitary, or else three together, yellow. *Calyx* tomentose-woolly. Native of Japan^a.]

PROPAGATION AND CULTURE.

All the sorts may be increased by cuttings, planted in a shady border during the summer months, and duly watered. These will put out roots in a month or five weeks, soon after which it will be proper to transplant them into pots, because their roots are very apt to spread in the full ground. As most of these plants grow naturally at the Cape of Good Hope, they are too tender to live through the winters in England, in the open air, yet if they are nursed tenderly, they are apt to draw up weak:

^h Curtis.

ⁱ Hort. kew.

^k L'Heritier.

^l Ibid.

^m Hort. kew.

ⁿ Linn. suppl.

^o Hort. kew.

^p L'Heritier.

^q Hort. kew.

^r L'Herit. & hort. kew.

^s Hort. kew.

^t L'Heritier.

^u Hort. kew.

^v Thunberg.

^x Loureiro.

^y Cavanilles.

^z Swartz.

^a Thunberg.

the surest way therefore to preserve them, is to make young plants annually from cuttings, and to place them in a common hot-bed frame in winter, where they may enjoy the full air in mild weather, but be screened from the frost; and in summer to place them abroad with other hardier sorts of exotic plants.

12. The twelfth is hardier; and when the cuttings or slips are well rooted, they should be planted in a dry rubbishy soil, where they will resist the cold of our ordinary winters very well, and continue many years; but in rich moist ground, the plants are often so very luxuriant in summer, as to be killed in winter where there is much frost.

17. This, and some of the others, may also be propagated by seeds, sown on a bed of light earth the beginning of April; and when the plants are fit to remove, part of them should be planted in pots to be sheltered in winter under a hot-bed frame; and the remainder under a warm wall in poor ground; where, if the winter prove favourable, they will live.

[29. Is by some persons kept in the stove, and may be made to flower earlier by that means; but it succeeds better in a common greenhouse, with no more heat than is just necessary to keep out the frost: it may indeed be kept in a common hot-bed frame, unless the weather prove very severe. What renders this plant a more valuable acquisition to the greenhouse, is its hardiness, its readiness to flower, and the facility with which it may be propagated by cuttings.—As this plant, with many others which are obliged to be confined, is liable to be infested with *aphides*; or, in vulgar phrase, to become lousy: the best way to have handsome, healthy, strong-flowering plants, is to procure a constant succession by cuttings, which strike very readily, if placed in a pot, and plunged into a bed of tan^b.

CINERARIA abrotanifolia. See *Othonna abrotanifolia*.

CINERARIA Othonnites. See *Othonna frutescens*.

CINNA.

Lin. gen. n. 15. Reich. n. 15. Schreb. 20.

Class. 1. 2. Monandria Digynia.

Nat. order of Grasses.

GENERIC CHARACTER.

CAL. Glume one-flowered, two-valved, compressed, linear, keeled, acuminate; one valve shorter, mucronated.

COR. Glume bivalve, compressed, linear: outer valve within the smaller valve of the calyx, longer, with somewhat of an awn below the tip; inner slender, shorter.

STAM. Filament one, capillary. Anther oblong, forked at each end.

PIST. Germ turbinate. Styles two, capillary, very short. Stigmas longer, plumous.

PER. none. Glume involving.

SEED one, cylindric.

ESSENTIAL CHARACTER.

Cal. Glume two-valve, one-flowered. Cor. Glume two-valve. Seed one.

SPECIES.

1. Cinna arundinacea.

Lin. spec. 7. Reich. 12. Forsk. ægypt. 3.

Agrostis Cinna. Retz. obs. 5. 18. n. 36.

DESCRIPTION, &c.

A grass, the size of Oats. Root perennial. Culms many. Leaves broadish, smooth, many-nerved, rugged about the edge. Panicle glaucous, oblong, attenuated, somewhat compressed, composed of imbricate racemes. Keel of the calyx rough; one of the valves having an awn-like point. Anther purple. Styles hirsute^c.

Native of Canada; whence the seeds were sent by Kalm.

Since this Grass varies with one, two, and three stamens, it may very reasonably be associated with the *Agrostides*^d. Accordingly, it is now generally agreed to remove it into that genus: and Retz. assigns it the following specific character: panicle

^b Curtis.

^c Lin. spec.

^d Retz.

contracted awnless, flowers acuminate with one, two or three stamens, leaves plane rugged.

CINNAMOMUM and CINNAMON. See *Laurus*.

CINQUEFOIL. See *Potentilla*.

——, Bastard. See *Sibbaldia*.

——, Marsh. See *Comarum*.]

CIRCÆA. (*Circæa*, Plin. *Κίρκα*, Diosc. From the famous enchantress *Circe*.)

Lin. gen. n. 24. Reich. n. 25. Schreb. 31.

Gertn. t. 24. Juss. 319. Tournef. t. 155.

Raii meth. 93.

Class. 2. 1. Diandria Monogynia.

Nat. order of *Aggregatæ*. *Onagrea* Juss.

GENERIC CHARACTER.

CAL. Perianth two-leaved: leaflets ovate, concave, deflexed, deciduous.

COR. Petals two, obcordate, generally shorter than the calyx, spreading, equal.

STAM. Filaments two, capillary, erect, the length of the calyx. Anthers roundish.

PIST. Germ turbinate, inferior. Style filiform, the length of the stamens. Stigma obtuse, emarginate.

PER. Capsule turbinate-ovate, hispid, two-celled, two-valved, opening from the base towards the top.

SEEDS solitary, oblong, narrower at bottom.

OBS. The number two prevails in this genus remarkably.

ESSENTIAL CHARACTER.

Cor. two-petalled. Cal. two-leaved, superior. Seed one, two-celled.

SPECIES.

1. *Circæa lutetiana*. Common Enchanter's Nightshade.

Lin. spec. 12. syst. 58. Reich. 23. fl. suec. n. 6.

hort. cliff. 7. Huds. angl. 10. With. 23. Curt.

lond. 3. t. 3. Lightf. 80. Relb. cant. n. 21.

Hall. helv. n. 813. Scop. carn. n. 6. Pollich

pal. n. 5. Leers herborn. n. 24. Neck. gallob. 5.

Krock. filef. n. 8. Lob. ic. 266. Best. exst.

æstiv. 3. t. 7. f. 1. Ger. 280. emac. 351.

Park. 351. 1. Fl. dan. t. 210. Berg. phyt.

2. 155. Bauh. hist. 2. 977. 1. Raii hist. 401.

Stem erect; racemes many; leaves ovate.

2. *Circæa alpina*. Mountain Enchanter's Nightshade.

Lin. spec. 12. syst. 58. Reich. 23. fl. suec. n. 7.

lapp. n. 3. Huds. angl. 10. With. 24. Lightf.

80. Hall. helv. n. 814. Scop. carn. n. 7.

Krock. filef. n. 9. t. 1. Fl. dan. t. 256. Berg.

phyt. 2. t. 157.

C. minima. Col. ecphr. 2. 79. t. 80.

Stem prostrate; raceme single; leaves cordate.

DESCRIPTIONS, &c.

1. [Root perennial, creeping, toothed. The whole plant pubescent. Stems from twelve to eighteen inches in height and more, erect, round, villose, or smooth, seldom hairy; the joints swelled, and sometimes purplish, branching. Leaves opposite, petioled, subcordate, pointed, even, veined, paler underneath, about two inches long, and an inch broad: or ovate, subferrate, opaque; as *Linneus*—or elliptic, subvillose, entire; as *Scopoli*; or cordate-ovate, acuminate, as Dr. Stokes describes them; a little woolly, as Dr. Withering—slightly hairy on the margin, as *Lightfoot*; or smooth, as *Pollich* affirms; sometimes reddish, and toothed on the edge: or betwixt toothed and ferrate, the points being directed towards the end of the leaf, but the margin between the points hollowed out, according to Dr. Stokes; entire, waved or ferrated, and ciliated, according to Haller: Flowers in simple racemes on the tops of the branches, both terminating and lateral; frequently solitary: sometimes more than forty flowers in a raceme. Peduncles solitary, long, alternate; when fruit-bearing turned downwards. Calyx much thicker and coarser than the corolla; green, greenish red, or green with red points, or purple; when magnified, appearing to be beset with short, cylindrical hairs, ending in heads, just sensibly thicker than the body of the hair. Corolla small, whitish, reddish white, or flesh-coloured: petals the length of the calyx, and alternate with the leaflets of it. Filaments longer than the calyx. Anthers rather large, whitish; pollen three-cornered,

nered. Germ hispid and gray, ovate-compressed, at a small distance below the calyx: *style* thickest upwards, with a double green gland at its base: *stigma* of a bright red, or fine pink colour. *Capsule* set with white hairs, hooked at the end. *Seeds* two, one of which is frequently abortive^a. It may be presumed, from the disagreement of authors in their description of this plant, that it is subject to variation. It is not uncommon in shady lanes and orchards, under moist hedges and walls, and in woods, flowering in July and August.

The seeds stick by their little hooks to any thing that passes, and according to Boerhaave, this circumstance gave occasion to the name; the fruit laying hold on the cloaths of passengers, and drawing them to it, as Circe was fabled to do by her enchantments.

It is a weed frequently in gardens, and not very easily destroyed, the roots being creeping. Sheep, however, are said to eat it; and though it has not found its way into the dispensaries, yet it is esteemed very detestive, and is recommended by Chomel against the piles, used both outwardly in a cataplasm, and inwardly in an infusion^b.

2. Linneus doubts whether this be a distinct species from the first. Scopoli and most others have no doubt of their being specifically different; and Haller relates that it does not become like the foregoing, and that it is no variety. According to Scopoli, the specific difference does not consist in an ascending stem, a single raceme, or a coloured calyx, but in the form, smoothness, and toothed edge of the leaves. Grimm remarked several racemes on one plant.

Linneus remarks, that the *stem* is prostrate, scarcely a finger's length. *Leaves* cordate, toothed, shining. *Calyx* coloured, as is the corolla. And Mr. Woodward, that the *raceme* is generally one, but that sometimes there are two or three. *Leaves* of a yellower green: and the plant sometimes six inches high. It differs from the foregoing, according to Haller and Krockner, in having a decumbent stem, more tender and smooth, less, and scarcely ever more than a span in height; leaves glossy, more deeply cut, more evidently cordate, and notched at the petiole; the calyx redder; and the racemes simple. The whole plant seems to be smooth, smaller, and of a more delicate texture than the common species, seldom branching, the stem usually reclining towards the bottom. Linneus allows it only a single raceme, others give it two or three, and even five. Haller affirms that it has even more than the common sort.

In rocky woods in Lapland, Sweden, Denmark, Switzerland, where I gathered it on mount Scheidegg in August, Carniola, Silesia, Piedmont, &c.—With us about Leeds and Hallifax in Yorkshire, in Lancashire, Westmoreland, Cumberland and Scotland. Mr. Miller found it growing wild in the wood near the Hague.]

PROPAGATION AND CULTURE.

These plants multiply exceedingly by their creeping roots, and are therefore seldom kept in gardens. If the roots be planted in any shady moist part of a garden, they will increase fast enough without any care.

[CIRSION. See *Carduus*.

CIRSIUM. See *Arctium*, *Carduus*, *Cnicus*.]

CISSAMPELOS. (Κισσαμπελος, *Diosc.* *Hedera Vitis*, *Vine of Ivy*. From Κισσός and ἄμπελος.)

Lin. gen. n. 1138. *Reich. n.* 1243. *Schreb.* 1555.

Juss. 285. *Brown.* 357. *Swartz obs.* t. 10.

f. 5. *Caapeba.* *Plum. gen.* t. 29.

Class. 22. 12. *Diocia Monadelphia.*

Nat. order of Sargentaceæ. Menispermata. *Juss.*

GENERIC CHARACTER.

* *Male.*

CAL. none, unless the corolla be called so.

COR. *Petals* four, ovate, flat, expanded.

^a Curtis, With. *Linn. Scop. Hall. Lightf. Pollich, Relh.*

^b Haller, Necker, Krockner.

Nectary the membranaceous disk of the flower, wheel-shaped.

STAM. *Filaments* four, very small, coalescent. *Anthers* broad, flat.

* *Female.*

CAL. none, except the bracte.

COR. none.

Nectary the membranaceous lateral edge of the germ, dilated outwards.

PIST. *Germ* roundish. *Styles* three. *Stigmas* three, erect, acute.

PER. *Berry* globular, one-celled.

SEED solitary, wrinkled, somewhat compressed.

ESSENTIAL CHARACTER.

MALE. *Cal.* four-leaved. *Cor.* none. *Nect.* wheel-shaped. *Stam.* four, with connate filaments.

FEM. *Cal.* one-leaved, ligulate-roundish. *Cor.* none. *Styles* three. *Berry* one-seeded.

SPECIES.

1. *Cissampelos Pareira.*

Lin. spec. 1473. *syll.* 895. *Reich.* 4. 281. *mat. med.* 218. *Swartz obs.* 380.

Clematis baccifera, &c. *Plum. amer.* t. 93. *Sloan. jam.* 1. 200.

Convolvulus brasiliensis, fl. octopet., monococcus. *Raii hist.* 1331.

Caapeba. *Marcgr. bras.* 25. *fig.* 26. 1. *Pif. bras.* 94. *Plum. gen.* 33.

β. *C. scandens.* *Brown. jam.* 357.

Caapeba fol. orbiculari umbilicato & tomentoso. *Plum. gen.* 33.

Leaves peltate, cordate, emarginate and entire.

2. *Cissampelos Caapeba.*

Lin. spec. 1473. *Reich.* 4. 281.

Caapeba fol. orb. non umbil. *Plum. gen.* 33. *ic.* 67. *f.* 2.

Leaves petioled at the base, entire.

3. *Cissampelos smilacina.* *Smilax-leaved Cissampelos.*

Lin. spec. 1473. *Reich.* 4. 282.

Smilax lenis, fol. anguloso hederaceo. *Catech. car.* 1. t. 51.

Leaves cordate, acute, angular.

4. *Cissampelos fruticosa.*

Lin. syst. 895. *suppl.* 432.

Stem erect, shrubby, leaves ovate, petioled, entire.

5. *Cissampelos capensis.*

Lin. syst. 895. *suppl.* 432.

Stem twining, leaves ovate, obtuse, petioled, entire.

DESCRIPTIONS, &c.

1. Stem climbing and twining from ten to fifteen feet in height, lax, round, striated, smooth or hirsute. Leaves subpeltate, cordate-roundish, tomentose: petioles round, reflex, of a middling length. Racemes compound, axillary, dioecous. Males subdivided, many-flowered; flowers numerous, heaped, dusky-yellow, minute. Calyx four-leaved: leaflets lanceolate, obtuse, concave, spreading, coloured. Corolla none. Nectary the disk of the flower, smaller than the calyx, entire, a little concave, coloured. Filament single, very short, in the middle of the nectary: anther roundish, capitate, the margin four-parted (but not four anthers), the incisures polliniferous. Female racemes more simple; with five or six crowded peduncles, which are one-flowered; flowers extremely minute, yellow. Bractes petioled, roundish, thick, one under each pedicel. Calyx one-leaved; the lacinia lateral, ovate, attenuated at the base, fastened to the germ at bottom. Corolla a single petal, within the lacinia of the calyx, and only half the size of it, lateral, ovate, obtuse, convex, attenuated at the base, deciduous. Germ obliquely fastened to the pedicel, roundish, hirsute. Style subulate, erect. Stigma trifid, spreading. The fruit is a roundish, compressed, scarlet drupe; containing a single nut, or very hard seed, compressed, triply echinate-wrinkled at the edge, two-celled. Cotyledons ovate.

In mountain coppices it is smooth, with cordate entire leaves, hoary underneath. In champaign calcareous situations it is hirsute, with cordate-roundish emarginate

emarginate leaves, which are tomentose. Native of the West-Indies^c.

Linneus suggests that it is perhaps the female of the following species: but Swartz asserts that it is not; that having the leaves petioled (not peltate) and entire.

The leaf applied whole or bruised to a wound, cures it very effectually^d. It is also a remedy against the bite of poisonous animals. The root is excellent in the stone^e. It is looked upon as an excellent diuretic, and is in frequent use among the negroes in all obstructions of the urinary passages. The root, which is the part chiefly used, has a pleasant bitterish taste, and answers well in decoctions^f.]

2. The second sort has round heart-shaped leaves, which are extremely woolly and soft to the touch; these have their foot-stalks placed at the base between the two ears; the flowers of this come out in bunches from the side of the stalks, in the same manner as the first. The stalks and every part of the plant is covered with a soft woolly down.

The seeds of both these plants were sent me from Jamaica, by the late Dr. Houstoun, which succeeded in the Chelsea garden, where the plants produced their flowers for several years; and the fruit of the first sort was produced, but would not grow, though it seemed to be perfectly ripened; but the plants growing at some distance from the male, were probably not impregnated.

[3. The stalks are slender, running up walls, and twining about posts and trees. The leaves resemble those of common Ivy. The berries are red, about the bigness of small peas, and grow in clusters^g. Linneus had not an opportunity of seeing the fructification complete. It is a native of Carolina.—Introduced about 1776, by John Hope, M. D.^h.

4, 5. Found at the Cape of Good Hope by Thunbergⁱ.]

PROPAGATION AND CULTURE.

These plants are propagated by seeds, which should be sown upon a hot-bed in the spring; and the plants must afterward be treated in the same way as other tender exotics, keeping them constantly in the bark-stove, otherwise they will not live in this country.

[The first thrives best in a rich shady soil, grows well both in the high and low lands of Jamaica, and may be very easily propagated there^k.

CISSAMPELOS. See *Mcniispermum*.]

CISSUS. (Κισσός, Diosc. From Κισσός, Ivy.)

Lin. gen. n. 147. Reich. n. 153. Schreb. 192. Juss. 267.

Class. 4. 1. Tetrandria monogynia.

Nat. order of *Hederaceæ*. Vites Juss.

GENERIC CHARACTER.

CAL. Involucre many-leaved, very small.

Perianth one-leaved, flat, short, obscurely four-cornered.

COR. Petals four, concave.—Nectary a rim surrounding the germ.

STAM. Filaments four, the length of the corolla, inserted into the nectary. Anthers roundish.

PIST. Germ roundish, obtusely four-cornered, retuse. Style filiform, the length of the stamens. Stigma simple, acute.

PER. Berry round, shining, umbilicate.

SEED a roundish stone.

OBS. This genus has a great affinity with *Hedera*; the fruit is a berry, and it has one-fifth less in the parts of the flower; also with *Vitis*.

ESSENTIAL CHARACTER.

Berry one-seeded, surrounded by the calyx and four-parted corolla.

SPECIES.

[1. *Cissus vitiginea*. Vine-leaved *Cissus*.

Lin. spec. 170. Juss. 158. Reich. 328. fl. zeyl. n. 60. aman. 1. 390. Vahl symb. 3. 18. Lour.

^c Swartz.

^d Sloane.

^e Marcgraaf.

^f Browne.

^g Carelby.

^h Hort. kew.

ⁱ Linn. suppl.

^k Browne.

cochinb. 83? Pluk. mant. 1. 337. f. 2. Raii dendr. 37.

Leaves cordate, with about five lobes, tomentose.

2. *Cissus repanda*.

Vahl symb. 3. 18.

Leaves cordate, entire or sublobed repand smooth on both sides.

3. *Cissus latifolia*.

Vahl symb. 3. 18. Lamarck encycl.

Schunambu-valli. Rheed. mal. 7. 21. t. 11.

Funis crepitans major. Rumph. amb. 5. 446. t. 164. f. 1.

Leaves cordate-ovate villose acuminate setaceous-ferrate, branches four-cornered.]

4. *Cissus cordifolia*.

Lin. spec. 170. Reich. 1. 328.

Vitis. Plum. spec. 18. ic. 259. f. 3.

Leaves cordate quite entire.

[5. *Cissus rotundifolia*.

Vahl symb. 3. 19.

Sælanthus rotundifolius. Forsk. ægypt. 35. t. 4.

Leaves cordate-roundish ferrate.]

6. *Cissus Sicyoides*.

Lin. spec. 170. Juss. 158. Reich. 1. 329. Jacqu. amer. 22. t. 15. piët. 16. t. 20. Swartz

obs. 48.

Irisiola. Brown. jam. 147. n. 2. t. 4. f. 1, 2.

Bryonia. Sloan. jam. 1. 233. t. 144. f. 1. Raii suppl. 347.

Leaves subcordate naked, bristly-ferrate, branchlets round.

[7. *Cissus quadrangularis*.

Lin. Juss. 158. Reich. 329. mant. 39. Lour. cochinch. 84. Pluk. phyt. 1. 310. f. 6.

Funis quadrang. Rumph. amb. 5. 83. t. 44. f. 2.

Sælanthus quadrangulus. Forsk. arab. 33. n. 11. (sec. Loureiro.)

Leaves cordate fleshy ferrate-toothed, stem four-cornered, somewhat swelling.]

8. *Cissus acida*. Three-leaved *Cissus*.

Lin. spec. 170. Reich. 329. Jacqu. amer. piët. 17. Swartz obs. 49.

C. trifoliatus. Jacqu. amer. 23.

Sicyos trifoliata. Lin. spec. edit. 1. 1013.

Irisiola. Brown. jam. 147. n. 1.

Bryonia. Sloan. jam. 1. 233. t. 142. f. 6. Raii suppl. 347.

Bryonioides. Pluk. alm. t. 152. f. 2.

Vitis. Plum. spec. 18. ic. t. 259. f. 5.

Leaves ternate obovate smooth fleshy gashed.

9. *Cissus trifoliata*.

Lin. spec. 170. Reich. 330. Jacqu. amer. 23. t. 182. f. 10. ed. 2. p. 17. t. 259. f. 8. as to

the leaf. Swartz obs. 50. Lour. cochinch. 83.

Irisiola. Brown. jam. 147. n. 3.

Bryonia. Sloan. jam. 1. 233. t. 144. f. 2.

Leaves ternate roundish hirsute, with a few teeth, branches angular and membranaceous.

[10. *Cissus crenata*.

Vahl symb. 3. 19.

Folium Cauffonis. Rumph. amb. 5. 450. t. 166. f. 2.

Vitis trifolia. Lin. Juss. 244.

Leaves ternate, leaflets roundish crenate.

11. *Cissus carnosa*.

Vahl symb. 3. 19. Lamarck encycl.

Tsjori-valli. Rheed. mal. 7. 17. t. 9.

Funis crepitans trifolium. Rumph. amb. 5. t. 165.

Leaves ternate ovate obtuse ferrate smooth, branches and petioles round.

12. *Cissus obovata*.

Vahl symb. 3. 19.

Leaves ternate, leaflets obovate quite entire smooth.

13. *Cissus pedata*.

Vahl symb. 3. 20. Lamarck encycl.

Belutta-Tsjori-valli. Rheed. mal. 7. 19. t. 10.

Sambucus canadensis. Burm. ind. 75.

Leaves pedate, leaflets lanceolate ferrate tomentose underneath.

14. *Cissus heptaphylla*.

Retz. obs. 5. 22. t. 52.

Leaves in sevens ferrate hispid.

15. *Cissus*

15. *Cissus umbellata*.*Lour. cochinch.* 84.*Leaves ovate quite entire, flowers umbelled.*

DESCRIPTIONS, &c.

1. Linneus observes, that this species of *Cissus* has the appearance of a Vine; but differs in the calyx, corolla, number of stamens, and in having a style^a. The stem is tomentose: the branches villose, hoary at top, and subquadrangular. Leaves alternate, two inches long, entire, sometimes slightly angular towards the tip, three-lobed or obscurely five-lobed (like those of Mallow), nerved and veined, more villose beneath, bluntly and unequally toothed, the middle lobe larger than the others; the younger ones tomentose on both sides: they are on unguicular petioles. Stipules small, ovate, membranaceous, deciduous. Umbels peduncled, opposite to the leaves, three-rayed, compound or proliforous: peduncles the length of the leaves. Flowers hoary, most of them deciduous: fruitful pedicels commonly in pairs and divaricating. Berries pear-shaped, the size of peas, of a bluish glaucous colour^b. Native of the East-Indies. Introduced here about the year 1772^c.

2. The branches of this are round, flexuose, jointed, tomentose, but becoming smooth by age. Leaves petioled, from two to three inches in length, and still more in breadth, of a more firm texture than in the other species, nerved and veined, those which are more advanced smooth on both sides, but the younger ones villose; the notches finish in a minute dagger-point: they are very blunt, but sometimes have a short blunt point at the end. Stipules oval, membranaceous, acute, opposite, semi-unguicular, deciduous. Peduncles opposite to the leaves: rays of the umbel three, dichotomously branched. The last pedicels umbelled. Scales villose, very short at the base of the pedicels. Berries pear-shaped, the size of peas, mucronate with the permanent style.

Native of the East-Indies^d.

3. Branches jointed; woody, as are also the petioles and peduncles, ferruginous-tomentose, especially at top, by age becoming smooth at bottom. Leaves petioled, alternate, two or three inches long, cordate, but the upper ones usually obliquely subtransverse without any sinus; those which are more adult smooth on the upper surface, but on the lower subtomentose with ferruginous villose hairs, as the younger ones are on both sides; they are both veined and nerved, the nerves are opposite: Petioles half an inch in length. Stipules oblong, lateral. Umbels compound, peduncled, shorter than the leaf, five-rayed: the partial ones about eight. There is no involucre, except the ferruginous villose hairs at the base of the pedicels. Berries pear-shaped, smooth.

Native of the East-Indies^e.

4. Branches simple, knotty. Leaves flat, orbiculate, acuminate, sinuose. Racemes extended, corymbed, subumbelled. Berries large, oblong. Tendrils large, bifid, retrograde^f.

Native of South-America.

5. Leaves smooth, setaceous-ferrate. Umbels racemed, opposite, many-flowered, about four on each common peduncle, and simple. Peduncles nearly the length of the leaves^g.

Native of Arabia.

6. Stem frutescent, herbaceous at top, scandent, subdivided, divaricating, rooting, round, blood-dotted, smooth. Leaves petioled, alternate, cordate, ovate, setaceous-ferrate with the ferratures distant and pressed close, nerved, smooth on both sides, somewhat succulent. Flowers heaped in form of an umbellule; the branchlets spreading from a centre, equal, dichotomous; the pedicels one-flowered. At the divisions of the peduncles are four small scales. Petals inserted within the rims of the calyx, broader at the base, ovate, reflex, deciduous,

yellow. Nectary a yellow four-parted rim, surrounding the germ. Filaments inserted between the divisions of the nectary, and deciduous. Anthers orange: Style subulate: Berry oblong, black.

Native of Jamaica, in waste places, by walls, and on rocks^h. Jacquin says, in all the Caribbee islands, and the neighbouring continent, differing in habit according to the situation in which it grows.

Cultivated here before 1768, by Mr. Miller.

The berries of this and some other sorts are sometimes eaten by the natives and negroes, but they are chiefly food for birds.

7. Stem very long, climbing, smooth and even: Leaves alternate, petioled, subhastate, smooth on both sides, sharply and remotely serrate. Petioles round. Tendrils opposite to the leaves. The root is tuberous.

Native of Arabia and the East-Indiesⁱ. Found also near Mozambique in Africa, by Loureiro.

8. Stem scandent, flexuose, round, tinged with purple, succulent, jointed. Branches short. Leaves petioled, alternate. Leaflets sessile, cuneate-obovate, gashed at the end, thick, nerveless, deep green. Tendrils at the joints of the stem, long, filiform, strict; others terminating, very long. Umbels five-cleft: umbellets five-flowered; the flowers pedicelled, and under the pedicels little bractes. Calyx surrounding the germ, pitcher-shaped, obtusely four-toothed. Corolla four-parted; the parts reflex and deciduous. Germ truncate. Berry black, surrounded by the calyx.

Native of Jamaica, in woods near the coast. The whole of it is acid^k.

Cultivated, as we learn, from Plukenet, in 1692, at the royal garden, Hampton Court.

9. Stem suffrutescent, scandent, having five or six angles, knotted, rooting, branched, green; the angles slightly winged: branches herbaceous, lax. Leaves on very long pentangular petioles: leaflets on short petioles, ovate, acute, the lateral ones oblique, serrate, nerved, smooth on both sides. Stipules at the base of the petioles, roundish. Flowers umbelled, blood-red. Common peduncle opposite to the petiole, short. Umbel four-cleft; involucre formed of the fading scales of the base. Peduncles partial, two-parted; with the terminating umbelules and pedicels coloured. Calyx or rim of the germ entire and four-cornered. Petals minute, red, deciduous. Nectary yellow. Filaments inserted into it, and subulate: anthers yellow. Germ depressed: style four-cornered: stigma yellow. Berry roundish, one-seeded.

Native of the West-Indies, climbing high above the branches of the trees, in the hedges, upon the mountains^l.

10. The branches petioles younger leaves and peduncles villose. Tendrils opposite to the leaves compound. Leaves petioled: leaflets also petioled, an inch long; the lateral ones a little smaller, and narrower on one side; the notches remote and mucronate. Stipules small, oblong, obtuse. Cymes dichotomous. Peduncles opposite to and longer than the leaf. Calyx minute four-toothed. Petals arched. Filaments shorter than the corolla. Native of the East-Indies^m.

11. The whole plant smooth. Branches striated, round. Leaves petioled: leaflets also petioled, fleshy; the lateral ones smaller, an inch long: common petiole the length of the leaves. Universal umbel of three rays; partial, with dichotomous divaricating branches. General peduncle longer than the leaf. Native of the East-Indies.

C. trifoliata differs in having the branches and petioles membranaceous-winged. *C. acida* is known by the obovate gashed leavesⁿ.

12. Stem scandent, smooth. Tendrils opposite to the leaves, of the same length, and bifid. Leaves petioled, alternate: leaflets mucronate, membranaceous; the lateral ones smaller and sessile, the middle one petioled, and three times the size of the others.

^a Amoen. acad.^b Vahl.^c Hort. kew.^d Vahl.^e Ibid.^f Plumier.^g Vahl.^h Swartz.ⁱ Ibid.^j Linn. mant.^k Vahl.^l Swartz.^m Ibid.

Peduncles

Peduncles axillary, solitary, longer than the leaves, smooth, trichotomous; the branchlets three-flowered; the flowers pedicelled. Native of America^o.

13. Branches tomentose, hoary. Leaves petioled, five, six or seven: leaflets also petioled, three or four inches long, unequal, attenuated, unequally serrate, but with the point quite entire, on the upper surface slightly villose, beneath villose-tomentose, hoary, nerved. Petioles tomentose, hoary, bifid: the lateral partial ones branched, the middle one undivided and one-leaved. Cymes dichotomous, five or six times divided, hoary. Flowers small. Calyx obscurely four-toothed, minute. Native of the East-Indies^p.

14. This is a farmentose scandent shrub. Branches pubescent. Tendrils opposite to the leaves bifid. Leaves alternate, petioled, composed of a pair, a ternate, and a single leaflet larger than the rest, a second time petioled: leaflets ovate-lanceolate, acuminate, unequally serrate, sparsely hispid on the upper, but more so on the lower surface; the nerves towards the edges more hispid on both sides. Panicles fastigiate, brachiate, peduncled, opposite to the leaves. Flowers small. Koenig sent it from Calcutta^q.

15. Stem shrubby, twining, long, branched. Leaves opposite, smooth. Flowers white, in compound terminating umbels. Corolla bell-shaped, four-cleft, woolly within. Calyx truncate, surrounding the berry.

Native of China, about Canton^r.]

PROPAGATION AND CULTURE.

The plants are preserved in some of the European gardens, more for the sake of variety, than for use or beauty, as they rarely produce either fruit or flowers in moderate climates. They are propagated either by laying their flexible branches down in pots of earth, where they will put out roots in four or five months, or by planting cuttings in pots filled with light earth, which should be plunged into a moderate hot-bed of tanners bark, covering the pots closely with hand-glasses to exclude the outer air: the cuttings must be frequently refreshed with water, but not too much given at each time. When these or the layers are well rooted, they should be carefully taken up, and each planted in a small pot filled with light earth, and plunged into the hot-bed of tan, where they should constantly remain, being too tender to thrive in England, but with this care. Therefore they should be shifted into larger pots when it is necessary, and their branches must be supported with stakes, to prevent them from trailing over the neighbouring plants; and in warm weather the plants should have free air admitted to them daily. With this treatment they will thrive very well.

CISTOIDES. See *Mahernia*.

CISTUS. (Κίστος, *Diosc.* Derivation very uncertain: written κίστος, κίσθος & κίσσαρον, and said to be named from the youth Cistus, the fable concerning whom may be seen in Cassianus Bassus. Others derive it from κίς, κίς a worm or weevil. Mr. Miller says it is so called, because the seed is inclosed in a *Cista* or capsule.) *Rock-rose. Gum Cistus.*

Lin. gen. n. 673. Reich. n. 728. Schreb. 913.

Gertn. t. 76. Juss. 294. Tournef. t. 136.

Raii meth. 109. Helianthemum Tourn. t. 128.

Juss. 294. Gertn. t. 76. Raii meth. 109.

Class. 13. 1. Polyandria Monogynia.

Nat. order of *Rotaceæ. Cisti* Juss.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved, permanent: leaflets roundish, concave; of which two alternate ones are lower and smaller.

COR. *Petals* five, roundish, flat, spreading, very large.

STAM. *Filaments* numerous, capillary, shorter than the corolla. *Antbers* roundish, small.

PIST. *Germ* roundish. *Style* simple, the length of the stamens. *Stigma* flat, orbiculate.

PER. *Capsule* roundish, covered with the calyx.

^o Vahl.

^p Ibid.

^q Retz.

^r Lourciero.

SEEDS numerous, roundish, small.

OBS. *Helianthemum* T. has a one-celled, three-valved capsule.—*Cistus* T. has a five or ten-celled capsule.

ESSENTIAL CHARACTER.

Cor. five-petalled. Cal. five-leaved: with two of the leaflets smaller. Capsule.

SPECIES.

* Without stipules, shrubby.

1. *Cistus capensis. Cape Cistus.*
Lin. spec. 736. Reich. 2. 590. Vahl. symb. 3. 68.
Leaves ovate-lanceolate petioled three-nerved tooth-letted naked on both sides.]
2. *Cistus villosus. Hairy Rock-rose or shrubby Cistus.*
Lin. spec. 736. 2. syst. 496. Reich. 2. 590.
C. mas. Dalech. hist. 222.—fol. rotundo hirsutissimo. Baub. pin. 464. Raii hist. 1007.—major, fol. rotundiore. Baub. hist. 2. 2. Dubam. arb. 1. 167. t. 64.
Leaves ovate petioled rough with hairs.
3. *Cistus populifolius. Poplar-leaved Cistus, or Rock-rose.*
Lin. spec. 736. syst. 496. Reich. 2. 591. hort. cliff. 205. 1.
C. Ledon, fol. populi nigræ, major. Baub. pin. 467. Raii hist. 1009. Park. 663. 2. 664. f. 2. Baub. hist. 2. 9. f. 1.
Ledum latifolium 2. majus. Clus. hist. 1. 78. Ger. 1103. 2. emac. 1286. 2.
β. C. L., fol. populi nigræ, minor. Baub. pin. 467. Raii hist. 1009. Baub. hist. 2. 9. f. 2.
L. latif. 2. minus. Clus. hist. 1. 78.
L. populnea fronde minor. Park. 663. 3. 664. f. 4.
L. populea fronde. Ger. 1103. 3. emac. 1286. 3.
Leaves cordate even acuminate petioled.
4. *Cistus laurifolius. Bay-leaved Gum-Cistus.*
Lin. spec. 736. syst. 496. Reich. 2. 591.
Cistus Ledon, fol. laurinis. Baub. pin. 467. Raii hist. 1009.
Ledon 1. latifolium. Clus. hist. 1. 77.
C. L. latifolium. Park. 662. 1.
Leaves oblong-ovate petioled three-nerved the upper surface smooth; petioles connate at the base.
5. *Cistus ladaniferus. Spanish Gum-Cistus.*
Lin. spec. 737. syst. 497. Reich. 2. 591. hort. cliff. 205. 2. Curt. magaz. t. 112.
C. ladanifera hispanica incana. Baub. pin. 467. Raii hist. 1009.
C. L. 1. angustifolium. Clus. hist. 1. 77. Ger. 1103. 1. emac. 1286. 1. Park. theat. 663. f. 1. parad. 422.
β. C. flore macula nigricante notato. Baub. hist. 2. 8. Comm. hort. 1. 39. t. 20.
C. salicifolius. Mill. dict. n. 14.
Leaves lanceolate even on the upper surface, petioles united at the base and sheathing.
6. *Cistus monspeliensis. Montpellier Gum-Cistus.*
Lin. spec. 737. syst. 497. Reich. 2. 592. hort. cliff. 205. 3. Gertn. fruct. 1. 371. Villars dauph. 3. 692.
C. ladanifera monspeliensium. Baub. pin. 467. Raii hist. 1010. Baub. hist. 10. f. 2.
Ledum. Dalech. hist. 230.
β. C. L. fol. oleæ, sed angustioribus. Baub. pin. 467.
C. oleæfolius. Mill. dict. n. 10.
Ledon 5. Clus. hist. 1. 79. Ger. 1104. 5. emac. 1287. 5. Park. 665. f. 7.
Leaves linear-lanceolate sessile villose on both sides three-nerved.
7. *Cistus salvifolius. Sage-leaved Cistus.*
Lin. spec. 738. syst. 497. Reich. 2. 592. hort. cliff. 205. 5. Scop. carn. n. 643. Hall. helv. n. 1031. Allion. pedem. n. 1655. Villars dauph. 3. 692.
C. femina. Clus. hist. 1. 70.—fol. salviæ. Baub. pin. 464. Raii hist. 1008.—monspeliaca fl. albo, & hispanica luteo. Baub. hist. 2. 4. f. 2.
Leaves ovate petioled hirsute on both sides.
8. *Cistus incanus. Hoary Rock-rose, or Rose-Cistus.*
Lin. spec. 737. syst. 497. Reich. 2. 592. hort. cliff. 205. 4. Curt. mag. t. 43.
C. mas angustifolius. Baub. pin. 464. Raii hist. 1007. Ger. 1093. 1. emac. 1275. 1. Park. 662. f. 1.
C. mas

- C. mas* 2. *Clus. hist.* 1. 69.—fol. longiore. *Baub. hist.* 2. 2. f. 2.
Leaves spatulate tomentose wrinkled; the lower connate at the base and sheathing.
9. *Cistus creticus*. *Cretan ladaniferous Cistus*.
Lin. spec. 738. *syst.* 497. *Reich.* 2. 593. *mat. med.* 137. *Jacqu. collect.* 1. 80. *Woodv. med. bot.* 249. t. 91.
- C. ladanifera cretica*. *Tourn. cor.* 19. *itin.* 1. 30. *Buxb. cent.* 3. 34. t. 64. f. 1. *Park.*
- C. Ledon cretense*. *Baub. pin.* 467. *Raii hist.* 1010.
- Ladanum creticum*. *Alp. exot.* 89. t. 88.
Leaves spatulate-ovate petioled nerveless rugged, calyxes lanceolate.
10. *Cistus albidus*. *White-leaved Cistus*.
Lin. spec. 737. *syst.* 497. *Reich.* 2. 593. *mant.* 403. *Gouan. monsp.* 225. *Villars dauph.* 3. 692.
- C. mas* 1. *Clus. hist.* 1. 68.—fol. oblongo incano. *Baub. pin.* 464. *Raii hist.* 1007.—4. fol. obl. albido. *Baub. hist.* 2. p. 3.—cum hypocistide. *Ger.* 1093. f. 2. *emac.* 1275. f. 2.—vulgaris. *Park.* 658.
Leaves ovate-lanceolate tomentose hoary sessile mostly three-nerved.
11. *Cistus crispus*. *Curled-leaved Cistus*.
Lin. spec. 738. *Reich.* 2. 593. *hort. cliff.* 206. n. 7.
- C. mas* 5. *Clus. hist.* 1. 69.—fol. chamædryos. *Baub. pin.* 464. *Raii hist.* 1008.—fol. crispis. *Baub. hist.* 2. 3. f. 1. p. 4.
- C. ladanifera*. *Blackw. t.* 197.
Leaves lanceolate pubescent three-nerved waved.
12. *Cistus halimifolius*. *Sea Purslane-leaved Cistus*.
Lin. spec. 738. *syst.* 497. *Reich.* 2. 594. *hort. cliff.* 205. 6. *Vahl symb.* 1. 38. *Clus. hist.* 1. 71. 1. *Barrel. ic.* 287.
- C. femina, portulacæ marinæ fol. latiore obtuso*. *Baub. pin.* 465.—fol. halimi, major. *Park.* 660. *Raii hist.* 1011.—fol. halimi. *Ger.* 1095. f. 7. *emac.* 1276. f. 7.—fl. luteo. *Baub. hist.* 2. 5. f. 2.
- β. *C. fem. port. mar., fol. angustiore mucronato*. *Baub. pin.* 465.—fol. halimi minor. *Park.* 661. *Raii hist.* 1012.—fol. hal. 2. *Clus. hist.* 1. 71.—fol. lavandulæ. *Ger.* 1095. 8. *emac.* 1277. 8.—halimi longiore incano. *Baub. hist.* 2. 5. f. 3.
- C. longifolius*. *Mill. dict.* n. 18.
- γ. *C. fruticosus erectus, fol. oppositis sessilibus utrinque incanis*. *Mill. fig. t.* 290.
Leaves lanceolate hoary, peduncles wand-like.
- [13. *Cistus libanotis*. *Rosemary-leaved Cistus*.
Lin. spec. 739. *syst.* 497. *Reich.* 2. 594. *Barr. ic.* 294.
- C. Ledon angustis fol.* *Baub. pin.* 467. *Raii hist.* 1010.
- C. L. 6. minoribus angustioribusque fol.* *Clus. hist.* 1. 79. *Baub. hist.* 2. 11. f. 1.
Leaves linear revolute, flowers umbelled, yellow.]
* * Without stipules, undershrubby.
14. *Cistus umbellatus*. *Umbelled Cistus*.
Lin. spec. 739. *Reich.* 2. 595.
- Helianthemum umbellatum*. *Mill. dict.* n. 5.
- C. Ledon fol. thymi*. *Baub. pin.* 467. *Raii hist.* 1011. *Baub. hist.* 2. 12. f. 3.
- Ledon* 10. *Clus. hist.* 1. 81. *Ger.* 1105. t. 9. *emac.* 1288. t. 9.
Procumbent; leaves opposite; flowers umbelled.
- [15. *Cistus lævipes*. *Cluster-leaved Cistus*.
Lin. spec. 739. *syst.* 497. *Reich.* 2. 595. *amæn.* 4. 275. *Jacqu. hort.* 2. t. 158. *Ger. prov.* 394. t. 14. *Pluk. alm.* 107. t. 84. f. 6. *Barr. ic.* 290. *Raii hist.* 1016. (*Chamæcistus massil.*)
Ascending; leaves alternate fascicled filiform smooth; peduncles racemed.
16. *Cistus calycinus*.
Lin. syst. 498. *Reich.* 2. 595. *mant.* 565.
- Chamæcistus ericæ fol. luteus*. *Baub. pin.* 466. *Pluk. alm.* t. 83. f. 6. *Raii hist.* 1015. 10.
Erect; leaves linear; peduncles one-flowered; calyxes three-lobed.

17. *Cistus syriacus*. *Syrian Cistus*.
Lin. syst. 498. *Jacqu. collect.* 1. 98.
Erect; leaves lanceolate, revolute; flowers racemed.]
18. *Cistus Fumana*. *Heath-leaved Cistus*.
Lin. spec. 740. *syst.* 498. *Reich.* 2. 595. *fl. succ.* n. 474. *mant.* 403. *Jacqu. austr.* 3. t. 252. *Scop. carn.* n. 644. *Hall. belv.* n. 1032. *Villars dauph.* 3. 698.
- Chamæcistus* 6. *Clus. hist.* 1. 75.
- β. *Ch. ericæ fol. luteus humilior*. *Baub. pin.* 466. n. 12.
- Helianthemum*. *Baub. hist.* 2. 18. f. 3.—*H. Fumana*. *Mill. dict.* n. 6.
Procumbent; leaves alternate linear rugged about the edge; peduncles one-flowered.
- [19. *Cistus canus*. *Myrtle-leaved dwarf Cistus*.
Lin. spec. 740. *syst.* 498. *Reich.* 2. 596. *mant.* 403. *Jacqu. austr.* 3. t. 277. *Scop. carn.* n. 647. *ann.* 2. 53. *Crantz. austr.* 103. *Allion. pedem.* t. 45. f. 3.
- Chamæcistus fol. myrti minoris incanis*. *Baub. pin.* 466. *Baub. hist.* 2. 18. f. 2. *Raii hist.* 1015.
- Ch.* 3. *Clus. hist.* 1. 74.
- C. humilis latifolius*. *Ger.* 1095. f. 10. *emac.* 1278. f. 10.
- β. *Helianthemum alpinum serpilli fol. nigricante & hirsuto*. *Segu. ver.* 3. 195. t. 6. f. 2.
Procumbent; leaves opposite obovate villose tomentose underneath; flowers subumbelled.
20. *Cistus italicus*. *Italian Cistus*.
Lin. spec. 740. *syst.* 498. *Reich.* 2. 597. *Allion. pedem.* n. 1665. *Barr. ic.* t. 366.
Leaves opposite hispid; lower ovate, upper lanceolate; branches spreading.]
21. *Cistus marifolius*. *Marum-leaved Cistus*.
Lin. spec. 741. *Reich.* 2. 597. *Hall. belv.* n. 1035. *Villars dauph.* 3. 696.
- C. tomentosus*. *Scop. carn.* n. 646. t. 24?
- Chamæcistus*. *Barr. ic.* t. 441.
- H. lusitanicum*. *Mill. dict.* n. 16?
Leaves opposite oblong petioled flat hoary underneath.
22. *Cistus roseus*. *Rose-flowered Cistus*.
Lin. syst. 498. *Jacqu. hort.* 3. t. 65. *Allion. pedem.* n. 1675. t. 45. f. 4.
- H. roseum*. *Mill. dict.* n. 17.
Procumbent; leaves opposite oblong, rolled back at the edge, somewhat hoary on both sides.
23. *Cistus anglicus*. *English Cistus*.
Lin. syst. 498. *Reich.* 2. 597. *mant.* 245. *With. arr.* 557.
- C. hirsutus*. *Huds. angl.* 232.
- C. helianthemus argenteus, fol. latiore, fl. luteo*. *Pluk. phyt.* t. 23. f. 5.
- Helianthemum*. *Baub. hist.* 2. 18. & 19. f. 1. *Raii hist.* 1015. 7. *syn.* 342. 3. *Segu. ver.* 3. 196. *Dill. elth.* t. 145. f. 173.
- H. marifolium*. *Mill. dict.* n. 24.
Procumbent; leaves opposite oblong revolute hairy, flowers racemed.
- [24. *Cistus oelandicus*.
Lin. spec. 741. *syst.* 498. *Reich.* 2. 598. *fl. succ.* n. 473. *Jacqu. austr.* 4. t. 399. *Ger. prov.* 396. n. 10. *Hall. belv.* n. 1034. *Gouan. monsp.* 263. *illustr.* 32. *Villars dauph.* 3. 697.
- C. alpestris*. *Jacqu. vind.* 248. *Scop. carn.* n. 645. t. 23. *Crantz. austr.* 103. t. 6. f. 1. *Allion. pedem.* n. 1663.
- C. helianthemus, fl. parvo luteo*. *Baub. hist.* 2. 17.
Procumbent; leaves opposite oblong smooth on both sides; petioles ciliate; petals emarginate.]
* * * Without stipules, herbaceous.
25. *Cistus Tuberaria*. *Plantain-leaved Cistus*.
Lin. spec. 741. *Reich.* 2. 598. *Cavan. hisp.* 65. n. 106. t. 97.
- C. fol. plantaginis*. *Baub. pin.* 465. *Raii hist.* 1012.
- Helianthemum Tuberaria*. *Mill. dict.* n. 10.
- H. plant. fol. perenne*. *Tourn. inst.* 250. *Buxb. cent.* 3. 33. t. 63.
- Tuberaria nostras & major*. *Baub. hist.* 2. 12.
Perennial; root-leaves ovate three-nerved tomentose; stem-leaves smooth lanceolate; the upper alternate.
26. *Cistus*

26. *Cistus guttatus*. Annual spotted-flowered *Cistus*.
Lin. spec. 741. *Reich.* 2. 599. *mant.* 403.
Huds. angl. 232. *With.* 558. *Villars dauph.*
 3. 699.
C. fl. pullido, punicante macula insignito. *Baub.*
pin. 465. *Raii hist.* 1012. *syn.* 342.
C. annuus fl. maculato. *Ger. emac.* 1281. 19.
C. ann. fl. guttato. *Baub. hist.* 2. 14. f. 1. *Park.*
 661.
Helianthemum guttatum. *Mill. dict.* n. 18.
H. fl. maculoso. *Col. ecphr.* 2. 78. t. 77.
Leaves opposite lanceolate three-nerved, racemes without
bracts.
- [27. *Cistus canadensis*. Canadian *Cistus*.
Lin. spec. 742. *Reich.* 2. 599.
All the leaves alternate lanceolate, stem ascending.
 ***** *With stipules, herbaceous.*
28. *Cistus ledifolius*. *Ledum-leaved Cistus*.
Lin. spec. 742. *syn.* 499. *Reich.* 2. 599. *Baub.*
pin. 465. 12. *Lob. ic.* 2. 118. 2. *Raii hist.*
 1013. *Park.* 662. 8.
C. annuus longifolius Lobelii. *Ger.* 1098. 18. *emac.*
 1280. 18.
C. ann., fol. Ledi, fl. luteo. *Baub. hist.* 2. 14. f. 2.
Helianthemum ledifolium. *Mill. dict.* n. 20.
Erect smooth; flowers solitary sessile opposite to a
ternate leaf.
29. *Cistus falcifolius*. *Willow-leaved annual Cistus*.
Lin. spec. 742. *syn.* 499. *Reich.* 2. 600. *Huds.*
angl. 233. *With.* 558. *Baub. pin.* 465. 10.
C. annuus. *Ger.* 1098. 17. *emac.* 1280. 17. *Raii*
hist. 1013.—*fol. falcis.* *Park.* 661. 7.
C. annuus 1. *Clus. hist.* 1. 76. 2.—*fol. rotundiore.*
Baub. hist. 2. 13. f. 3. *Lob. obs.* 552. 1. *ic.*
 2. 118. 1.
Helianthemum falcifolium & fugacium. *Mill. dict.*
 n. 21. & 19.
Spreading, villose; flowers racemed, erect; pedicels
horizontal.
- [30. *Cistus niloticus*.
Lin. syst. 499. *Reich.* 2. 600. *mant.* 246.
Erect, subtomentose; flowers racemed solitary sessile
opposite-leaved.
31. *Cistus ægyptiacus*. *Egyptian Cistus*.
Lin. syst. 499. *Reich.* 2. 600. *mant.* 404. *Jacqu.*
obs. 3. 17. t. 68.
Helianthemum ægyptiacum. *Mill. dict.* n. 23.
Erect; leaves linear-lanceolate petioled; calyxes in-
flated, larger than the corolla.
 ***** *With stipules, undershrubby.*
- [32. *Cistus squamatus*.
Lin. spec. 743. *Reich.* 2. 601. *Barr. ic.* 327.
Bocc. mus. 2. 76. t. 64. f. 3.
Leaves covered with orbiculate scales.
33. *Cistus Lippii*.
Lin. syst. 499. *Reich.* 2. 601. *mant.* 245. *Vabl*
ymb. 1. 39. *Forsk. ægypt.* 100.
Erect; leaves alternate and opposite lanceolate, rug-
ged; spikes directed one way.
34. *Cistus furreianus*. *Small-flowered Cistus*.
Lin. spec. 743. *Reich.* 2. 601. *With.* 558.
C. Helianthemum d. *Huds. angl.* 233.
Helianthemum furreianum. *Mill. dict.* n. 15.
H. vulg. petalis florum perangustis. *Raii syn.* 341.
Dill. elth. t. 145. f. 174.
Procumbent; leaves ovate-oblong, somewhat hairy;
petals lanceolate.
35. *Cistus nummularius*.
Lin. spec. 743. *Reich.* 2. 601. *Magn. monsp.*
 293. ult.
Helianthemum nummularium. *Mill. dict.* n. 12.
Baub. hist. 2. 20. f. 3.
Lower leaves orbiculate, upper ovate.
- [36. *Cistus canariensis*. *Canary Cistus*.
Lin. syst. 499. *Jacqu. misc.* 2. 339. *icon. rar.*
 t. 97.
Procumbent; leaves subovate, alternate and opposite;
racemes erect.
37. *Cistus foetidus*.
Lin. syst. 499. *Jacqu. misc.* 2. 341. *icon. rar.*
 t. 98.
Procumbent; stipules lanceolate; leaves oblong, rugged.]
38. *Cistus serpyllifolius*. *Wild Thyme-leaved Cistus*.
Lin. spec. 743. *Reich.* 2. 602. *Sauv. monsp.* 148.
 —*an alpestris.* *Allion. pedem. n.* 1663. *Scop.*
carn. n. 645. t. 23. *see n.* 24.
Helianth. serpyllifol. *Mill. dict.* n. 8?
Chamæcistus. *Baub. pin.* 466. 11. *Baub. hist.*
 2. 17. f. 2. *Raii hist.* 1014. 4.
Chamæcistus. *Clus. hist.* 1. 73. 2?
Leaves oblong; calyxes even.
- [39. *Cistus glutinosus*. *Clammy Cistus*.
Lin. syst. 500. *Reich.* 2. 602. *mant.* 246. *Ger.*
prov. 394. n. 7.
Chamæcistus. *Barr. ic.* t. 415.
Helianthemum. *Baub. hist.* 2. 19. f. 4.
Leaves linear opposite, and alternate; peduncles vil-
lose, glutinose.
40. *Cistus thymifolius*. *Thyme-leaved Cistus*.
Lin. spec. 743. *Reich.* 2. 602. *Sauv. monsp.* 148.
Villars dauph. 3. 695.
Chamæcistus. *Barr. ic.* 444.
Procumbent; leaves oval-linear, opposite, very short,
beaped.]
41. *Cistus pilosus*. *Hairy Cistus*.
Lin. spec. 744. *syn.* 500. *Reich.* 2. 602. *Sauv.*
monsp. 147. *Ger. prov.* 395. *Allion. pedem.*
n. 1672. t. 45. f. 1, 2.
C. hirsutus. *Villars dauph.* 3. 694?
Chamæcistus. *Baub. pin.* 466. 5. *Clus. hist.* 1. 74. 4.
 β. *C. stipulis quaternis, fol. lineari-ovalibus inca-*
nis, calycibus tomentosis. *Sauv. monsp.* 148.
Hel. fl. albo, fol. angusto hirsuto. *Baub. hist.* 2. 17.
 f. 1.
 γ. *C. fol. villosis lanceolatis, stip. subulatis.* *Sauv.*
monsp. 148.
H. fampsuchifolium. *Mill. dict.* n. 7.
H. f. C. humilis, fol. fampfuci, capitulis valde hir-
sutis. *Baub. hist.* 2. 20. f. 2.
 δ. *Ch. fol. minoribus & incanis.* *Baub. pin.* 466.
C. omnino candicans, fl. nunc albo nunc pallido.
Baub. hist. 2. 16. f. 2.
Almost upright; leaves linear, with two grooves un-
derneath, hoary; calyxes even.
- [42. *Cistus racemosus*.
Lin. syst. 500. *Reich.* 2. 603. *mant.* 76. *Vabl*
ymb. 1. 39. *Barr. rar. ic.* 293.
Leaves linear, calyxes racemed, pointing one way,
nerved-angular, smooth.
43. *Cistus angustifolius*.
Lin. syst. 500. *Jacqu. hort.* 3. 29. t. 53.
Diffused; leaves lanceolate; calyxes hirsute.]
44. *Cistus Helianthemum*. *Dwarf Cistus, or little*
Sunflower.
Lin. spec. 744. *Reich.* 2. 603. *hort. cliff.* 206.
fl. suec. n. 472. *Huds. angl.* 233. *With.* 559.
Curt. lond. 5. t. 36. *Relb. cantab. n.* 389.
Hall. belv. n. 1033. *Scop. carn. n.* 649. *Pollich*
pal. n. 511. *Crantz. austr.* 100. *Fl. dan.*
 t. 101. *Villars dauph.* 3. 693.
Chamæcistus vulgaris fl. luteo. *Baub. pin.* 465.
Loef. pruss. 43. t. 8. *Raii hist.* 1013.
Helianthemum Chamæcistus. *Mill. dict.* n. 1.
H. vulgare. *Gærtn. fruct.* 1. 371.
H. anglicum album & luteum germanicum. *Ger.*
 1100. 2, 3.
H. luteum & album germanicum. *Ger. emac.*
 1282. 3. & 1283. 4.
H. vulgare. *Park.* 656. 1.—*fl. luteo.* *Baub. hist.*
 2. 15. 2.
Panax Chironium, f. flos solis. *Camer. epit.* 501.
Procumbent; stipules lanceolate; leaves oblong, revo-
lute, somewhat hairy.
- [45. *Cistus mutabilis*. *Changeable Cistus*.
Lin. syst. 500. *Jacqu. misc.* 2. 340. *icon. rar.*
 t. 99.
Procumbent; stipules lanceolate; leaves oblong, smooth,
flat.]
46. *Cistus hirtus*. *Rosemary-leaved Cistus*.
Lin. spec. 744. *Reich.* 2. 604. *Gron. orient.* 169.
Sauv. monsp. 148.
C. rosmarinifolius. *Allion. pedem. n.* 1676.
C. Ledon fol. rosmarini subtus incanis. *Baub. pin.*
 467. *Raii hist.* 1010. 10. *Baub. hist.* 2. 11. & 12. f. 1.
 Ledon

- Ledon 8. *Clus. hist.* 1. 8.
Helianthemum hirtum. *Mill. dict. n.* 14.
Leaves ovate; calyxes hispid.
47. *Cistus apenninus*. *Apennine Cistus*.
Lin. spec. 744. *synt.* 500. *Reich.* 2. 604.
Helianthemum germanicum & apenninum. *Mill. dict. n.* 2 & 4.
H. album germanicum. *Tabern. ic.* 1062.
H. faxatile, fol. & caul. incanis oblongis, flor. albis.
Mentz. pug. 8. f. 3. *Dill. elth.* 176.
Spreading; leaves lanceolate, rough with hairs.
48. *Cistus polifolius*. *Mountain Cistus*.
Lin. spec. 745. *Reich.* 2. 604. *mant.* 404.
Huds. angl. 234. *With.* 560. *Hall. herb. n.* 1036. *Villars dauph.* 3. 695. *Pluk. alm. t.* 23. f. 6.
Chamaecistus montanus Polii folio. *Raii syn.* 342.
Helianthemum polifolium. *Mill. dict. n.* 11.
H. montanum, polii folio incano, fl. candido.
Dill. elth. 175. t. 145. f. 172.
Procumbent; leaves oblong-ovate, hoary; calyxes even; petals ferrate.
- [49. *Cistus arabicus*. *Arabian Cistus*.
Lin. syst. 500. *Reich.* 2. 605. *amæn.* 4. 275. cent. 39. *Vahl symb.* 2. 62. t. 35.
Procumbent; leaves linear, those on the peduncles alternate, those on the branchlets crowded.
Species not in Systema Vegetabilium.
50. *Cistus medius*.
Allion. pedem. n. 1657.
C. foemina, fol. *salviae*, fl. ochræ colore. *Tourn. inst.* 260.
Leaves ovate-lanceolate, wrinkled, petioled, tooth-letted.
51. *Cistus grandiflorus*. *Great-flowered Cistus*.
Scop. carn. n. 648. t. 25. *Allion. pedem. n.* 4.
C. Helianthemum C. *Villars dauph.* 3. 693.
Helianthemum alpinum vulgari simile, fol. latioribus. *Segu. veron. suppl.* 193. t. 6. f. 1.
Stipuled, suffruticose; leaves lanceolate, villose on both sides, acuminate; stipules longer than the calyx.]
52. *Cistus breviorifolius*. *Short-leaved Cistus*.
Mill. dict. n. 3.
C. mas fol. brevior. *Bauh. pin.* 464. *Park.* 659.
Ger. emac. 1276. 3. *Raii hist.* 1007.
C. mas 3. *Clus. hist.* 69. *Bauh. hist.* 2. 3.
Shrubby, without stipules; leaves ovate-lanceolate, connate, hirsute, wrinkled; peduncles longer.
53. *Cistus lusitanicus*.
Mill. dict. n. 4.
C. mas lusit., fol. amplissimo incano. *Tourn. inst.* 259.
Shrubby, without stipules; leaves ovate, obtuse, villose, nerved and wrinkled underneath; flowers larger.
54. *Cistus hispanicus*.
Mill. dict. n. 5.
Shrubby, without stipules, villose; leaves lanceolate, green connate; flowers sessile; calyxes acute.
55. *Cistus cordifolius*.
Mill. dict. n. 12.
Shrubby, without stipules; leaves oblong-cordate, smooth; petioles longer.
56. *Cistus fasciculatus*.
H. fascic. *Mill. dict. n.* 22.
Leaves in bundles.
- [57. *Cistus vaginatus*. *Oblong-leaved Cistus*.
Ait. hort. kew. 2. 232.
Arborescent; without stipules; leaves oblong, hairy underneath, netted-wrinkled; petioles united at the base, sheathing, furrowed.
58. *Cistus laxis*. *Broad waved-leaved Cistus*.
Ait. hort. kew. 2. 233.
Ledon 4. *Clus. hist.* 1. 78. fig.
Arborescent; without stipules; leaves ovate-lanceolate, waved, toothletted, smooth, the upper rough with hairs; calycine leaflets roundish-cordate.
59. *Cistus scabrosus*. *Rough Cistus*.
Ait. hort. kew. 2. 236.
Undershrubby; without stipules; leaves opposite, ovate, hairy and rugged, three-nerved; calyxes three-leaved.

60. *Cistus sericeus*.
Vahl symb. 1. 37. *Barrel. ic.* 1315.
Arborescent, without stipules, leaves ovate, tomentose, three-nerved, the lower petioled, the uppermost sessile, peduncles rough with hairs.
61. *Cistus hybridus*.
Vahl symb. 1. 37.
Arborescent, without stipules, leaves ovate, petioled, hoary, branches scaly, peduncles elongated, rough with hairs.
62. *Cistus elongatus*.
Vahl symb. 1. 38.
Arborescent, without stipules, leaves lanceolate, hoary, peduncle elongated, two-leaved, that and the racemed calyxes hirsute.
63. *Cistus alternifolius*.
Vahl symb. 1. 38.
Suffruticose, without stipules, leaves alternate, peduncles lateral and terminating, solitary, one-flowered.]
64. *Cistus lavandulifolius*. *Lavender-leaved Cistus*.
Vahl symb. 1. 39. *Clus. hist.* 1. 72. *Bauh. hist.* 2. 5. *Barrel. ic.* 288.
C. folio spicae. *Bauh. pin.* 465.
Helianthemum lavendulaefolium. *Mill. dict. n.* 13.
Suffruticose, stipuled, leaves lanceolate-linear, tomentose, calyxes racemed tomentose, pointing one way, pendulous.
- [65. *Cistus lanceolatus*.
Vahl symb. 2. 62.
Suffruticose, without stipules, leaves lanceolate, three-nerved, hairy.
66. *Cistus ocymoides*.
Vahl symb. 3. 68. *Lamarck encycl.*
C. sampfucifolius. *Cavan. hisp.* 65. n. 105. t. 96.
C. folio sampfuci. *Clus. hist.* 1. 72. *Bauh. hist.* 2. 6.
Shrubby, without stipules; leaves obovate, three-nerved, those of the branchlets hoary on both sides, reflex at the tip, calyxes racemed, both they and the peduncles quite smooth.

DESCRIPTIONS, &c.

The history of this genus is extremely obscure, on account of the abundance of varieties which occur in it. The species may be much elucidated, says Linneus, if botanists will attend to the following circumstances, in their native places of growth.

1. Whether the trunk be shrubby, undershrubby, annual or perennial.
2. Whether the stem be erect or decumbent.
3. Whether the leaves be opposite or alternate, and what is their form.
4. Whether there be two stipules or none.
5. Whether the peduncle be one-flowered or many-flowered; naked, or with a bracte.
6. What is the form of the petals.
7. Whether the capsules have five or three valves.
8. Whether the calyx be equal or unequal.

The following species are shrubby; from 1 to 13, 50, 52 to 55, 56, 57, 58, 60, 61, 62: these are undershrubs; from 14 to 24, 32 to 49, 51, 59, 63 to 66: a few others are herbaceous, from 25 to 31.

The following grow erect; from 2 to 13, 16, 17, 20, 21, 26, 28, 31, 32, 33, 41, 46, 62, 63, 66: and these are decumbent; 14, 15, 18, 22, 23, 24, 34 to 37, 44, 45, 47, 48, 49, 59.

Most of the species have the leaves opposite; in some they are alternate, as in 15, 17, 18, 27, 39; but some species have the lower leaves opposite, and the upper ones alternate.

The following species have stipules; 28 to 49, 51, 64, 65: the others have none; 1 to 27, 50, 52 to 55, 57 to 63, 66.

Species 3, 4, 6, 26, 42, 64, 65 have naked peduncles: in 23, 30, 36, 41, 43, 48, 49, 62, 63, 66, they are bracted.

The corolla is White in the following species; 3 to 7, 35, 37, 41, 46 to 48, 55, 66. Purple in these; 2, 8 to 11, 22, 45, 52 to 54, 60, 61. Yellow in the rest; 1, 12 to 21, 23 to 34, 36 to 40, 42 to 45, 50, 51, 56, 59, 62, 63, 64, 65. But some of these vary with white and even rose-coloured corollas, as 44 and 45.

They are natives of Europe, particularly the southern kingdoms, except 1, 9, 27, 30, 31, 49, 56, 57, 63 and 65.

The

The form of the leaves in the greater part is ovate or lanceolate, or some modification of these two forms. They are cordate in the 3d. Elliptic in the 30th. Fascicled in the 56th. Filiform in the 15th. Lanceolate in 5, 11, 17, 19, 26, 27, 33, 43, 47, 49, 51, 54, 62, 65. Lanceolate-linear in 42 and 64. Linear in 13, 14, 16, 18, 39, 41. Linear-lanceolate in 6 and 31. Oblong in 21 to 24, 37, 38, 45, 57, 63. Oblong-cordate in 55. Oblong-ovate in 4, 44, 48. Obovate in 19 and 66. Oval-lanceolate in 32. Oval-linear in 40. Ovate in 2, 7, 12, 20, 25, 35, 46, 53, 59, 60, 61. Subovate in 36. Ovate-lanceolate in 1, 10, 50, 52, 58. Ovate-oblong in 34. Spatulate in 8. Spatulate-ovate in 9. And ternate in 28.

But the principal difference in these plants is in the Capsule, which in some is five or ten-celled, with as many valves; in others one-celled and three-valved. Hence this great genus might very commodiously be divided into two, as Tournefort, Miller, Jussieu, Gærtner and others have done, at least in the artificial arrangement, for undoubtedly they all constitute one natural genus. They may be distinguished thus. *Cistus* or Rock-rose, has a five or ten-celled capsule, with as many valves. Seeds fixed to the axis. Embryo spiral. These are shrubs or undershrubs; the leaves opposite and naked; the flowers in umbels, with unequal calycine leaflets, and the corolla either purple or white, commonly large and specious.

Helianthemum, or Dwarf Sunflower, has a one-celled three-valved capsule, with the seeds fixed to the valves. Embryo uncinat-inflected. These are suffruticose or herbaceous; the leaves opposite, or sometimes alternate, stipuled or naked; the flowers in spikes or racemes, with two of the calycine leaflets minute, and a corolla commonly yellow, seldom purple or white, smaller than that of the *Cistus*, very deciduous in both.

1. Branches round, purplish, having hairs thinly scattered over them. Leaves three inches long, remote, the upper ones sessile, but not connate, the lower attenuated into a very short petiole; they are acute, imperfectly three-nerved, the nerves towards the middle evanescent, smooth on both sides, toothletted and ciliate, with long hairs, especially the uppermost. Petioles distinct. Peduncles terminating, trifid; the partial ones three-flowered. Leaflets of the calyx cordate, acuminate, hirsute, toothletted, ciliate, the younger ones extremely hirsute. Corolla yellow^c.

Linneus remarks, that this differs from the other species in the toothlets of the leaves. It is a native of the Cape of Good Hope.]

2. This has a strong woody stem, covered with a rough bark, and three or four feet high, dividing into many branches, so as to form a large bushy head. Leaves opposite, sessile, with several smaller leaves of the same form from the same joint. The flowers are produced at the ends of the branches, four or five together, almost in form of an umbel, but it rarely happens that more than one is open at the same time. The petals are large, purple, and spread open like a rose; they are but of short duration, generally falling off the same day they expand; but there is a succession of fresh flowers every day for a considerable time, in may and june; generally again in september and october, if the autumn be favourable, and even in the winter if the plants be protected from frost.

[According to the observation of Linneus, the leaves are wrinkled, green on both sides, and pubescent. The peduncles one-flowered, with a bent joint^d.

Native of Italy and Spain.

In Linneus's species and Miller's dictionary it is named *pilosus*.]

3. This has a stiff slender woody stem, six or seven feet high, sending out many branches the whole length. [These branches and the leaves are

^c Vahl.

^d Syst. veget.

hairy; the calyxes also are very hairy: but the branches and leaves, when farther advanced, become naked.] The leaves are large, of a light green colour, sessile, with many nerves. The flowers are produced at the ends of the branches, on naked peduncles. The corolla is white, and soon drops off. [Linneus adds, that the petals are tinged with purple on their edges; that the stamens are yellow; and that the calyxes, before they unfold, appear three-cornered^e.

Native of Portugal. Cultivated in 1656, by John Tradescant, junior. It flowers in june and july^f.]

4. This rises with a strong woody stem to the height of five or six feet, sending out many erect hairy branches. Leaves lanceolate, acute, thick, dark green above, and white beneath, very glutinous in warm weather. [According to Linneus, they are wrinkled, green on both sides, and scarce visibly hairy: the petioles become purple at the base^g.] The flowers are produced at the ends of the branches upon long naked peduncles, branching on their sides into smaller ones, each sustaining one large white flower, with a hairy calyx. It flowers in june and july.

[Native of Spain. Cultivated in 1752, by Miller^h.]

5. Height five or six feet, with a strong woody stem, sending out many hairy branches. Leaves smooth on their upper side, but veined on their under, on short foot-stalks which join at their base, where they form a sort of sheath to the branch. [Corolla white, the size of the officinal Poppy. The germ has ten swellings: stigma sessile, without any style. ⁱ Native of the hills of Spain and Portugal.

Cultivated in 1656, by John Tradescant, junr.^k

Mr. Curtis observes, that the name *ladaniferus* is not strictly proper, since this is not the plant whence *Ladanum* is produced, although in a warmer climate it affords a similar gum. See n. 9.

β. This, which Miller makes a distinct species, has smooth branches, covered with a reddish-brown bark. The leaves are narrow-lanceolate, whitish on their under side, of a dark green above, having three longitudinal veins. The petals are very large, roundish, white, with a large purple spot at their base. The whole plant exudes a sweet glutinous substance in warm weather, which has a very strong balsamic scent, and perfumes the air to a great distance.

It flowers from june to august.

There is a variety with white flowers, having no purple spots, which is in all other respects the same with this.

6. Stem slender, from three to four feet high, sending out many hairy branches from the bottom upwards. Leaves very dark green, in warm weather covered with a glutinous sweet-scented substance. The peduncles, which come out at the ends of the branches, are long, naked, and sustain many white flowers, rising above each other; their calyxes are bordered, and end in sharp points. It flowers from june to august.

[According to Linneus, the upper leaves are broader at the base, but the rest are linear; they are netted and three-nerved underneath. Raceme on long peduncles, often bifid. Capsule, as Gærtner says, five-celled, five-valved; with four smooth blackish seeds in each cell.

Native of Narbonne, and the kingdom of Valencia.

It was cultivated in 1656, by John Tradescant, junr.^l.]

β. The variety, or olive-leaved Rock-rose of Miller, has, according to him, the stem about four feet high, with very hairy, glutinous, erect branches; and long, narrow hairy leaves, ending in points, deep green on both sides, having a deep furrow on

^e Spec. & syst.

^h Hort. kew.

^f Hort. kew.

^g Linn. syst.

ⁱ Syst. veg.

^k Hort. kew.

^l Ibid.

their upper side made by the midrib. The flowers are on long peduncles at the ends of the branches, are of a pale sulphur colour, and have an acute bordered calyx. It flowers at the same time with the other.

7. Stem slender, smooth, covered with a brown bark, never rising more than three feet high, and sending out many weak branches spreading horizontally. [Leaves obtuse, without veins, not so soft as in many other species. Peduncles lateral, solitary, one-flowered, longer than the leaves^k.] Corolla white, and somewhat smaller than that of the other Rock-roses. It flowers from June to August.

[Native of Italy, Sicily, Narbonne, Switzerland and Carniola.

Cultivated before 1551, in Sion garden^l.

8. Branches villose. Leaves not at all nerved, ending in a point, a little flexuose in the disk, ending at the base in coalescent sheathing petioles; or rather they are obovate-spatulate: the lower more connate, and in a manner sheathing. Calyxes hairy, with subcordate leaflets. Petals purple, emarginate or obcordate, quite entire, concave. Native of Spain and Narbonne^m. Cultivated in 1596, by Gerardeⁿ.

9. Branching, diffused, a foot and half high and more. Stem and branches round, and somewhat villose. Leaves from broad stem-clasping, petioled, first spatulate, then ovate or lanceolate, somewhat acute, wrinkled, sometimes waved, roughish, thickish, quite entire, viscid, closely set on both sides and round the edge with white hairs of different lengths, some simple, others branched or headed, scarcely visible to the naked eye. Peduncles one-flowered, terminating the last leafy twigs, erect and villose. Calyx villose, with ovate-acuminate leaflets, nearly equal. Petals rose-purple, without smell, very obscurely crenate, forming a corolla an inch and half in diameter. The whole of the stamens is yellow. Germ hirsute, green. Capsule ovate, obtuse, brown, hirsute with ash-coloured hairs, five-celled and five-valved. Seeds smooth, rufous, angular. It flowers copiously in June and July, and the seeds ripen in September^o. Native of the Levant.

Cultivated in 1731, by Mr. Miller^p.

The *Cistus Creticus*, or Cretan *Cistus*, is the species from which the drug called Ladanum is procured. This is a resin, which is secreted from the leaves and other parts of the shrub, and is scraped off by means of a kind of rake, to which numerous leathern thongs are appended instead of teeth. This instrument being drawn backwards and forwards over the plant from time to time, collects the resin. Ladanum is seen in different degrees of purity. The best is in dark-coloured masses of the consistence of a soft plaister, growing still softer on being handled. It is indeed subject to many sophistications from the more or less careful manner in which it is at first collected, and from the fraudulent practices of those through whose hands it afterwards passes. The chief use of Ladanum in modern practice is in fumigations, its fragrant smell having made it a constant ingredient in such preparations. Sometimes it is used in Troches, and in the Paris pharmacopœia there is a pectoral troche in which there is a good quantity of Ladanum, with musk and amber. In the old German shops is kept a tincture of Ladanum which is used in female weaknesses, &c. but is not known with us. It should be observed that Ladanum gives out its active matter to spirit of wine, and little or nothing to water, from its being entirely resinous, and consequently not soluble in water.

10. This differs from *C. incanus*, which it very much resembles, in the branches being tomentose, not hairy; the leaves paler, soft, horizontal, sessile, by no means either petioled or sheathing, broad-lanceolate, mostly three-nerved. Calyx not rough

with hairs, the outer leaflets longer, the sides reflex. Peduncles from the tops of the branches, many, scarcely longer than the leaves. Petals purple, not emarginate, somewhat crenate, flattish.

Native of Narbonne and Spain^q.

Cultivated in 1656, by John Tradescant, junr.^r.]

11. Branches weak, slender, woody, spreading horizontally. This shrub is seldom more than two or three feet in height. [The peduncles and calyxes are covered with a thin wool. The calyxes are lanceolate. The corollas are purple^s;] Mr. Miller says white, coming out upon naked peduncles from the wings of the leaves, in June and July; and succeeded by ripe seeds in August and September.

[It is a native of Portugal, and was cultivated in 1731, by Mr. Miller^t.

12. This is an upright shrub, three or four feet high. Branches round, ash-coloured, angular at top, the younger ones dotted with yellow. Leaves petioled, opposite, lanceolate, very white, scarcely soft, without veins, obtuse, flat, about an inch in length. Peduncle terminating, compound, white: partial peduncles below opposite, above alternate. There is a sessile leaflet, narrower than those on the stem, at the base of the peduncles and pedicels. Calyxes erect, ovate, acute, somewhat rugged: having two outer leaflets minute and linear, at the base of the larger ones.

It differs from several others to which it otherwise bears some resemblance, in having the peduncles in panicles not at all hairy; the calyxes erect, smaller, acute, somewhat rugged, not ovate, acuminate, hirsute; and the smaller leaflets inserted into the calyx itself, not below the base of it into the pedicel. In the habit of the leaves to *C. hybridus*, but in that they are broader^u.]

According to Miller, it rises four or five feet high, and branches from the ground so as to form a large bush. The leaves on the lower part of the branches have foot-stalks, but those at the top coalesce at their base and surround the stalk. The peduncles are a foot in length, naked, hairy; and put out two or four shorter peduncles on the side, each supporting three or four flowers. These are large, of a bright yellow colour, but of short duration. They appear in June and July.

[It is a native of Portugal. Vahl made his description from numerous specimens collected in Barbary.

It was cultivated in 1656, by John Tradescant, junior^v.

Sometimes the petals have a dusky spot at the base^w.]

β. Stem slender, woody, three or four feet high, with many slender branches. Leaves narrow, lanceolate, hoary, waved; flowering-branches axillary, slender, having two or three pairs of small leaves, terminated by loose bunches of flowers, each on a slender peduncle; they are of a dirty sulphur-colour, and appear in June and July.

γ. Height three feet. Branches brachiate, forming a pyramid. Leaves lanceolate, an inch long, one-third of an inch broad in the middle, hoary white on both sides, opposite. Peduncles naked. Flowers solitary, on naked opposite pedicels; corolla bright yellow, with a purple spot near the base. Native of Spain and Portugal; flowering here in June and July. Cultivated by Mr. Miller before the year 1760.

[13. A shrub resembling Rosemary. Stem naked, purplish. Leaves opposite, sessile, smooth and even, hirsute at the edges of the base, longer than the internodes, at the ends of the branches approximating. Floral or upper leaves shorter, ovate, flat. Peduncles terminal, longer than the leaves; with a few yellow flowers. Calyxes ovate, viscid. Found in Spain by Loeffling^z.—Introduced 1783, by P. M. A. Broussonet, M. D.^a]

^k Linn. syst.
ⁿ Hort. kew.

^l Hort. kew. from Turner.
^o Jacquin.

^m Linn. spec.
^p Hort. kew.

^q Linn. spec. & syst.

^r Hort. kew.

^s Vahl.

^t Linn. spec.

^u Hort. kew.

^v Hort. kew.

^w Hort. kew.

^x Linn. spec.

^y Vahl.

14. Stems low, trailing woody, seldom branching, and not more than four or five inches long. Leaves narrow and hoary. Flowers white, in small clusters at the ends of the stalks. It seldom continues longer than two years.

[Linneus observes, that the umbels are peduncled. Native of the South of France and Spain.]

Mr. Miller says, he received the seeds from Istria. [He cultivated it in 1731^b.

15. Root woody, creeping very much. Stems many, round, becoming woody; when young herbaceous, glaucous, branched, diffused, spreading horizontally or ascending, very few erect. Leaves glaucous, linear, narrow, acute; with each leaf come out two others one-third shorter, between these from the axil other leaves come out successively in the same manner, so as to form a bunch sitting close to the branch. The flowers are in thin villose racemes at the ends of the branches, on long smooth pedicels, and are without scent. Calyx hirsute, the two outer leaflets linear, the three inner broad-ovate, acute, wrinkled longitudinally, variegated with white, green, and purple. Petals yellow, ovate, obscurely crenulate at the end, a little longer than the calyx. The outer stamens are barren. Capsule obtusely three-cornered, obscurely grooved, smooth, three-celled and three-valved, having in each cell two ovate seeds, convex on one side, angular on the other^c.

Native of the South of France about Montpellier. Cultivated 1690, in the Royal garden at Hampton Court^d.

16. Stem a foot high, erect; branches opposite, reddish. Leaves opposite, even, underneath obtusely keeled; crowded leaflets from the axils. Peduncles terminating, solitary, scarcely longer than the leaves. Calyx three-leaved, even, equal. Corolla yellow, with scarcely the edge red. Stamens sixteen, very short, yellow, all fertile. Pistil white. Style very short. Stigma warted. It resembles *C. Fumana*.—Native of the South of Europe^e.

17. Stem erect; the younger branches somewhat villose. Leaves acute, quite entire, subsessile, alternate, somewhat villose, pale green. Racemes terminating and axillary from the upper leaves, many-flowered and directed one way. Calyx somewhat villose, pale green. Petals yellow.—Spielmann sent it to Jacquin in 1771^f.

Native of the Levant. Introduced 1788, by Monf. Thouin^g.

18. Stamens about sixteen fertile, and as many on the outside without anthers. Leaves smooth, the edge rugged with a few very minute spines^h. Stems seldom longer than a foot. Peduncle near the top of the stem. Calyxes somewhat villose. Petals yellow, longer than the calyx, and four seeds in each cell. Scopoli does not observe any stamens without anthers, nor a six-celled capsule, which Crantz attributes to it.—Most of the stamens, says Jacquin, have anthers, but some of the outer ones, which are shorter, have none. Capsule three-valved, and four or fewer black seeds in each cell. Leaves thick, keeled, dry, often thrown all to one side, and crooked, minutely dotted. Flowers drooping, on short peduncles. Calyx conical, smooth, or slightly hairy, accessory leaves long and lanceolate; frequently variegated with purple veins. Petals sulphur-coloured, small, seldom expanded, but longer than the calyx, (Linneus says not longer, Jacquin scarcely longer: he adds that the flower closes before ten o'clock). Fruit three-celled.—In the autumn this species is often covered with tufts of leaves in shape of roses, so as to resemble a *Sedum* more than a *Cistus*ⁱ.

Native of Gotland, France, Switzerland, Austria, Carniola. Cultivated 1739, by Mr. Miller^k.

19. The old stems are procumbent and naked, but those which bear leaves and flowers are erect.

^b Hort. kew. ^c Jacquin. ^d Hort. kew. ^e Linn. mant.
^f Jacquin. ^g Hort. kew. ^h Linn. syst. ⁱ Haller.
^k Hort. kew.

Leaves lanceolate, tomentose on both sides, with a few white prostrate hairs on the upper surface. Peduncles from the upper axils, and those almost naked. Branches (one to three) umbelled, seldom exceeding four lines in length. Calyxes tomentose. Petals deep yellow. Capsule ovate, somewhat acute, three-cornered, scarce apparently hirsute, three-celled and three-valved, covered with the calyx. Seeds two or three in each cell, ovate, acute, angular^l.

C. marifolius sent by Schreber, has the leaves of this, only more tomentose and oblong, but it has the corolla of *C. alpestris*. Perhaps then these three may be all one species^m.

β . Leaves lanceolate, obtuse, marked with three lines, green on both sides: two leaflets of the calyx bristle-shapedⁿ.

The Portuguese variety is larger. The leaves oval or obovate, obtuse, pale ash-coloured above, tomentose-hoary underneath. Umbel terminating, four-flowered^o.

Native of the South of France, Spain, Portugal, Austria, Carniola, Piedmont. Introduced in 1772, by Monf. Richard^p.

20. Stem erect, a span high: branches opposite, longer, spreading, somewhat deflected, rufous. Leaves with a few, strigose hairs, mostly twin, and subciliate: the lower petioled and ovate; the upper subsessile. Raceme terminal. Calyxes hispid. Corolla pale, with the petals scarcely emarginate. Perhaps a variety of the foregoing^q.

Allioni is of opinion that *C. incanus*, *marifolius*, and *italicus* of Linneus make one species with his *alpestris*; in different situations having smooth or ciliate leaves; green on both sides and hairy; ash-hoary or even hoary. Different specimens of *C. canus* are hoary on both sides, or only underneath, or scarcely hoary, and furnished with hairs, so as to approach to *C. alpestris*. This sometimes smooth, sometimes hairy; inhabits mountainous and alpine places. *C. italicus*, mountains near the sea, and situations less exposed to the sun. *C. canus*, barren rocky places exposed to the sun.]

21. Stems upright, shrubby, a foot and half high, sending out branches the whole length. Leaves small, silvery, opposite, smooth. The flower-stalks branch; and the flowers, which are white, are produced in short spikes at the ends of the branches.

[According to Linneus, it varies with lanceolate leaves smooth above, and oval leaves somewhat hairy above, but they are always densely tomentose underneath and hoary white^r.

Scopoli describes his *C. tomentosus* to be erect, with simple stems six inches high. Bottom leaves elliptic, upper lanceolate acuminate; all villose above and tomentose underneath. On the top of the stem four or five large yellow flowers. He found it in the alps both of Carniola and the Tyrol.

Haller's description does not agree in all points with this. The stems of his are procumbent and branching; and the flowers small.

Native of the South of Europe. Cultivated in 1731, by Mr. Miller^s.

22. Jacquin thus describes it.—Stem branched, diffused, shrubby at the base, as are also the branches, woody, perennial, round. Younger branches, racemes, leaves, and calyxes roughish, somewhat villose and hoary. Leaves on short petioles, and quite entire. Racemes terminating, many-flowered, erect. Fruit-pedicels reflex. Three leaflets of the calyx ovate, obtuse, concave; the two others shorter and very narrow. Petals flesh-coloured with a yellow base, very entire and spreading. Filaments as well as anthers yellow. Pistil green. Capsule roundish, one-celled, three-valved, at length becoming very smooth. Seeds few, brown.

Allioni suspects this to be nothing more than a variety of *C. Helianthemum*, though the stem of this be more branching and shrubby; the leaves more

^l Jacquin. ^m Scopoli. ⁿ Linn. mant. ^o Ibid.
^p Hort. kew. ^q Linn. mant. ^r Spec. plant.
^s Hort. kew.

firm and somewhat hoary underneath. For it is not unusual to see *C. Helianthemum* of a rose colour in maritime situations; and stems that in cold places are annual and perishable, often become in warm climates perennial and shrubby.

Native of the county of Nice and Unelia.] Mr. Miller says, it was found growing near Smyrna by Dr. William Sherard, who first sent the seeds to England. [It was cultivated in the botanic garden at Chelsea in 1723^a.

23. Stem scarcely six inches high, oblique, all rugged. Leaves lanceolate, like those of Hyssop, roughish, not even, green on both sides. Flowers white, nodding; but when in bloom erect^a. Stems many, slender. Leaves resembling those of wild Thyme, but thicker, more hirsute and hoary; dark green above, paler underneath, but hoary on both sides; without any younger ones arising from the axils. On the tops of the branchlets grow three or four small yellow flowers, sometimes more; the petals minutely notched at the end, but sometimes entire^a.—Flowering branches ascending, hairy. Leaves ovate, blunt, sessile, green on both sides, but covered with white hairs. Racemes terminating, consisting of three or four flowers, with small lanceolate bractes. Calyx, on the outside green and hairy; on the inside yellowish, with green lines. Petals yellow, finely scalloped^a.—Leaves hoary underneath, except in one specimen, where those of the stem were green on each side, and those of the side branches hoary^a.

Ray supposed our plant to be the same with John Bauhin's *Helianthemum alpinum folio Pilosellæ minoris*. Linneus, Miller, and Hudson have continued the synonym; though the accurate Dillenius had observed, that Bauhin's plant gathered by Sherard on Mont Saleve, has broader and longer leaves, much more hairy than in ours; and that the whole plant is much stouter. Our plant certainly bears no resemblance to the *C. tomentosus*, which Scopoli has figured (carn. t. 24.), and to which he has affixed John Bauhin's synonym, and that of Haller, n. 1035. which seems to be the same with *C. marifolius* of Linneus.

This species was first observed by Mr. Newton on some rocks near Kendal in Westmorland. It has been since found by Mr. Fitz Roberts at Buck Barrow Bank Scar between Brigsteer and Conswick, and about Cartmel-wells in Lancashire. At Betram-Beuke, about a mile to the west of Kendal, by Mr. Richardson. In Caernarvonshire by Mr. Pennant; and in Anglesea, by Mr. Davies. It flowers in may.

I know not how it happens that Linneus makes the corolla to be white. Miller does the same. His specific character is—stem herbaceous procumbent, leaves ovate tomentose and sessile.

24. According to Linneus, in flora suecica, this differs from *C. Helianthemum* in having smaller, narrower leaves; stems smaller, more erect, smother, more woody and redder; more flowers at the tops of the branches, and they less, without a spot in the middle; the petals smaller, not touching each other on the sides, emarginate, and of the same form with those in the flower of *Potentilla verna*. It is no variety, but sufficiently distinct in its appearance, the calyxes not being reflected, the corollas usually closed, the germ smooth, the style bent in, the stigma hispid usually four-cleft, and in the leaves having the edge not in the least reflected. The whole plant is perfectly smooth, so that it cannot be referred to *C. serpyllifolius*, though the figures of John Bauhin and Clusius represent the plant. To this it is added in the *systema*, that the calyx is marked with lines and pubescent.

It does not however appear to Haller that this is very different from the common *C. Helianthemum*. See n. 19. and 20. There is little doubt but that the species have been too much multiplied. It is thus described by Jacquin—Stems many, procum-

bent, round, woody, brown, branched, at top dark purple or bay-coloured, about half a foot high, ascending towards the end, scarred by the fallen leaves, in other respects smooth; the younger branches only leafy. Leaves petioled, obtuse, quite entire, having white hairs on both sides and about the edge; sometimes however few or none on the under surface. Racemes terminating, few-flowered, villose, erect. Flowers sweet-scented; leaflets of the calyx very hairy, the two outmost linear, the three inner ones ovate: petals yellow, from roundish obovate, entire or slightly crenulate, scarce emarginate. Stamens and pistil all yellow. Stigma large, subquadrid, muricate. Capsule hirsute, nodding. Seeds ovate, minute.

25. Root hard, perennial, gradually narrower as it descends. Stem a foot high, simple, villose at bottom. Root-leaves spreading on the ground, narrowed towards the base, white underneath: stem-leaves sessile, distant, opposite except the uppermost which are alternate. Flowers on the top of the stem in a sort of corymb. The two outer leaflets of the calyx shorter and lanceolate; the three inner ovate-acuminate, concave. Corolla yellow. Capsule globular, three-valved. Seeds ovate-compressed, blackish, fixed to partitions, opposite to the valves.

Native of Spain, in Catalonia and near Benicasi in the kingdom of Valencia^a: also in the South of France, and about Pisa. Cultivated in 1748, by Mr. Miller^b.

26. Root annual. Stem upright, five or six inches high: that and the rest of the plant covered with spreading hairs. Leaves sessile, three or four pairs. Raceme filiform, terminating; peduncles longer, slender, often without bractes. Flowers erect, but when just out of bloom pendant. Two leaflets of the calyx spreading. Petals yellow, with a very dark purple spot approaching to black at the base. Fruits erect^c.

Native of the South of Europe, in sandy soils. Observed by Brewer, in sandy pastures on Llech ddue near Holyhead, Anglesea, flowering in june; and by Dr. William Sherard on the west side of the isle of Jersey, near Grosnez-castle.

Columna and Ray remarked it at the foot of mount Vesuvius, without any spots in the corolla.

27. This is a perennial plant, and has the appearance of *C. Helianthemum*, but the leaves are alternate. It was found in Canada by Kalm^d.

28. This rises higher with greater stems than the next species, but is not less hairy; having two or three leaves set at the several joints, longer and narrower than in *salicifolius*, and smaller pointed, somewhat rough, and of a deeper green colour; the flowers grow singly towards the top, and are of a pale yellow^e. The calyx is longer than the corolla, three of the leaflets erect, and two spreading. Capsules the length of the calyx^f: like those of *C. Helianthemum*, but more rigid, and half as large again. Seeds much smaller, of a ferruginous-red colour, angular, not mucilaginous^g.]

This plant puts on different appearances, according to the soil and situation. In a good soil, if the plants stand single, and are not injured by weeds, they will rise near a foot and half high, the leaves will be two inches and a half long, and near half an inch broad in the middle; but in a poor soil they do not rise more than half that height: the leaves are much narrower, and the seed-vessels not half so large. When they are cultivated in a garden they are found not to differ. It is an annual plant.

Native of the South of France and Italy; found also by Dr. William Sherard near Smyrna. [Cultivated in 1731, by Mr. Miller^b.

29. Capsules longer than the calyx. Petals yellow, smaller than the calyx and extremely fugacious. It varies with apetalous flowersⁱ.

Native of Spain and Portugal, monte Baldo, near

^a Philof. trans. vol. 33.
^y Woodw. Mill.

^u Linn. mant.

^z Stokes in Withering.

^x Dillenius.

^a Cavanilles.

^b Hort. kew.

^c Linn. mant. and Villars.

^d Linn. spec.

^e Parkinson.

^f Linn.

^g Gærtner.

^h Hort. kew.

ⁱ Linn. syst. and Hudson.

Verona, and in the county of Nice. Sandy pastures near Bream-downs in Somersetshire. Annual; flowering in June and July.—Mr. Miller has made two species of it.

30. Resembles very much *C. ledifolius*, but is many times larger, and not glossy.—*Stem* somewhat woody, a foot high, round. *Branches* next the root ascending, shorter; on the stem, towards the top, alternate, erect, few. *Leaves* opposite, petioled, elliptic, spreading, subtomentose, veined, longer than the joints. *Stipules* in fours, ensiform, half the length of the leaves, permanent. *Raceme* terminating, erect, stiff and straight. *Flowers* alternate, accompanied with a leaf and two stipules, like the stem-leaves. *Petals* yellow. *Calyx* erect; the three inner leaflets three-nerved and acuminate; the two outer linear, shorter, spreading.—Native of Egypt. Annual^k.

31. Root annual, putting out one stem only, which is erect, but not able to support the weight of the fruits. *Leaves* shining, thickish, furrowed on the upper surface where the nerve is below, sub-linear drawing to a point at each end. On each side the petiole is a subulate stipule. *Peduncles* solitary. *Flowers* drooping and without scent^l. The two outer leaflets of the calyx small; the three inner converging into an ovate inflated bladder, not opening till the fruit is ripe. *Petals* lanceolate, yellow, very short, included. *Stamens* ten, small, (five or seven, according to Jacquin). The larger leaflets of the calyx marked with four raised ciliate nerves^m. *Capful* as in *ledifolius* and *Helianthemum*. Seeds the same size as in the latter, ovate-acuminate, angular, obscurely ferruginous, very mucilaginousⁿ. Native of Egypt.

It was first cultivated by Jussieu^o; and by Miller in 1768^p. The latter affirms that the petals are white, contrary to the authority of Linneus and Jacquin, and therefore probably a mistake.

32. *Branches* rather erect, at bottom four-cornered. *Leaves* oval-lanceolate, thickish, petioled, opposite or else three on each side. *Stipules* very minute, racemose, marcescent, sessile. *Peduncles* round, crowded. The whole plant is covered with orbiculate scales, depressed in the centre. It was observed in Spain by Loeßling^q.

33. *Stem* round, pubescent, whitish, bifid or sparingly branched. *Branches* below the forking of the stem, lateral, simple, white. *Leaves* petioled, bluntish, spreading, hoary underneath. *Stipules* narrow-lanceolate, erect, the length of the petioles. *Racemes* opposite-leaved, erect or inclined. *Flowers* sessile, crowded. *Calyx* ovate, leaflets alternate, linear. *Petals* obovate, yellow, scarcely larger than the calyx. *Stamens* usually ten, shorter than the petals. *Germ* pubescent. *Fruits* obtuse, covered with the calyx, sessile, roundish^r.

The wild plant has the branches and leaves hoary on both sides. The younger leaves of the axils are revolute. *Stipules* bristle-shaped. *Calyxes* hairy, silky^s.

Native of Egypt, near Alexandria, &c.^t

34. This resembles *C. Helianthemum* very much in all its parts, except in the flower, which has the petals oblong and narrow, spreading out like the points of a star, as it is commonly painted. The seed-vessels are also smaller.

It was discovered by Edward Du-Bois, near Croydon in Surrey^u.

Mr. Hudson and others consider this as a mere variety of the common sort; the only material difference being in the shape of the petals. Dillenius on the contrary, who cultivated it at Eltham, and observed it in many other gardens; and Miller who cultivated it above thirty years, and never found it to vary from seed, do not hesitate to pronounce it a distinct species.]

35. *Stems* long, trailing, and dividing into many branches. *Leaves* veined, of a light green on their

upper side, but of a grayish colour beneath, with three narrow, erect stipules at their base. The flowers are pretty large, white, and grow in clusters at the ends of the branches.

[Found by Magnol, on mount Capouladon near Montpellier. John Bauhin had it from Basil by Richner.

36. Root perennial. *Stems* shrubby, erect or ascending, round, scabrous, a span high, branched. *Leaves* quite entire, glaucous, thickish, villose and somewhat scabrous, flat, obtuse, petioled. *Stipules* linear or lanceolate, erect. *Racemes* opposite to the leaves and terminating, with many flowers pointing one way. *Bractes* linear. *Calyx* somewhat villose, the outer leaflets linear, the inner ovate, sharpish, pale, with hairy streaks, green or purple. *Petals* roundish, yellow, obtuse, spreading very much, a little longer than the calyx. *Stamens* entirely yellow. *Capful* the length of the calyx, triangularly-roundish, obtuse, villose, one-celled, three-valved. *Seeds* brown, somewhat compressed. It flowers from June to August; the blossoms expand only in the morning.

Native of Fuertaventura, one of the Canary islands; from whence it was sent to Jacquin by Fr. Masson.

37. Root perennial. *Stems* somewhat shrubby at bottom, but the branches annual. *Branches*, leaves, racemes, and calyxes beset with scabrous villose hairs. *Leaves* oblong-lanceolate, petioled, opposite, quite entire, a little revolute. *Racemes* long, terminating. *Outer* leaflets of the calyx linear; three inner ovate, acute, pale, with greenish and hairy streaks. *Petals* rounded, white or sometimes very pale yellow, with a yellow base. *Stamens* yellow. It has a strong smell like Bryony; and approaches to *C. mutabilis*, in habit, time of flowering and fruiting, and in the form of the capsule^x.]

38. *Stems* shrubby and crooked, covered with a purplish brown bark like common Heath. *Branches* slender. *Leaves* narrow and stiff, like those of Thyme: they are opposite, and have no stipule at their base. [If so, it does not belong to this section.] The flowers are produced on naked peduncles, terminating the branches in a sort of umbel; they are of a pale yellow colour, and a little smaller than those of *C. Helianthemum*.

[Gouan refers Clusius's plant to *C. oelandicus*, n. 24. which see.

Native of the Alps of Austria. Cultivated in 1759, by Mr. Miller. It flowers from May to September^y.

39. Root woody, small, creeping much. *Stems* many, a long span in height, straightish, at bottom woody and branched, but at length solitary, more slender, round, green, naked at top, villose and glutinose with very short spreading hairs. *Leaves* subhirsute, even above, nerved beneath, three, four, or five together, unequal; the upper ones fewer, always alternate, more villose; the uppermost ternate or solitary. From the upper internodes there are rudiments of branches. *Racemes* few-flowered. *Peduncles* longer than the flower, glutinose, villose. Three leaflets of the calyx ovate, obtuse, marked with green lines and red at the end; the other two linear, green, shorter. *Corolla* yellow, a little longer than the calyx^z. Native of the South of Europe.

40. Linneus has given no description of this species. Villars says, that it is a smaller plant than his *hirsutus*, but he doubts whether that be the same with the *pilosus* of Linneus. The leaves are narrower and disposed in bundles. The flowers are yellow, but smaller and fewer. It is villose, but the tissue is closer, which renders it whitish. The hairs do not issue from a gland, nor does it seem to be glutinous. The leaves much resemble those of Thyme, but they are not so hard, and they are a little whiter. Villars thinks it may possibly be the same with the *glutinifus* of Linneus; and whether

^k Linn. mant.

^l Jacquin.

^m Linn. mant.

ⁿ Gærtner.

^o Linn. mant.

^p Hort. kew.

^q Linn. spec.

^r Linn. mant.

^s Vahl.

^t Forsk.

^u Dillenius.

^x Jacquin.

^y Hort. kew.

^z Ger. prov.

it be the same with the *pilosus* of that author is difficult to say.

Native of the South of France and of Spain. Cultivated in 1714, by the Dutchess of Beaufort^a.

41. Stems somewhat erect. Bractes solitary, at the sides of the pedicels^b.—Gerarde refers to this all the small species with white flowers, even *C. apenninus*^c. And in this Allioni agrees with him. It varies with broader, ovate leaves, scarcely revolute; and narrower leaves, revolute on both sides, usually whitish. The white colour of the corolla varies exceedingly, and in the garden, the same plant will have white, sulphureous and rose-coloured flowers. It is also not uncommon on the maritime hills of the county of Nice, with rose-coloured flowers^d. Calyxes not hairy, in which it differs from *C. thymifolius*^e.

Villars describes his *hirsutus* as having the size and figure of *C. Helianthemum*, but as differing in the habit, tissue, and colour; its woody stems, branched at first near the base, then rise perpendicularly to six or even ten inches in height; the leaves are elliptic, villose, dark-coloured, revolute, with two stipules at the base; they are narrower than those of *C. Helianthemum*.

Native of the South of France, Spain, and Piedmont. Cultivated by Mr. Miller, in 1759.

42. This is a weak shrub, half a foot in height, (according to Linneus, the stature of Rosemary^f): the branches remotely mucronated from the fallen leaves, tomentose and hoary at top. Leaves opposite, on very short petioles, linear (or narrow lanceolate, revolute, underneath) most smoothly tomentose. Stipules bristle-shaped, (linear, *Lin.*) purplish, a pair on each side, the length of the petiole. Flowers in a terminating, solitary (very long) pendulous raceme, all directed one way; without any bractes. Calyxes smooth, ovate, acute, angular: the two outer leaflets bristle-shaped, shorter than the inner ones, which are ovate, nerved and furrowed.

It differs from *C. lavandulifolius* in having narrower shorter leaves, less tomentose and without a point at the tip, no bundle of leaves in the axils, the calyxes smaller and smooth, angular with the elevated nerves^g. Native of Spain.

43. Root perennial, branched. Stem round, branched from the base, woody; the younger branches, with the leaves, stipules and racemes slightly villose and hoary. Stipules four, subulate, sharp. Leaves opposite, lanceolate-oblong, sharpish, quite entire, on short petioles, rough on both sides. Racemes terminating, many-flowered, upright; the pedicels bent back in fruiting-time. Bractes like the stipules, deciduous. The two outer leaflets of the calyx linear, the rest ovate, acute and nerved. Petals yellow, with an orange-coloured base, either quite entire or crenulate about the edge. Capsule hirsute, ovate^h.

44. According to Linneus, the petals are suborbiculate, quite entire, yellow, generally with a tawny ring surrounding the receptacle. The racemes nod before they flower. The leaves have a few hairs scattered over them.—Branches subhirsute. Leaves hairy on their upper surface, and tomentose on their lower, ovate; the upper linear. Stipules four, hairy on their edges. Raceme terminal, three or five-flowered. Calyx membranaceous, hirsute, with brown or purplish nerves. Petals crenate or emarginate, very obtuse, almost truncate, rather cordate than orbiculate, wrinkled. Germ hirsute, ovateⁱ.

Mr. Curtis has observed that the hairs on the leaves are forked. Stems numerous, round, smooth at bottom, at top slightly hairy, commonly reddish. Leaves opposite, on very short petioles. The three upper leaflets of the calyx ovate, bluntish, somewhat transparent, equal, three-ribbed, the ribs coloured and hairy; the two lower very small, lateral and

hairy. Capsule one-celled, three-valved: ovate, three-cornered, smooth, the valves clothed on the inside with a thin membrane. Seeds about ten to each valve, angular, smooth, testaceous-rufescent, mucilaginous^k.

Scopoli distinguishes this from his *grandiflorus*, by having the stipules shorter than the calyx; whereas in that they are longer. Pollich says that he has reckoned as far as ninety stamens in a flower.

The usual colour of the corolla is a full yellow, but it varies to lemon-colour, white and even rose-colour; it is also said to be found with a double corolla. It varies likewise something in the leaves.

Allioni suspects that the *serpyllifolius* of authors is the same with his *alpestris*; and that his *serpyllifolius* may be a variety of this species. He observes farther, that *C. Helianthemum* varies so much from situation, as to give him reason to suspect that *C. angustifolius* and *hispanicus* of Jussieu; *C. grandiflorus*, *helianthemoides*, and *serpyllifolius* of Crantz, and *roseus* which he has figured, are but one species with this.

Found in dry pastures in many parts of Europe. With us generally in calcareous soils. Perennial; flowering from June to August.

45. Stems several, branching very much, woody at bottom, and the size of a common quill, procumbent and brown: from these spring annually numerous, smooth, ascending branches, about a foot in length. Leaves opposite, petioled, lanceolate-oblong, bluntish, quite entire, green, flat not revolute. Stipules in pairs on each side, lanceolate-acuminate, upright. Racemes terminating, long, upright, appearing slightly villose when viewed with a magnifier. Two leaflets of the calyx linear; three ovate, concave, pale with green streaks, obscurely villose. Petals obovate, sharp at the base, pale yellow or rose-coloured. Stamens entirely yellow. Capsule triangular-roundish, somewhat villose, one-celled, three-valved. Seeds few, brown. It flowers in May and June; and the seeds ripen in July^l.]

46. Stem erect, sending out many side branches, with the joints pretty close. Leaves very narrow, opposite, revolute, the upper surface of a lucid green, and the under hoary. Flowers large, white, in small clusters at the ends of the branches.

[Allioni observes that the calyx is whitish, that it has nothing rough or hairy about it, and that it is a very distinct species.

Native of the South of France, Spain and Villafraña. Cultivated by Mr. Miller in 1759.

47. This is a foot in height, branching and spreading. Leaves green and rough with hairs on the upper surface, on the lower hoary^m.

Miller makes two species of this, and thus describes them: 2. The stalks are much larger, and extend farther than those of *C. Helianthemum*; the leaves are longer and hoary; there are three acuminate erect stipules at each of the lower joints. The racemes are much longer; the calyx is hairy and whitish; the corollas are white and larger.

4. The stems are more erect, the leaves not so long, the stipules very small, and the whole plant very hoary. The flowers are white, the spikes shorter and more compact.

[Native of Italy, on the Apennines. Cultivated in 1731, by Mr. Millerⁿ.

48. Branches many spreading on the ground, hoary towards the end, towards the base brownish, with frequent joints and naked, most of them a hand in length, but the inner and younger branches much shorter. Leaves thickish, somewhat stiff, revolute, having a prominent rib underneath, hoary, frequent; with others much smaller growing from the axils. Flowers few terminal, of the same form and size with those of the common sort (n. 44.), but white; petals slightly crenate, generally cordate.

^a Hort. kew.

^b Gouan.

^c Linn. syst.

^d Allioni.

^e Sauvages.

^f Linn. mant.

^g Vahl.

^h Jacquin.

ⁱ Relham.

^k Gartner.

^l Jacqu. misc.

^m Linn.

ⁿ Hort. kew.

Capsules obtusely three-cornered, roundish, one-celled, three-valved. Seeds many, three-cornered, dark brown. In a garden, the leaves become larger, lose their hoariness, and become green and hairy*. Flowering branches ascending, white. Leaves opposite. Racemes terminating. Peduncles short, with small lanceolate bractes. Calyx purplish, slightly hairy, the three inner leaflets broad oval, the two outer ones lanceolate, minute†.

Remarked first by Plukenet on Brent-down in Somersetshire, near the Severn Sea; and found in the same place, on the middle of the hill, by Dillenius, in July 1726. Native also of the South of Europe.

49. This plant is a foot high, suffruticose and diffused. Leaves lanceolate, flat, smooth, acute, but the younger ones subpubescent. Stipules in pairs, very small. Peduncles from the axils of the upper leaves, solitary, one-flowered. Three leaflets of the calyx ovate-cordate, acute, large; the two lower ones linear, acute, spreading. The capsule nobs and is thick‡.

According to the description of Vahl, the branches are leafless, procumbent at bottom, then ascending, often a foot high, round, smooth, slender: branchlets from the very base, copious, alternate, distant, spreading very much; the lower ones barren, the uppermost flowering, quite simple, elongated, cinereous-pubescent. Leaves on the barren branches crowded, marked with two lines, declining, linear, stiffish, veinless, bluntish, the last tomentose-ash-coloured. Stipules minute, ovate. Leaves on the flowering-branches broader and longer, pubescent. Stipules lanceolate. Raceme terminating, composed of three or four flowers, bracted. Pedicels distant, hairy and somewhat viscid towards the top, a little thicker below the flower. Calyx hairy, slightly viscid: inner leaflets three-nerved, with the interstices membranaceous; outer lanceolate. Native of Spain.

50. Stems reddish, viscid; leaves green; peduncles solitary, axillary and terminal; corolla pale yellow. No stipules. Shrubby.—In the county of Nice§.

51. Stem villose, about six inches high. Leaves an inch long. Flowers in racemes. Peduncles and calyxes villose. The smaller leaflets of the calyx linear; the others twice as long. Petals yellow, rounded, almost half an inch in length. It differs from *C. Helianthemum* in the whole appearance, in the flower, length of the spicules, and hardness of the leaves. The spicules in Seguer's figure are too small¶.

Allioni doubts whether this be a distinct species from *C. Helianthemum*.—Carniola and Piedmont.]

52. This differs from *villosus* and *incanus* (n. 2. and 8.) in having shorter and greener leaves, which are joined at the base and hairy. The peduncles are much longer, and the flowers are smaller, but of a deeper purple. It flowers and seeds at the same time with them; and the shrubs grow as large as the second sort. It is a native of Portugal.

53. This has much larger and rounder leaves, they are hairy, but even on their upper side, rough and full of veins on their under; the branches are white and hairy; the flowers very large, and of a light purple colour.

54. This does not rise so high as either of the former, but sends out branches near the root, which are hairy and erect. At each joint comes out a very slender branch, having three pairs of small leaves of the same shape with the others, and terminated by a single flower; the ends of the branches have three or four flowers sitting close without peduncles. The flowers are of a deep purple colour, and like those of the second. These flower at the same time with the others.

55. This sort rises with a smooth shrubby stalk four or five feet high, sending out many slender woody branches, covered with a smooth brown

bark; with oblong heart-shaped leaves, which are smooth, and have long foot-stalks. The flowers are produced at the ends of the branches, standing upon pretty long peduncles; they are white, and appear in June, July, and August, but rarely produce any seeds in England.

56. Stem shrubby, about nine inches high. Leaves very narrow and fine, growing in clusters. The flowers come out from the side, and at the ends of the branches, on slender peduncles; they are of a pale straw-colour, and it is seldom longer than two hours before the petals fall off. This plant seldom continues more than two years.—Native of the Cape of Good Hope, and sent to Mr. Miller from Holland by Dr. Adrian van Royen.

Mr. Miller has another species, (n. 9.) which he calls *Helianthemum cistifolium*, and thus characterises—*stems procumbent undershrubby smooth, leaves ovate-lanceolate opposite, peduncles longer*. He gives the following synonym of Boerhaave, *Hel. germanicum luteum Cisti folio*. Perhaps it may be a variety of *C. Helianthemum*, n. 44.

[57. Found in the island of Teneriffe by Maffon, and introduced in 1779. It flowers from April to June. The place of this is between the fourth and fifth species.

58. Native of Spain and Portugal. Cultivated in 1656, by Mr. John Tradescant, jun. It flowers in June and July. This should come in between the sixth and seventh.

59. Stems decumbent, round, closely beset with short stellated hairs, and rugged. Branches short. Leaves subpetioled, an inch in length. Flowers terminating, subpanicled. Calycine leaflets ovate-lanceolate, acuminate, pubescent on the outside with stellated hairs and a long pile; they are equal and four lines in length. Petals obovate, subretuse, about twice the length of the calyx, deep yellow, paler at the base.

Native of Italy and Portugal. It flowers in June and July. Introduced in 1775, by Mess. Kennedy and Lee*. It comes in between the eighteenth and nineteenth species.

60. Stem two or three feet high. Branches round, densely tomentose, hoary-white. Leaves opposite, hoary, very soft, flat, bluntish, about an inch in length; the four uppermost sessile, subcordate at the base, the rest ending in a short petiole. Peduncle from the top of the branches, solitary, erect, a short span in length, hoary, wholly beset, as are also the pedicels, with long purplish hairs. Pedicels towards the top, spreading, the lower ones three-flowered, the upper one-flowered. Calyx extremely hirsute with soft silky hairs before the flower opens ovate, acuminate. Inner leaflets three, ovate, very smooth on the inside; the outer ones lanceolate, at the base of the calyx. Petals purple, with a yellow spot at the base. Filaments purple. Anthers yellow.

C. albidus differs from this in having narrower, lanceolate leaves, all sessile, wrinkled, with the hairs more distinct: more peduncles, shorter than the leaves, and without the purplish hairs: the calycine leaflets broader, shorter, with a raised line along the back, tomentose not hirsute and hoary on both sides: flowers larger.

Native of Spain and Portugal.

61. This is a shrub, the same height with *C. halimifolius*. Branches round, angular at the top, hoary, covered with yellowish scales nearly in the same manner as in *C. squamatus* and *halimifolius*. All the leaves petioled, flat, the younger ones waved, hoary on both sides, appearing very minutely dotted when viewed with a magnifier, nerved, brittle, half an inch in length. Raceme terminating. Peduncles round, erect, three inches long, hoary, with very soft purplish hairs: pedicels simple of the same structure with the peduncle, and jointed. Calyxes ovate, acuminate: outer leaflets caducous; inner ovate, acuminate, very smooth within, hairy with-

* Dillenius.

† Woodward, Mff.

‡ Linn. amoen.

§ Allioni.

¶ Scopoli.

* Hort. kew.

† Ibid.

‡ Ibid.

but: the hairs shorter than in the foregoing. Corolla purple. Germ villose. It has the branches and leaves of *C. balimifolius*, with the peduncle and calyx of *C. sericeus*; from which it may be distinguished by having all the leaves petioled, and whiter, with the branches covered with yellow scales. Native of Spain.

The proper place of this and the foregoing is between the tenth and eleventh species.

62. This is an upright and very branching shrub, a foot or more in height: branches short, the younger ones tomentose, hoary, with yellowish scales scattered over them. Leaves opposite, veinless, hoary on both sides, flat; the younger ones doubled together, patulous at the tip: petiole very short, with a few long hairs on it. Flowers racemed. Peduncle terminating, half a foot long, erect, by no means hoary, hairy, especially at bottom. Towards the middle of the peduncle there is a pair of sessile leaves; those on the branches are larger and more acute, the upper ones are smooth. Pedicels towards the top of the peduncle, remote, filiform, quite simple, commonly five, with a bent joint at top; the lower ones in pairs, the rest alternate. Flowers nodding before they open. Calyx oblong, acuminate, hirsute, smooth within; two leaflets caducous. Petals yellow with a dusky spot at the base, a little longer than the calyx.

It is distinguished by its two-leaved, elongated peduncles, not tomentose but only hairy; from *C. balimifolius* by its alternate floral leaves. The leaves also are smaller than in the other species that approach nearest to it. Native of Spain, where this and the preceding sort were found by Vahl.

The proper place for this is between the twelfth and thirteenth species.

63. This is an erect little shrub, with slender villose branches, and a brown bark. Leaves sessile, oblong, erect, flat, quite entire, villose on both sides, becoming black in drying. Peduncles towards the top, solitary, sometimes two or three together, in the axils of the leaves on the lower branches, spreading, double the length of the leaf, villose, a little thicker at the end, having two linear caducous leaves at the top. Calyxes ovate, acute, hirsute. It has the calyx and inflorescence of *C. salicifolius*, but it is shrubby. Native of Brasil.

The true place of this is between the twenty-fourth and twenty-fifth species.

64. This is a shrub a palm, and sometimes a foot in height, branched at bottom. Branches round, upright, tomentose, hoary. Leaves opposite, hoary, veinless, revolute sometimes flat, rigid, mucronate, an inch long, with a bundle of smaller leaves in each axil. Petiole very short. Stipules a pair on each side, subulate, with soft hairs, purplish, patulous and reflex at the tip. Racemes terminating, solitary, or often in pairs, revolute at the end before the flowers open. Flowers copious, without bractes. The two outer leaflets of the calyx lanceolate, hairy-ciliate; the inner ovate, larger, acuminate tomentose, hoary, very smooth within. Corolla yellow.

Native of Spain, South of France and Barbary. Clusius observed it in the kingdom of Valencia; and Vahl about Marseilles, and on the dry hills of Tunis.

Its proper place is between the forty-first and forty-second species.

65. Stem suffruticose, branched at the base. Branches quite simple, a short span in length, ascending, leafy, smooth at bottom, tomentose at top, hoary as they are also at the base. Leaves sessile, two inches long, gradually smaller towards the top, opposite, except the last, which are alternate, hairy, but sometimes though very seldom quite smooth. Stipules only to the last leaves. Raceme terminating, without bractes. Pedicels filiform, nodding, remote. Leaflets of the calyx ovate, tomentose; the two outer smaller, towards the base of the inner ones ovate, hairy, only one-third of the size of the others.

C. Tuberaria differs from this, in having the

leaves oblong, tomentose underneath, wrinkled, mucronate, the stem almost leafless, smooth at top, and the capsule twice as large.

This species differs from *C. guttatus*, in having the stem at bottom perennial, and the outer calycine leaflets ovate, not bristle-shaped.

Native of Barbary, and found there on the heaths near Bizertá, by Vahl.

The proper place of this is immediately before *C. Tuberaria*, n: 25.

66. This is a small upright shrub, a span high. Branches opposite, purple at bottom, clothed at the base, as are also the branchlets with long thinly scattered hairs; the younger ones are hoary, somewhat angular, and when examined with a magnifier have ferruginous dots scattered over them. Leaves petioled, opposite, those on the branches, and the lower ones on the flowering-twigs lanceolate wedge-form, often an inch long, three-nerved, green on both sides, almost naked above, slightly hairy beneath; the younger ones and those of the barren twigs obovate, doubled, without apparent veins or nerves. Stipules none. Peduncles lateral, opposite, higher than the branches, about a span in length, smooth, round, stiff, with two pairs of leaves at bottom. Partial peduncles opposite, two inches long, remote, smooth, the lower ones commonly two-flowered: flowers pedicelled, one of the pedicels with a bent joint. Calyx before it opens ovate, acuminate, three-leaved; the leaflets quite smooth. Petals white, with a purple spot at the base.

According to Cavanilles, the stem is two feet high, with a brown bark. Leaves subconnate, ovate-oblong, white on the lower surface, with a prominent dorsal nerve: those on the older branches short, narrowed at the base, with a sort of petiole, resembling those of *Thymus mastichina*; on the flowering-branches they are many times longer, but still sessile and connate. Peduncles sometimes a foot long, almost leafless, branched; branches opposite (sometimes alternate) hairy, many-flowered. Anthers ovate, twin. Germ tomentose; style short, red, stigma thickened, fringed. Capsule ovate, obscurely three-cornered, three-valved.

Native of Spain.]

PROPAGATION AND CULTURE:

All the various kinds of *Cistus* are very great ornaments to a garden; their flowers, though but of a short duration, are succeeded by fresh ones almost every day for above two months successively; these flowers are many of them about the bigness of a middling Rose, but single, and of different colours; the plants continue their leaves all the year.

[The most desirable sorts for their beauty are the 3d, 4th, 5th, 8th and 12th. The 6th, 9th and 10th are also very handsome.]

These plants are most of them hardy enough to live in the open air in England, unless in very severe winters, which often destroy many of them, so that a plant or two of each sort may be kept in pots, and sheltered in winter, to preserve the kinds; the rest may be intermixed with other shrubs, where they will make a pretty diversity; and in such places where they are sheltered by other plants, they will endure the cold much better than where they are scattered singly in the borders.

[The 1st, 17th, 30th, 31st, 36th, 49th and 56th require the protection of a stove. The 12th is the most tender of the European species, and will hardly live abroad in the winter. The 2d, 3d and 9th are the next in tenderness; and after them the 4th, 8th and 12th.]

Many of these plants will grow to the height of five or six feet, and will have large spreading heads, provided they are permitted to grow uncut; but if they are ever trimmed, it should be only so much as to prevent their heads from growing too large for their stems; for whenever this happens, they

are apt to fall on the ground, and appear un-
lightly.

These shrubs are propagated by seeds, and also from cuttings; but the latter method is seldom practised, unless for those sorts which do not produce seeds in England; these are the twelfth and the fifty-fifth sorts; all the others generally produce plenty of seeds, especially those plants which came from seeds; for those which are propagated by cuttings, are very subject to become barren, which is also common to many other plants.

The seeds of these plants may be sown in the spring upon a common border of light earth, where the plants will come up in six or seven weeks, and, if they are kept clear from weeds, and thinned where they are too close, they will grow eight or ten inches high the same year; but as these plants, when young, are liable to injury from hard frost, therefore they should be transplanted when they are about an inch high, some into small pots filled with light earth, that they may be removed into shelter in winter, and the others into a warm border, at about six inches distance each way; those which are potted, must be set in a shady situation till they have taken new root; and those planted in the border must be shaded every day with mats till they are rooted, after which the latter will require no other care but to keep them clean from weeds till autumn, when they should have hoops placed over them, that they may be covered in frosty weather; those in the pots may be removed into an open situation, so soon as they have taken new root, where they may remain till the end of october, but during the summer they must be shifted into larger pots, and be frequently watered; the end of october they should be placed under a hot-bed frame to screen them from the cold in winter, but, at all times, when the weather is mild, they should be fully exposed to the open air, and only covered in frosts: with this management, the plants will thrive much better than when they are more tenderly treated.

The above method is what the gardeners generally practise: but those who are desirous to have their plants come forward, should sow the seeds on a moderate hot-bed in the spring, which will bring up the plants very soon: but these must have plenty of air when they appear, otherwise they will draw up very weak; when the plants are fit to remove, they should be each planted into a separate small pot, and plunged into a very moderate hot-bed, observing to shade them till they have taken fresh root; then they must have plenty of air admitted to them every day in good weather, to prevent their drawing up weak; and by degrees they must be hardened, so as to be removed into the open air the beginning of june, and then they may be treated in the same manner as is before directed for the other seedling plants. By bringing the plants forward in the spring in this method, they will grow to the height of two feet, or more, the first summer, and have many lateral branches, so that they will be strong enough to plant abroad the following spring, and most of them will flower the same summer; whereas those which are sown in the full ground, rarely flower till the year after; nor will they be so strong, or capable to resist the cold of the second winter, as those which have been brought forward.

In the spring following, these plants may be turned out of the pots, with all the earth preserved to their roots, and planted in the places where they are to remain (for they are bad plants to remove when grown old,) observing to give them now and then a little water, until they have taken fresh root; after which time, they will require no farther care than to train them upright in the manner you would have them grow; but those plants which were at first planted into a border in the open ground, should be arched over, and covered with mats in frosty weather, during the first winter, but may be transplanted abroad the succeeding spring. In removing these plants, you should be careful to preserve as much earth about the roots as you can; and if the season

should prove hot and dry, you must water and shade them until they have taken fresh root, after which they will require no other culture than was before directed.

These plants may also be propagated by cuttings, which should be planted in may or june, upon a bed of light earth, keeping them shaded with mats, and frequently refreshed with water, until they have taken root; which will be in about two months time, when you may transplant them into pots filled with good fresh light earth, and they should be set in a shady place until they have taken root, then they may be exposed to the open sun until october, when you should remove them into shelter the first winter; but the succeeding spring you may plant them abroad, as was before directed for the seedling plants.

Most of the perennial sorts of Dwarf Cistus or Sunflower (*Helianthemum*) will thrive in the open air in England: they are propagated by seeds, which may be sown in places where they are to remain, and will require no other care but to keep them clean from weeds, and to thin them where they are too close, always observing to leave those sorts at a greater distance, whose stalks trail on the ground to the greatest length.

These plants will continue several years in a poor dry soil; but in rich ground or moist situations they seldom last long: but as they ripen seeds in plenty, they may be easily renewed.

For the annual sorts, the seeds may be sown in april upon a bed of common earth: the plants will come up in may, and flower in july.

[Mr. Curtis adds, that though our common Dwarf Cistus (n. 44.) cannot vie with those which are the produce of warmer climates, yet it is one of the most ornamental of our native plants, and admirably well calculated to decorate a rock or dry bank, especially if its several varieties, with white, rose and lemon-coloured flowers be intermixed. It is hardy, easily propagated either by seeds or cuttings, and continues for the greatest part of the summer to put forth daily a multitude of new blossoms. If the variety with double flowers, mentioned by Haller, could be obtained, it would be a valuable acquisition to our gardens.

CISTUS. See *Andromeda*, *Diosma*, *Kalmia*, *Ledum*, *Rhododendron*, *Telephium*, *Turnera*.

CISTUS indicus & virginicus. See *Azalea*.]

CITHAREXYLUM. (From *κithάρα* a harp, and *ξύλον*, wood.)

Engl. Fiddle-wood.

Fr. Guittarin or Bois de Guittarre.

Lin. gen. n. 760. Reich. 818. Schreb. 1019.

Gartn. t. 56. Juss. 108. Jacq. 117.

Class. 14. 2. Didynamia Angiospermia.

Natural order of *Personatae*. *Vitices* Juss.

GENERIC CHARACTER.

CAL. *Perianth* one-leaved, bell-form, five-toothed, acute, permanent.

COR. one-petalled, funnel-wheel-form: tube twice as long as the perianth, thicker at the top: border five-parted, two-lipped; segments above villose, oblong, truncate, flat, very spreading.

STAM. *Filaments* four, with the rudiment of a fifth from the middle of the tube, filiform, two of them somewhat longer. *Anthers* oblong, twin, erect.

PIST. *Germ* roundish. *Style* filiform, the length of the stamens. *Stigma* obtuse-headed.

PER. *Berry* roundish, somewhat compressed, one-celled.

SEEDS two, ovate, two-celled, convex on one side, concave on the other, emarginate at the end.

ESSENTIAL CHARACTER.

Cal. five-toothed, bell-form. Cor. funnel-wheel-form; segments above villose, equal. Berry two-seeded. Seeds two-celled.

SPECIES.

[1. *Citharexylum cinereum*. Ash-coloured Fiddle-wood.

Lin. spec. 872. Reich. 3. 160. Jacq. amer. 185.

t. 118. ed. 2. pist. 92. t. 178. (teres.) Brown.

jam. 264. n. 1. Pluk. alm. t. 162. f. 1.

Jasminum.

- Jasminum*. *Plum. ic.* 157. f. 1.
Branches round; calyxes toothed.
2. *Citharexylum caudatum*. Oval-leaved or long-spiked Fiddle-wood.
Lin. spec. 872. *Reich.* 3. 160. *Brown. jam.* 265. n. 5. t. 28. f. 2.
C. erectum. *Swartz. prodr.* 91.
Branches round, calyxes truncate.]
3. *Citharexylum quadrangulare*. Square-stalked Fiddle-wood.
Lin. syst. 564. *Reich.* 3. 161. *Jacqu. hort.* 1. t. 22. *amer. pict.* 92. *Mill. dict. n.* 1. cinereum.—
forte *caudatum*, *Swartz.*
Branches quadrangular.
- [4. *Citharexylum villosum*. Hairy-leaved Fiddle-wood.
Jacqu. collect. 1. 72. *Ait. hort. kew.* 2. 349.
C. subserratum. *Swartz. prodr.* 91.
Leaves villose.]
5. *Citharexylum melanocardium*. Black-heart Fiddle-wood.
Swartz. prodr. 91. *Brown. jam.* 265. n. 2.
C. paniculatum. *Gertn. fruct.* 1. 270.
C. album. *Mill. dict. n.* 2.
Branches quadrangular, racemes terminating compound, flowers four-stamened.

DESCRIPTIONS, &c.

1. [This is a tree rising with a round upright trunk not more than a foot in diameter to the height of fifteen or twenty feet, with a handsome branching head. Leaves oblong-oval, acuminate at both ends, entire, shining, commonly opposite, but sometimes alternate, and frequently three together, of different sizes, but mostly above half a foot in length. The petioles have often a few glandular holes on each side above, exuding honey-drops in the younger ones. Racemes terminating, dense, quite simple, pendulous, nine or ten inches long. Flowers small, numerous, odoriferous, on short pedicels. Corolla white. Berries succulent, shining, soft, roundish, first green, next red, and finally black^a.

Browne says, that it rises above eight or nine feet in height; that the veins of the leaves, and all the tender buds, are of a brown colour; the bark of the trunk and lower branches of a whitish ash-colour. It is very common in all the Savannas of Jamaica; and is called *Old-woman's bitter*. Also in the woods of Martinique, where the French call it *Bois cotelet*^b.

2. The leaves are obovate. Both they and the racemes are erect. It is but a shrub, says Browne, which seldom grows above ten or twelve feet in height; and bears a great number of small berries, disposed on divided spikes at the extremities of the branches. It is pretty common about *Sixteen-mile-walk* in Jamaica. Introduced in 1763, by Mr. John Bush^c.

3. This differs from the first species in having the berries red when ripe, and all the branches, round indeed, but made unequal by four ribs running down them. The bark is ash-coloured, and it agrees with the *cinereum* in all other circumstances. It is perhaps only a variety. The French call it *Bois cotelet carré*^d.

Native of the West Indies, Jamaica, Martinique, &c.

Mr. Miller thus describes it:] It has an upright trunk fifty or sixty feet high, sending out branches on every side, which have several angles, or ribs, running longitudinally, garnished by three oval spear-shaped leaves at every joint, standing in a triangle, upon short foot-stalks. The leaves are about four inches long, and one or two broad, of a lively green colour, pretty much notched on their edges, having several deep veins running from the midrib to the edges; they are of a white colour on their upper side, and very prominent on their under. The flowers come out from the sides, and also at the end of the branches, in loose bunches, which are succeeded by small pulpy berries, inclosing two seeds in each.

[4. This is a small tree about ten feet in height. The trunk and older branches are round and ash-coloured, the younger ones four-cornered and green; the young shoots are villose. Leaves opposite, on short petioles, lanceolate or obovate, acute, firm, serrate with a few sharp distant teeth towards the tip, very seldom quite entire, somewhat rugged on the upper surface, extremely soft and villose on the lower, three inches long, with an oblong, deep-green glandular hole on each side of the petiole at top. Racemes half a foot long, hanging down at the ends of the branchlets. Flowers numerous, on short pedicels, villose all over, and smelling extremely sweet. Calyx truncate. Corolla white.

Native of St. Domingo^e. Introduced in 1784, by Mr. John Graëfer^f.

5. This tree frequently rises to the height of forty or fifty feet, and is generally looked upon as one of the hardest and best timber trees. The body grows to a considerable thickness, and is covered with a thick whitish bark, which, like the grain of the wood, winds in a loose spiral form. The leaves are pretty long, rugged and slightly serrate. The flowers are disposed in bunches at the extremities of the branches. The berries are small and yellow; and are sometimes eaten by the negroes: they contain each two hemispheric shells, with two kernels; the nuts may be easily parted into two lobes or segments^g.

Gærtner describes the berry as ovate, black, smooth, one-celled, containing two ovate, hard, plano-convex shells, marked with an obscure groove on the back, and two-celled. In each cell is a single, oblong, subtrigonal, rufescent seed.

Native of Jamaica, chiefly in the low lands and savannas.

If this be the *C. album* of Miller:] the seeds were sent him by William Williams, Esq. from Jamaica.

Mr. Miller affirms, that the French call this tree *Fidelle*, from its faithfulness or durability in building; and that the English have corrupted the name to *Fiddle-wood*, as if it were used for making musical instruments, which is a mistake.

PROPAGATION AND CULTURE.

The third sort has been long preserved in some of the curious gardens in England, for the sake of variety. The leaves continuing through the year, and being of a fine green colour, make a pretty variety in the stove during the winter season; this may be propagated either by seeds, or cuttings; the latter is the usual method in England, where the seeds are not produced; but when seeds can be obtained from abroad, the plants which rise from them are much better than those raised from cuttings.

The seeds of this sort should be sown in small pots early in the spring, and plunged into a fresh hot-bed of tanners bark, and treated in the same manner as other exotic seeds, which are brought from hot countries. If the seeds are fresh, the plants will appear in six or seven weeks, and in about one month more will be fit to transplant; when this is done, the plants should be carefully separated, so as not to tear, or break off their roots, and each planted in a small pot filled with light fresh earth, and plunged into the hot-bed again, observing to shade them till they have taken fresh root; after which they should have a large share of air admitted to them in warm weather, and must be frequently watered; in autumn the plants should be removed into the bark-stove, where it will be proper to keep them the first winter, till they have obtained strength; then they may be afterward kept in a dry stove in winter, and in the middle of summer they may be exposed in the open air for two or three months, in a warm situation, with which management the plants will make better progress than when they are more tenderly treated.

If the cuttings of these plants are planted in small pots during the summer months, and plunged into a

^a Jacquin.^b Ibid.^c Hort. kew.^d Jacquin.^e Jacquin.^f Hort. kew.^g Browne.

moderate hot-bed, they will take root, and may afterward be treated in the same manner as the seedling plants.

CITRUL and CITRULLUS. See *Cucurbita*.

CITRUS. (Derivation uncertain. Some say, it is from the name of a place in Asia. Vossius affirms that it is a Latin word, which the Romans had, not from Greece, but from Africa. Others say from the Arabic.)

Lin. gen. n. 901. Reich. 974. Schreb. 1218.

Gärtn. t. 121. Juss. 261. Aurantium. Tournef.

393, 394. Citreum 395, 396. Limon 399.

Class. 18. 3. Polyadelphia Icosandria.

Nat. order of Bicornes. Aurantia Juss.

GENERIC CHARACTER.

CAL. Perianth one-leafed, five-cleft, flat at the base, very small, withering.

COR. Petals five, oblong, flat, spreading.

STAM. Filaments usually twenty, subulate, compressed, erect, placed in a ring or cylinder, united generally into fewer or more bunches. Anthers oblong.

PIST. Germ superior, roundish. Style cylindric, the length of the stamens. Stigma globular, nine-celled within.

PER. Berry with a fleshy rind, the pulp bladderly, nine-celled, (seven to eleven, G. nine to eighteen, F.)

SEEDS in couples, (one to four, G. one or two, F.) subovate, callous.

Obs. Orange has a cordate petiole.

Citron, Lemon, and Lime have a naked and simple petiole.

ESSENTIAL CHARACTER.

Cal. five-cleft. Pet. five, oblong. Anthers twenty, filaments united into various bodies. Berry nine-celled.

SPECIES.

1. Citrus Medica.

Lin. spec. 1100. Reich. 3. 584. hort. cliff. 379. upf. 236. mat. med. 366. Woodv. med. bot. 500. t. 184. Gärtn. fruct. 2. 189. Lour. cochinch. 465. Raii hist. 1654. Ger. 1278. f. 1. emac. 1462. Park. theat. 1505, 1506. f. 1. Mart. Virg. georg. p. 135. fig. Blackw. herb. t. 361. Rumph. amb. 2. 99. t. 25.

α. C. Medica. Mill. dict. n. 1. Sweet Citron. Fruit with a thick rough rind.

β. C. tuberosa. Mill. dict. n. 2. Common Citron. Brown. jam. 309. n. 6. Sloan. jam. 2. 177. Ferr. hesp. 59, &c. Fruit with a rough knotted rind.

γ. C. Limon. Common Lemon. Brown. jam. 308. n. 3, 4. Sloan. jam. 2. 178. Limon vulgaris. Mill. dict. Ferr. hesp. 189, &c. Blackw. 362. Malus medica. Baub. pin. 435.

M. Limonia. Raii hist. 1656. Ger. 1278. f. 2. emac. 1462. Park. theat. 1507. f. Leaves ovate-lanceolate, acuminate, subserrate.

δ. C. acris. Sour Lemon or Lime.

C. Limon. Brown. jam. 308. n. 1, 2. Lour. cochinch. 465. & madurensis 467. & margarita 467.

Limon spinosum. Mill. dict. n. 2.

Malus Limonia acida. Baub. pin. 436.

M. Arantia, fr. Limonis pusillo acidissimo. Sloan. jam. 2. 182.

Lima acris. Ferr. hesp. 331. f. 333.

Limonellus. Rumph. amb. 2. 107. t. 29. & 110. t. 31.

Leaves ovate entire; branches somewhat thorny.

ε. C. racemosa. Clustered Lemon.

Limon racemosum. Mill. dict. n. 3.

L. fructu racemoso. Tourn. inst. 621.

Leaves ovate-lanceolate, subserrate; fruit in clusters.

Petioles linear, in all the varieties.

2. Citrus Aurantium. Orange.

Lin. spec. 1100. Reich. 3. 585. hort. cliff. 379. upf. 236. fl. zeyl. n. 304. mat. med. 177. Woodv. med. bot. 496. t. 183. Lour. cochinch. 466. Mill. illustr. ic. Raii hist. 1658. Ferr. hesp. 369.

α. Citrus 5. Brown. jam. 308. Aurantium acre. Mill. dict.—Seville Orange.

Conf. C. fuscum. Lour. cochinch. 467. Rumph. amb. 2. t. 33.

Malus Arantia major. Baub. pin. 436. Ger. 1279. f. 3. emac. 1463. Park. par. 584. f. 1. theat. 1508. f. Sloan. jam. 2. 179.

Aurantium acri medulla vulgare. Ferr. hesp. t. 377.

β. Citrus 7. Brown. jam. 309. Aurantium Sinense. Mill. dict. Ferr. hesp. t. 427, 423, &c. China Orange.

C. nobilis. Lour. cochinch. 466. Rumph. amb. 2. t. 35.

M. A. cortice dulci eduli. Baub. pin. 436.

M. A. sinensis. Sloan. jam. 2. 181.

γ. Aurantium orientale. Mill. dict. Turkey Orange.

A. angusto folio. Boerb. lugdb. 2. 238.

δ. Aurantium humile. Mill. dict. Dwarf or Nutmeg Orange.

A. pumilum subacri medulla. Bartol.

Malus Arantia pumilio. Park. theat. 1508. n. 5. Petioles winged; leaves acuminate.

3. Citrus decumana. Shaddock.

Lin. syst. 697. Reich. 3. 585. Lour. cochinch. 467.

Thunb. jap. 293. Brown. jam. 309. n. 8, 9.

Lin. spec. 1101. γ.

Limo decumanus. Rumph. amb. 2. 96. t. 24. f. 2.

Aurantium decumanum. Mill. dict. Sloan. jam. 1. 41. t. 12. f. 2, 3, 4. Raii dendr. 80.

Pumpelmus. Meist. itin. 84. Burm. zeyl. 39.

Petioles winged, leaves obtuse emarginate.

[4. Citrus japonica.

Lin. syst. 697. Thunb. jap. 292. Kämpf. amoen. 5. 801.

Petioles winged, leaves acute, stem shrubby.

5. Citrus trifoliata.

Lin. spec. 1101. Reich. 3. 585. Thunb. jap. 294.

Kämpf. amoen. 5. 801. t. 802.

Leaves ternate.

DESCRIPTIONS, &c.

All the species of *Citrus* are either trees of small growth or shrubs. Leaves evergreen, ovate or ovate-lanceolate, entire or serrate, pellucid-dotted, the petiole frequently margined. On the natural trees there are often solitary, axillary spines. Peduncles axillary or terminating, one-flowered or many-flowered.

The species seem best distinguished by the petiole, which in the Orange and Shaddock is winged: in the Citron, Lemon and Lime naked. The form of the fruit, although not quite constant, may also serve for a distinction. In the Orange and Shaddock it is spherical or rather an oblate spheroid; with a red or orange-coloured rind: in the Lime, spherical with a pale rind: in the Lemon, oblong with a nipple-like protuberance at the end: in the Citron, oblong, with a very thick rind.]

Mr. Miller distinguishes the Citron from the Orange, because in all the varieties of Citron which he has examined, he found but ten stamens in the flowers, whereas those of the Orange always have more. He treats of Citron, Lemon and Orange separately; under the titles of *Citrus*, *Limon*, and *Aurantium*.

Rumphius has figured the Citron, Lemon, Lime, and Orange, with several varieties, in the second volume of his *Herbarium Amboinense* from t. 24. to 35. inclusive.—t. 24. f. 2. is the Shaddock: t. 25. and t. 26. f. 2. are the Citron: t. 27. and 28. seem to be some sorts of the Orange: t. 29. has the appearance of the Lime, but the petioles are slightly winged: in t. 30. also the fruit is that of a Lime, but the petioles are winged as in the Orange. If these figures be exact, the distinction of the winged and naked petiole must be given up, in the wild trees. t. 31. and 32. are Limes: t. 33. is the four Orange: t. 34. is said to be the China Orange: it has the fruit of an Orange, but the leaves of the Citron or Lemon: t. 35. seems to be a variety of the China Orange.

It is very difficult to determine what is a variety and what a species in this genus. The trees in the Eastern countries, their natural place of growth, vary not only in the size and shape of the fruit, but also in the leaves, as appears abundantly from the figures in Rumphius. Many of those which are esteemed to be varieties only in Europe, and are given here as such, in their native woods preserve their differences, such as they are; and there engrafting and inoculating these trees is unknown, but they are left in a state of nature^a.

1. In its wild state this tree grows to the height of about eight feet, erect and prickly, with long reclining branches. Leaves ovate-oblong, alternate, suberrate, smooth, pale green. Flowers white, odoriferous, on many-flowered, terminating peduncles. Fruit a berry, half a foot in length, ovate, with a protuberance at the tip, nine-celled or thereabouts; the pulp white, commonly acid; the rind yellow, thick, hardish, odoriferous, irregular. Fruit esculent both raw and preserved^b. Properly there are two rinds; the outer thin, with innumerable miliary glands full of a most fragrant oil; the inner thick, white, and fungous: the partitions consist of two very thin diaphanous membranaceous plates, connected at the axis, and inserted into the rind at the periphery; the cells are filled with a bladdery pulp. In each cell are a few seeds, commonly one or two, sometimes three or four^c.]

α, β. The English gardens are supplied with several varieties of the Citron from Genoa; which is the great nursery for the several parts of Europe of this, as well as Lemons and Oranges. The gardeners who cultivate them there are as fond of introducing a new variety into their collection, as nursery-men in England are of obtaining a new Pear, Apple, or Peach.

The fruit of the Citron is seldom eaten raw, but is generally preserved, and made into sweet-meats; which being kept till winter and spring, when there is a scarcity of fruit to furnish out the desert, is the more valuable: but unless the season be warm, and the trees well managed, the fruit rarely ripens in England.

The fairest fruit growing here was in the garden of his grace the Duke of Argyle at Whitton, where the trees were trained against a south wall, through which there were flues for warming the air in winter, and glass covers to put over them, when the weather began to be cold. Thus the fruit was as large and as perfectly ripe, as it is in Italy or Spain.

[The Citron is a native of all the warm regions of Asia. Being introduced into Europe from Media, it had the name of *Malus Medica*. It seems to have come into Italy after the age of Virgil and Pliny, but before that of Palladius^d; who appears first to have cultivated it with any success there^e. According to Haller, the Median Apple described by Theophrastus, is certainly a sort of Orange^f: which fruit, according to Athenæus, first travelled into Greece from Persia^g.

If the Median Apple be the Orange, the *tristes fucci* of Virgil, and the *acres medullæ* of Palladius must have been much corrected by culture; the latter author, Theophrastus and Pliny all speak of it as not eatable, though they celebrate its medical qualities far above its desert.

γ. The Lemon tree.

The Lemon differs from the Orange materially, both in the naked footstalks of the leaves, and in the shape and colour of the fruit, but there is scarce any distinction between this and the Citron. The rind of the fruit indeed is generally thicker and more knobbed in the Citron than in the Lemon, it is also longer and more irregular.] Mr. Miller

^a See Loureiro and Rumphius. ^b Loureiro. ^c Gartner. ^d Linn. ^e Martyn's Virg. 136. qu. edit. ^f Bibl. bot. 1. 32. ^g Evelyn.

adds, that the bark of the Citron tree is smoother, and the wood less knotty.

Many varieties of the Lemon are preserved in some of the Italian gardens, and in both the Indies there are several which have not yet been introduced to the European gardens; but these may be multiplied without end from seeds.

The most remarkable varieties in the English gardens are

1. The sweet Lemon, plain and variegated.
2. The pear-shaped Lemon.
3. The imperial Lemon.
4. The Lemon called Adam's Apple.
5. The furrowed Lemon.
6. The childing Lemon.
7. The Lemon with double flowers.

[8. Browne mentions the St. Helena Lemon, as having been then lately introduced to Jamaica, and much cultivated there, on account of its large fruit, which frequently yields above half a pint of juice.

9. In China and other parts of the East they have a remarkable variety of Lemon or Citron, which has a solid fruit, without any cells or pulp, and divided above the middle into five or more long round parts, a little crooked, and having the appearance of the human hand with the fingers a little bent; whence the Chinese call it *Pbat thu*, or fingered Lemon^h. It is a monstrous fruit, a mere curiosity without any use.]

The common and sweet Lemon are brought to England from Spain and Portugal in great plenty; but the latter is not much esteemed.

The pear-shaped Lemon is a small fruit, with very little juice.

The fruit of the imperial Lemon is sometimes imported from Italy, but not from Spain or Portugal; probably therefore it is not propagated in either of those countries. The Portuguese had many of the most curious sorts of Orange, Lemon and Citron Trees brought from the Indies formerly, which seemed to thrive almost as well there as in their native soil, and yet they have not been increased. There are a few trees still remaining in some neglected gardens near Lisbon, almost unnoticed by the inhabitants.

[The Lemon was cultivated in the Botanic Garden at Oxford, in 1648ⁱ.

δ. The Sour Lemon or Lime, grows in its native country to the height of about eight feet, with a crooked trunk, and many diffused branches, which have prickles on them. Leaves ovate-lanceolate, almost quite entire; the petioles usually linear. Flowers few together, on terminating peduncles: corolla oblong, white, with a purplish spot. Stamens twenty in several parcels. Berry an inch and half in diameter, almost globular, with a protuberance at the tip; the surface regular, shining, greenish-yellow, with a very odorous rind; within nine-celled or thereabouts, abounding in a very acid juice, but having very few subovate seeds^k.

It is a native of Asia, but has long been common and much esteemed in the West Indies. Browne says, that in Jamaica it is a bushy shrub, much raised there for the sake of its fruit, and not unfrequently planted for fences; that when it grows luxuriantly, it is seldom under twelve or fourteen feet in height, and spreads gently about the top, but that it is often stunted, and of a smaller stature. They have also a sweet Lime, which is generally a more upright tree, and bears a fruit, which in size as well as form, seems to hold a mean, between the Lime and the Lemon. The juice is very insipid, but the bark and fibres of the root have much of that bitter peculiar to the Lime.

I have no doubt but that any one who would be at the pains of pursuing the subject in the native abode of these fruits, would detect varieties connecting all that are here delivered as species; not only the Citron with the Lemon and Lime, which

^h Loureiro.

ⁱ Hort. kew.

^k Loureiro.

are certainly no more than varieties, but these also with the Shaddock and the Orange, which are hardly to be considered as specifically distinct.]

Mr. Miller affirms, that he has never known the common Lemon vary to the Lime, when raised from seeds, nor the Lime vary to the Lemon; but that he has always found them continue their difference in leaf and branch; he therefore supposes them to be specifically different.

The Lime is not often brought to England, nor is it much cultivated in Europe; but in the West Indies the fruit is preferred to the Lemon, the juice being reckoned more wholesome, and the acid being more agreeable to the palate.

2. [The Orange is a middle-sized evergreen tree, with a greenish-brown bark; in its native country the branches are prickly. Leaves broad-lanceolate, almost quite entire, smooth, with the petioles commonly winged. Peduncles many-flowered, terminating. Corolla white. Stamens twenty, connected in several parcels. Berry subglobular, flattened (an oblate spheroid), of a golden colour, shining, odorous, three inches in diameter, divided within into about nine cells, filled with a bladdery pulp, having a sweet-acid juice in it; rind fleshy, of a middling thickness, covered with a pellicle which is somewhat biting and bitter to the taste.

The above description, says Loureiro the author of it, agrees particularly with that sort of Orange which is most common all over the world, and is known in Europe by the name of Portugal or China Orange, because it was brought from China by the Portuguese, and by them dispersed over Europe.

It is a native of India, China, &c. and was observed by our circumnavigators in the isle of Tanna in the South Seas.

There are innumerable varieties of the Orange in China, and other countries of Asia, as well as in South America and the West Indies, and even in Europe.

Loureiro describes the most grateful of all the Oranges, as a distinct species, under the title of *Citrus nobilis*. The branches do not spread so much as in the common Orange, but are rather ascending; and they are not prickly. Leaves lanceolate, quite entire, dark green, on linear petioles. Berry red within and without, twice as large as the common sort, being five inches in diameter: the skin thick, juicy, sweet, eatable, and irregularly tubercled. It abounds in Cochinchina.

The most esteemed fruit in China, according to Grofier, is very small, with a smooth soft skin, of a reddish yellow colour. They have also the Four-season or Everlasting Orange, so called from its being always in fruit and blossom; this also bears a very small fruit: the large Clove or Mandarin; and the small Clove or Mandarin: the Soft Cushion Orange: the Gold Orange, &c. &c.

The Chinese Oranges are in general firmer than those of Europe, their skin does not easily peel off, and the pulp will not separate into small divisions. They commonly give them to the sick, softening them a little at the fire, and mixing sugar with them.

Loureiro describes another sort, under the name of *Citrus fusca*, or brown Orange, which in some respects seems to approach the Seville Orange of Europe. It is a tree above the middle size, with abundance of twisted branches, that rise a little, and are armed with many long stout spines. Leaves ovate-lanceolate, quite entire, dark green, of an unpleasant odour, on large, winged, heart-shaped petioles. Flowers on many-flowered subterminating peduncles, white, and not very sweet. Berry globular, two inches in diameter, rough, brownish-green: the juice pale, acid, bitterish and unpleasant. It is very common in Cochinchina.

The Seville Orange differs little from that of China in the tree, except that it is more hardy, and that the leaves are larger and handsomer. The fruit however is very different in the colour of the

peel, and in the taste both of that and of the juice, as is well known.]

The varieties of the Orange most known in the English gardens are; besides the Seville and China already mentioned:

1. The willow-leaved or Turkey Orange.
2. The yellow and white striped-leaved.
3. The curled-leaved.
4. The horned Orange.
5. The double-flowering.
6. The hermaphrodite.
7. The Dwarf or Nutmeg Orange.

These and other varieties of this, the Lemon, Lime and Citron, are figured by Ferrarius in his Hesperides.

The Horned Orange, like the figured Lemon or Citron described above, divides into parts, spreading out in form of horns: this and the distorted Orange are preserved merely for variety, not being so beautiful, as the common sort.

The leaves of the Dwarf Orange are very small, and grow in clusters; the joints of the branches are very near each other; the flowers grow very close together, and appear like a nosegay, the branches being covered with them. This, when in flower, is proper to be placed for ornament in a room or gallery, which it will perfume with its flowers: but it requires care, and is seldom in health.

[The first China Orange, says Evelyn, (that appeared in Europe) was sent for a present to the old Conde Mellor, then Prime Minister to the King of Portugal; but of that whole case that came to Lisbon, there was but one only plant which escaped the being so spoiled and tainted, that with great care it hardly recovered to be since become the parent of all those flourishing trees of that name, cultivated by our gardeners, though not without sensibly degenerating. Receiving this account, adds our famous planter, from the illustrious son of the Conde, I thought fit to mention it, for an instance of what industry may produce in less than half an age.

South America and the West Indies have been furnished with this fruit, so salutary and agreeable to the palates of the people, and so congenial to those hot climates, from Spain and Portugal.]

Mr. Miller informs us, that he sent two small trees of the true Seville Orange to Jamaica, where this sort was then wanting, and that from these many other trees were budded, which produced plenty of fruit. Some of these were sent to England; and although they were long in their passage, yet they were greatly superior to any of the fruit imported from Spain and Portugal, affording three times the quantity of juice.

[In England this tree has been cultivated certainly since 1629. The first shifts made to preserve it, will not be incurious to the reader.

"The Orange tree (says Parkinson) hath abiden
"with some extraordinary looking and tending of
"it, when as neither Citron, or Lemmon trees
"would by any means be preserved any long time.
"Some keepe them in great square boxes, and lift
"them to and fro by iron hooks on the sides, or
"cause them to be rowled by trundels, or small
"wheels under them, to place them in an house,
"or close gallerie for the winter time: others plant
"them against a bricke wall in the ground, and
"defend them by a shed of boardes, covered over
"with seare-cloth in the winter, and by the warmth
"of a stove, or other such thing, give them some
"comfort in the colder times: but no tent or
"meane provision will preserve them." *Parad.* 584.
But Bishop Gibson, in his additions to Camden's Britannia, probably from Aubrey, says that the Orange trees at Beddington in Surrey, introduced from Italy by a Knight of the noble family of the Carews, (Sir Francis) were the first that were brought into England; that they were planted in the open ground, under a moveable covert during the winter months; and that they had been growing there more than a hundred years; that is before 1595;
the

the first edition of Camden by Bishop Gibson, being printed in 1695.

The editors of the Biographia Britannica, article *Raleigh*, speaking from a tradition preserved in the family, tell us, that these Orange trees were raised by Sir Francis Carew from the seeds of the first Oranges which were imported into England by Sir Walter Raleigh, who had married his niece, the daughter of Sir Nicholas Throckmorton. But this is not probable, for the plants raised from these seeds would have required to be inoculated, in order to produce fruit. And it is much more likely that they were plants brought from Italy.

Professor Bradley reports, that they always bore fruit in great plenty and perfection; that they grew on the south side of a wall, not nailed against it, but at full liberty to spread. And by the account of Mr. Henry Day the gardener, they were fourteen feet high; the girth of the stem twenty-nine inches; and the spreading of the branches one way nine feet, and twelve feet another.

These trees were entirely killed by the great frost in 1739-40. The year before, they had been inclosed by a permanent building, after the manner of a green-house; so that it is uncertain whether the dampness of new walls, and the want of so much air and light as the trees had been accustomed to, might not have destroyed them, if the frost had not happened.

Citrus Aurantium, or Orange, has long maintained a very respectable place in the materia medica. The sort principally employed in medicine is the Seville orange, the juice of which is well known to be a grateful acid liquor, which by allaying heat, quenching thirst, and promoting various excretions, proves of considerable use in febrile and inflammatory disorders. It is also considered as a powerful antiseptic, and of great efficacy in preventing and curing the scurvy. The juice of the China or common orange possesses the same qualities in an inferior degree. The acid of oranges by uniting with the bile, is said to take off its bitterness; and hence Dr. Cullen thinks it "probable that acid fruits taken in, are often useful in obviating the disorders that might arise from the redundancy of bile, and perhaps from the acrid quality of it. On the other hand, however, if the acids are in greater quantity than can be, or are, properly corrected by the bile present, they seem by some union with that fluid, to acquire a purgative quality that gives a diarrhoea, and the colic pains that are ready to accompany the operation of every purgative." Not only the juice, but the rind or peel of the Seville orange is of considerable medical efficacy; since besides its use as a stomachic, it has been much celebrated in intermittent fevers; and in testimony of its efficacy in the most obstinate agues, we find several authorities cited by professor Murray. It has also been experienced as a powerful remedy in Menorrhagia, and in immoderate uterine evacuations; and for its good effects in these disorders we have not only the assertions of foreign physicians, but also those of Drs. Whytt and Hamilton. It gives out its flavor and taste readily to water, and is useful in all flatulences, in whatever form it be given; it also sits better on the stomach than most other corroborants. The leaves of the Orange are not without their virtues, and in particular (as also the flowers) have been celebrated in convulsive disorders; and have been successfully given in the dose of a dram at a time in nervous and hysterical cases.

The virtues of *Citrus Limon*, or Lemon, are also very considerable. Its juice, as an antiscorbutic, is very generally carried on board ships destined for long voyages. Taken to the quantity of four or six ounces a day, it has been found to cure the jaundice. Dr. Whytt found it successful in allaying hysterical palpitations of the heart. The rind is a very grateful aromatic bitter, not so hot as orange-peel, and yields in distillation less quantity of the oil: it is similar in qualities, however, to that of the orange, and is employed in the same intentions.

Citrus Medica, or Citron, is of similar virtues also; the fruit is more flavored than that of the Lemon, and the rind acts more as an emetic; it is the yellow rind which is used, and from it, especially some of its varieties, the perfume called Bergamot is extracted. Citrons are very rarely kept in the shops, though formerly much used in the *Materia Medica*.

The Median Apple, whether it were the Citron or the Orange, was celebrated anciently for correcting unfavoury breaths, as a cure for the asthma, and for expelling poison.

—"quo non præsentius ullum,
"Pocula si quando sævæ infecere noceræ;
"Miscueruntque herbæ, & non innoxia verba,
"Auxilium venit, ac membris agit atra venena.
—"animas & olentia Medi
"Ora fovent illo, & senibus medicantur anhelis."

Virgil.

3. The Shaddock was originally regarded by Linneus, only as a variety of the Orange, to which it certainly makes very near approaches. It differs in the superior size of the fruit; in having the flowers growing more in bunches, and those bunches being somewhat tomentose¹.

It is a tree above the middle size, with spreading prickly branches. Leaves ovate, subacute, seldom obtuse, very seldom emarginate, smooth, scattered: petioles cordate-winged, the wings as broad as the leaves. Flowers white, very sweet-scented, in copious upright terminating bunches. Corolla reflex. Stamens about twenty, nearly equal to the petals, collected into a many-cleft tube. Berry spheroidal, frequently retuse at each end, eight inches in diameter, of an even surface, greenish-yellow, divided into twelve or more cells, containing some a red, others a white pulp, the juice in some sweet, in others acid. The rind is very thick, white, fungous, bitter, useless. Seeds ovate, subacute, two or three in each cell.

There are many varieties of this tree, one of which, superior to the rest in the flavour and smell of the fruit, has a smaller trunk, and subglobular fruit, five inches in diameter, yellow on the outside, white, and very sweet within. In China it is called *Hiam yuen*, in Cochin China *Huong ien*, which signifies *Sweet ball*^m.

Thunberg describes the fruit in Japan as being the size of a child's head; and says, that it may be kept many weeks on ship-board, if it be hung up; that the juice is of a subacid sweetness, and excellent for quenching thirst.

It is a native of India, and is common both in China and Cochin China; as it is also in Japan, where it was introduced from Batavia. It is found also in the Friendly islands.]

It was brought to the West Indies in an East India ship by Captain Shaddock, from whom it has there received its name. The Dutch call it *Pompelmoes*. The fruit has greatly degenerated since it has been in the West Indies, by raising the trees from seeds; the greatest part of which produce harsh sour fruit, with a pale yellow pulp; whereas if they would have budded from a good sort, they might have continued it in perfection: but there are few persons there who understand the method of grafting or budding fruit trees; and they are so negligent of their fruits as to leave the whole to nature; seldom giving themselves any farther trouble than to put the seeds into the ground, and leaving the rest to chance.

[In England it was cultivated by Mr. Miller in 1739ⁿ.

4. This is a small shrub, and the fruit is no bigger than a cherry; it ripens in december and january, and is very sweet and pleasant. It approaches to the Citron in having the flowers axillary, but it has winged petioles like the Orange,

¹ Linn. syst.

^m Loureiro,

ⁿ Hort. kew.

from which however it differs in having only one or two axillary flowers, not paniced as in that. Native of Japan, where the fruit is ripe in december and january, and is very sweet and pleasant^o.

5. Leaves ferrate, with a membranaceous petiole. Spines axillary. Flowers axillary, solitary. The fruit is bad, with a glutinous pulpⁿ.

Stem nearly two yards in height. Branches alternate, flatted and angular, flexuose, spreading very much, stiff, very smooth, thorny. Thorns alternate, dilated and compressed at the base, spreading very much, acute, smooth, yellow at the end, an inch in length. Corolla white; stamens double the length of the petals. This shrub forms strong hedges in Japan, with its long, stiff, sharp thorns. It flowers in april with leafless branches to may, when the leaves burst forth. The fruit is laxative^a.

Triphasia aurantiola of Lourciro, is not this, but *Limonia trifoliata*.]

PROPAGATION AND CULTURE.

All the trees of this kind may be raised and treated in the same manner as is here directed for the Orange.

Where the trees are to be raised for stocks to bud Oranges, you should procure some Citron-seeds which were duly ripened; for the stocks of this kind are preferable to any other, both for quickness of growth, as also that they will take buds of either Orange, Lemon, or Citron; next to these are the Seville Orange feeds. The best feeds are usually to be had from rotten fruits, which are commonly easy to be procured in the spring of the year; then prepare a good hot-bed, of either horse-dung or tanners bark; the last of which is much the better, if you can easily procure it. When this bed is in a moderate temper for heat, you must sow your seeds in pots of good rich earth, and plunge them into the hot-bed; observing to give them water frequently, and raise the glasses in the great heat of the day, to give proper air, lest the seeds should suffer by too great heat: in three weeks time your seeds will come up, and if the young plants are not stunted, either for want of proper heat or moisture, they will be in a month's time after their appearance, fit to transplant into single pots: you must therefore renew your hot-bed, and having prepared a quantity of small halfpenny pots, which are about five inches over at the top, fill these half full of good fresh earth, mixed with very rotten cow-dung; and then shake out the young plants from the large pots, with all the earth about them, that you may the better separate the plants without tearing their roots; and having half filled the pots with earth, put a single plant into each of the small pots; then fill them up with the same earth as before directed, plunging the pots into the new hot-bed, giving them a good watering to fix the earth to their roots; and observe to repeat the same very often, for this plant, when in a hot-bed, requires much water, but be sure to screen them from the sun in the heat of the day. In this method, with due care, your plants will grow to be two feet high by july, when you must begin to harden them by degrees, by raising your glasses very high, and when the weather is good, taking them quite off; but do not expose them to the open sun in the heat of the day, but rather take off the glasses, and shade the plants with mats, which may be taken off when the sun declines; for the violent heat in the middle of the day would be very injurious to them, especially while young. Toward the end of september you must house them, observing to place them near the windows of the green-house, to prevent the damps from moulding their tender shoots. During the winter season they may be often refreshed with water, and in march or april, wash their heads and stems, to clear them from the filth that may have settled thereon, during their being in the house; and you must also give

them a moderate hot-bed in the spring, which will greatly forward them; but harden them by the beginning of june, that they may be in right order to bud in august; when you should make choice of cuttings from trees that are healthy and fruitful, of whatever kinds you please, observing that the shoots are round; the buds of these being much better and easier to part from the wood, than such as are flat. When you have budded the stocks, you should remove them into a green-house, to defend them from wet, turning the buds from the sun; but let them have as much free air as possible, and refresh them often with water. In a month's time after budding, you will see which of them has taken; you must then untie them, that the binding may not pinch the buds, and let them remain in the green-house all the winter; then in the spring, prepare a moderate hot-bed of tanners bark; and, after having cut off the stocks about three inches above the buds, plunge their pots into the hot-bed, observing to give them air and water, as the heat of the weather shall require; but be sure to screen them from the violence of the sun during the heat of the day. In this management, if your buds shoot kindly, they will grow to the height of two feet or more, by the end of july; at which time you must begin to harden them before the cold weather comes on, that they may the better stand in the green-house the following winter. In the first winter after their shooting, you must keep them very warm; for, by forcing them in the bark-bed, they will be somewhat tenderer; but it is very necessary to raise them to their height in one season, that their stems may be straight: for in trees, which are two or more years growing to their heading height, the stems are always crooked. In the succeeding years, their management will be the same as in full grown trees, which will be hereafter treated of: I shall therefore now proceed to treat of the management of such trees as are brought over every year in chests from Italy; which is, indeed, by much the quicker way of furnishing a green-house with large trees; for those which are raised from seeds in England, will not grow so large in their stems under eighteen or twenty years, as these are when brought over; and although their heads are small when we receive them, yet in three years, with good management, they will obtain large heads, and produce fruit.

In the choice of these trees observe first, the difference of their shoots and leaves, if they have any upon them, to distinguish their different sorts, for the Shaddock and Citrons always make much stronger shoots than the Orange; for which reason, the Italian gardeners, who raise these trees for sale, generally propagate those sorts, so that they bring few of the Seville Orange-trees over, which are much more valuable both for their flowers and fruit; also prefer those that have two good buds in each stock, for many of them have but one, which will always produce an irregular head: the straightness of the stem, freshness of the branches, and plumpness of the bark, are necessary observations.

When you have furnished yourself with a parcel of trees, you must prepare a moderate hot-bed of tanner's bark, in length and breadth according to the number of trees to be forced; then put your trees into a tub of water upright, about half way of the stems, leaving the head and upper part of the stem out of water, the better to draw and imbibe the moisture. In this situation they may remain two or three days, according to their plumpness when you received them; then take them out, and clean their roots from all filth, cutting off all broken or bruised roots, and all the small fibres, which are quite dried by being so long out of the earth, and scrub the stems with a hard hair brush, cleaning them afterwards with a cloth; then cut off the branches about six inches from the stem, and having prepared a quantity of good fresh earth, mixed with very rotten neats dung, plant your trees therein, observing never to put them into large pots;

pots; for if they are but big enough to contain their roots, it is sufficient at first planting; and be sure to put some potsherds and large stones in the bottom of each pot, to keep the holes at the bottom of the pots from being stopped with earth, that the water may freely pass off, and wrap some haybands round their stems, from bottom to top, to prevent the sun from drying their bark; then plunge these pots into the bark-bed, watering them well to settle the earth to their roots, frequently repeating the same all over their heads and stems, being very careful not to over-water them, especially before they have made good roots; and observe to screen the glasses of your hot-bed from the sun in the heat of the day.

If your trees take to grow kindly, as there is little reason to doubt of, if the directions given be duly observed, they will have made strong shoots by the beginning of June; at which time you should stop their shoots, to obtain lateral branches to furnish their heads; and now you must give them air plentifully, and begin to harden them, that in the middle of July they may be removed into the open air, in some warm situation, defended from the great heat of the sun, and from winds, that they may be hardened before winter. About the end of September you should house these plants, setting them at first in the front of the green-house, near the glasses, keeping the windows open at all times when the weather will permit; and about the latter end of October, when you bring in the Myrtles, and other less tender trees, you must set your Oranges in the warmest and best part of the house, placing lower plants or trees in the front, to hide their stems. During the winter, let your waterings be frequent, but give them not too much at a time; for now their heads are but small, and therefore incapable to discharge too great a quantity of moisture, and take great care to guard them from frost.

In the spring, when you begin to take out some of your hardiest sorts of plants to thin your house, wash and cleanse the stems and leaves of your Orange-trees, taking out the upper part of the earth in the pots, filling them up again with good, fresh, rich earth, laying thereon a little rotten neat's dung round the outside of the pots, but do not let it lie near the stem of the trees; then place them at wider distances in the house, that the air may circulate round their heads, giving them air discretionally, as the weather grows warm; but do not remove them into the open air until the latter end of May, that the weather is settled; for many times, when they are removed out too soon, the mornings often proving cold, give them at least a great check, which will change the colour of their leaves, and many times kill the extreme weak part of the shoots. Let the situation for your Orange-trees, during the summer season, be as much defended as possible, by tall trees or hedges, from the sun in the heat of the day, and from strong winds, for both these are very hurtful to them.

As these trees advance, it will be necessary in the summer to stop strong shoots where they grow irregularly, to force out lateral branches to fill the head; but do not pinch off the tops from all the shoots, as is the practice of some, which will fill the tree with small shoots too weak to support fruit; but endeavour to form a regular head, and obtain strong shoots, taking away weak trifling branches where they are too close.

During the summer season, your Orange-trees will require frequent waterings in dry weather, especially if they are large; therefore you should endeavour to have the water as near the trees as possible, to save the trouble of carrying it, which, in a large quantity of trees, takes up much time. Your water should be soft, and exposed to the air, but never add dung of any sort thereto; which, although by many frequently recommended, yet has always been found destructive to these, and all other trees, if much used; it being like hot liquors to human

bodies, which, at first taking, seem to add vigour, yet certainly leave the body weaker after some time than before.

Your Orange-trees will require to be shifted and new potted every other year, therefore you must prepare a quantity of good earth, at least a year before you intend to use it, that it may be well mixed, and perfectly rotten. The best season for this work is about the end of April, that they may have taken fresh root before they are removed out of the green-house; and when this work is performed, it will be necessary to let them remain in the house a fortnight longer than usual, to be well settled.

In the performing this work, after you have drawn the trees out of the pots, you must cut off all the roots round the outside of the ball of earth, and take away all mouldy roots (if any such be;) then with a sharp iron instrument, get as much of the old earth from between the roots as possible, being careful not to break or tear the roots; then set the root of the tree into a large tub of water for about a quarter of an hour, to soak the under part of the ball of earth; and afterwards scrub the stems of the trees with a hard hair-brush, cleaning them and the heads with water, and a soft woollen cloth. Your pots being prepared, with some potsherds and large stones in the bottom, put some of your fresh earth into the pot, about three or four inches thick; and having placed your tree thereon, in the middle of the pot, upright, fill it up with the same rich earth, pressing it down hard with your hands; then water the tree all over the head with a watering-pot that has a rose upon the spout, to let the water fall light and thick, as in a shower of rain; and in watering these trees, do it in the same manner, during the time they abide in the house after shifting; this will greatly refresh their heads, and promote their taking fresh roots.

When you first set these trees abroad after shifting, you should place them near the shelter of hedges, and fasten their stems to strong stakes, to prevent their being disturbed by winds, which sometimes will blow fresh planted trees out of the pots, if too much exposed thereto, and thereby greatly injure their new roots.

If old Orange-trees have been ill managed, and their heads become ragged and decayed, the best method to restore them, is to cut off the greatest part of their heads early in March, and draw them out of the tubs or pots, and shake off the earth from their roots, cutting away all small fibres and mouldy roots; and then soak and clean their roots, stems, and branches, planting them in good earth, and setting them into a hot-bed of tanners bark, as was directed for such trees as came from abroad, managing them in the same manner: by this method they will produce new heads, and in two years time become good trees again. But if these are large trees, and have grown in tubs for several years, your best way will be to prepare a parcel of rough baskets, such as are used for basketing Evergreens, when sent to a distant place: let these be somewhat less than the tubs you design to plant your trees into; then plant your trees herein; plunging them into the hot-bed, and about the beginning of July, when your trees have made good shoots, you may remove them into the tubs, with their baskets about them, filling the empty space with the same good earth: this will preserve your tubs from rotting in the bark, and the trees will do equally well as if planted into the tubs at first, provided you are careful in removing the baskets, not to disturb their roots; and also let them remain in the green-house a fortnight or three weeks after planting, before you set them abroad.

These trees being new potted or tubbed every other year, those years in which they are not shifted, you must in April observe to take out as much of the old earth from the tops of the pots and tubs, and also round the sides of them, as possible, without injuring the roots of the trees, and fill them up with

with fresh earth; you must also wash and clean their stems and leaves from filth, which will greatly strengthen their flowering, and cause them to shoot vigorously the following summer.

In the management of Orange-trees which are in good health, the chief care should be to supply them with water duly, instead of starving them in winter, as is sometimes practised; whereby their fibres are dried, and become mouldy, to the great prejudice of the trees; and not to give them water in too great abundance, but rather to let their waterings be frequent, and given in moderate quantities. You must also observe, that the water has free passage to drain off; for if it be detained in the tubs or pots, it will rot the tender fibres of the trees. During the winter season, they must have a large share of air when the weather is favourable; for nothing is more injurious to these trees than stifling them, nor should they be placed too near each other in the greenhouse; but set them at such distance, that their branches may be clear of each other, and that the air may circulate freely round their heads. In summer they should be placed where the winds are not violent, and to have the morning and evening sun; for if they are too much exposed to the mid-day sun, they will not thrive. The best situation for them is near some large plantation of trees, which will break the force of the winds, and screen them from the violent heat of the sun. In such a situation they may remain until the beginning of October, or later, according as the season proves favourable; for if they are carried into the greenhouse early, and the autumn should prove warm, it will occasion the trees to make fresh shoots, which will be weak and tender, and so liable to perish in winter; and sometimes it will occasion their flowering in winter, which greatly weakens the trees; nor should they remain so long abroad as to be injured by morning frosts. The best compost for Orange-trees is two thirds of fresh earth from a good pasture, which should not be too light, nor over stiff, but rather a hazel loam; this should be taken about ten inches deep with the sward, which should be mixed with the earth to rot, and one third part of neats dung; these should be mixed together, at least twelve months before it is used, observing to turn it over every month, to mix it well, and to rot the sward; this will also break the clods, and cause the mould to be finer. Before you make use of this earth, you should pass it through a rough screen, to separate the great stones and the roots of the sward therefrom; but by no means sift the earth too fine, for this is very prejudicial to most plants, but particularly to Orange-trees.

Of late years there have been many of these trees planted against walls, against which frames of glass are made to fix over them in winter; and some few curious persons have planted these trees in the full ground, and have erected moveable covers to put over the trees in winter, which are so contrived as to be all taken away in summer: where these have been well executed, the trees have made great progress in their growth, and produced a much larger quantity of fruit, which have ripened so well, as to be extremely good for eating. If these are planted either against walls with design of training the branches to the walls, or in borders at a small distance, so as to train them up as standards, there should be a contrivance of a fire-place or two, in proportion to the length of the wall, and flues carried the whole length of the wall, to warm the air in very cold weather, otherwise it will be very difficult to preserve the trees in very hard winters alive; or, if they do live through the winter, they will be so much weakened by the cold, as not to be recovered the following summer to a proper strength for bearing; so that wherever the trees are intended to be placed against or near old walls, the flues should be built up against the front, allowing four inches thickness of the brick-work on each side the flues, observing to fasten this with irons, at proper distances, to secure it from separating from the old

wall. Where this contrivance is made, there will be no hazard of losing the trees, be the winter ever so severe, with a little proper care; whereas, if this is wanting, there will require great care and trouble to cover and uncover the glasses every day, when there is any sun; and if the wall is not thicker than they are usually built, the frost will penetrate through the walls in severe winters; so that covering and securing the glasses of the front will not be sufficient to preserve the trees, be it done with ever so much care; therefore the first expence of the walls will save great trouble and charge, and be the securest method.

If the ground is wet, or of a strong clay, so as to detain the moisture, the borders should be raised above the level of the ground, in proportion to the situation of the place; for where the wet lies in winter near the surface, it will greatly prejudice, if not totally destroy the trees; so that lime rubbish should be laid at least two feet thick in the bottom of the border, to drain off the wet; and the earth should be laid two and a half, or three feet thick thereon, which will be a sufficient depth for the roots of the trees. In these borders there may be a few roots of the Guernsey and Belladonna Lilies and Hæmanthus planted, or any other exotic bulbous-rooted flowers, which do not grow high, or draw too much nourishment from the borders; and these, producing their flowers in autumn or winter, will make a good appearance, and thrive much better than if kept in pots.

The management of the Orange-trees in these places, is nearly the same as has been directed for those in pots or tubs, excepting that the borders in these places should be dug, and refreshed with some very rotten dung every year.

[It is commonly said, that the Maltese red Oranges are budded on the Pomegranate: and that the Orange grafted or budded on Mulberry stocks in Sicily, produces fruit with a blood-coloured pulp: but these accounts of travellers are apocryphal.]

The China, dwarf Orange, Shaddock, and those with striped leaves, are all more tender than the Seville Orange, and therefore must be treated with more care, and placed in a warmer part of the greenhouse in winter. The China Orange rarely produces good fruit in England, nor are the leaves of the tree near so large or beautiful as those of the Seville Orange; the latter, therefore, should be preferred, and only a tree or two of the China sort kept for variety. The varieties with striped leaves never produce good fruit, nor do they produce even flowers in so great plenty as the plain ones.

Citron.

The several sorts of Citrons are cultivated much in the same manner as the Orange-tree; but these are somewhat tenderer than the Orange, and should therefore have a warmer situation in winter, otherwise they are very subject to cast their fruit. They should also continue a little longer in the house in the spring, and be carried in again sooner in the autumn; as also have a warmer and better defended situation in the summer, though not too much exposed to the sun in the heat of the day.

And as their leaves are larger, and their shoots stronger, than those of the Orange, they require a little more water in the summer; but in winter they should have but little water at each time, which must be the oftener repeated. The soil ought to be much the same as for the Orange-tree, but not quite so strong.

The common Citron is much the best stock to bud any of the Orange or Lemon kinds upon, it being the straightest and freest growing tree. The rind is smoother, and the wood less knotty, than either the Orange or Lemon; and will take either sort full as well as its own kind, which is what none of the other sorts will do: and these stocks, if rightly managed, will be very strong the second year after sowing, capable to receive any buds, and will have strength to force them out vigorously; whereas

whereas it often happens, when these buds are inoculated into weak stocks, they frequently die, or remain till the second year before they put out; and those that shoot the next spring after budding, are oftentimes so weak as hardly to be fit to remain, being incapable of making a straight handsome stem, which is the great beauty of these trees.

Lemon and Lime.

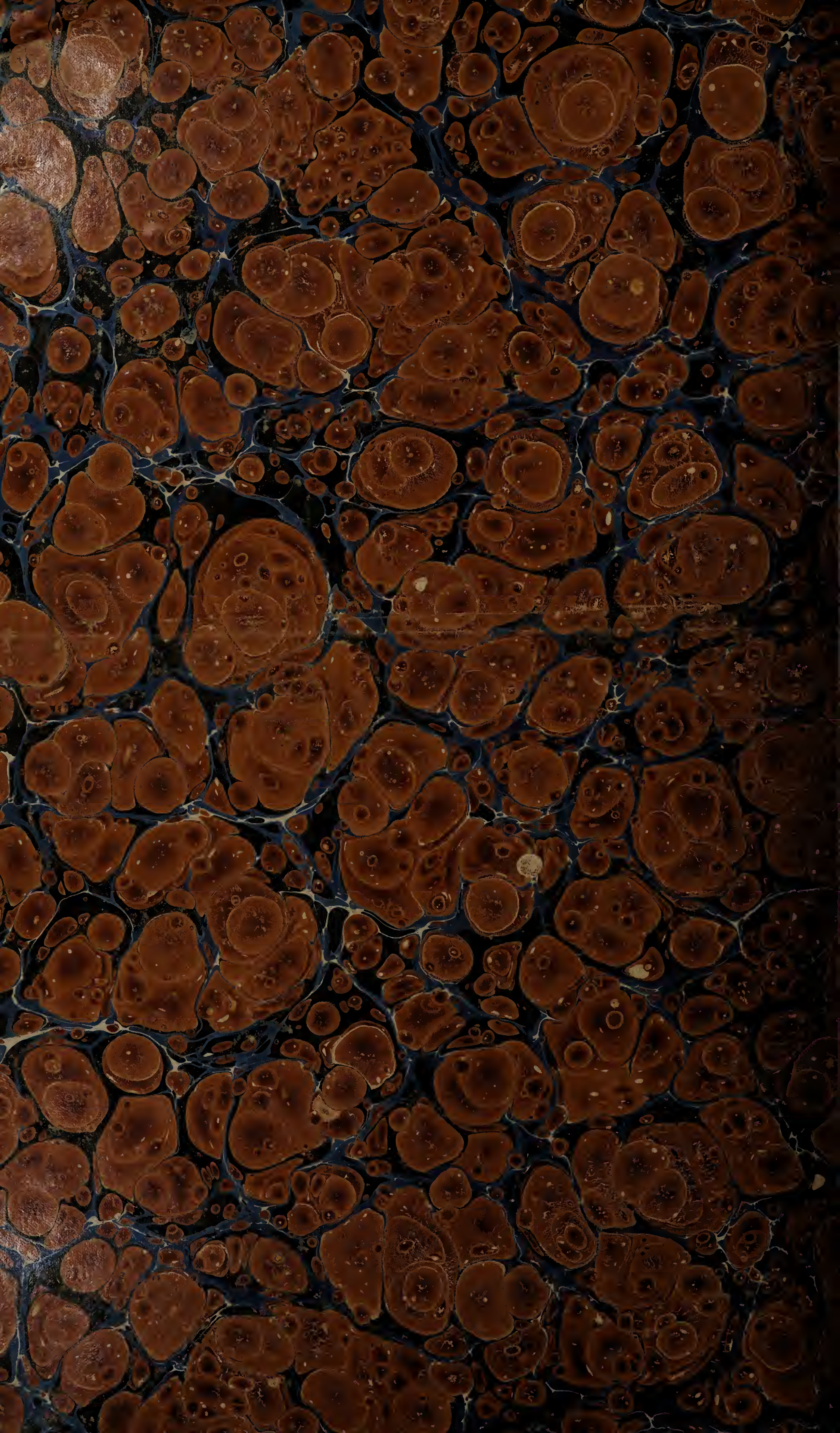
These are propagated by budding or inarching on Lemon or Citron stocks, produced from seeds; but they will not so readily unite on Orange stocks.

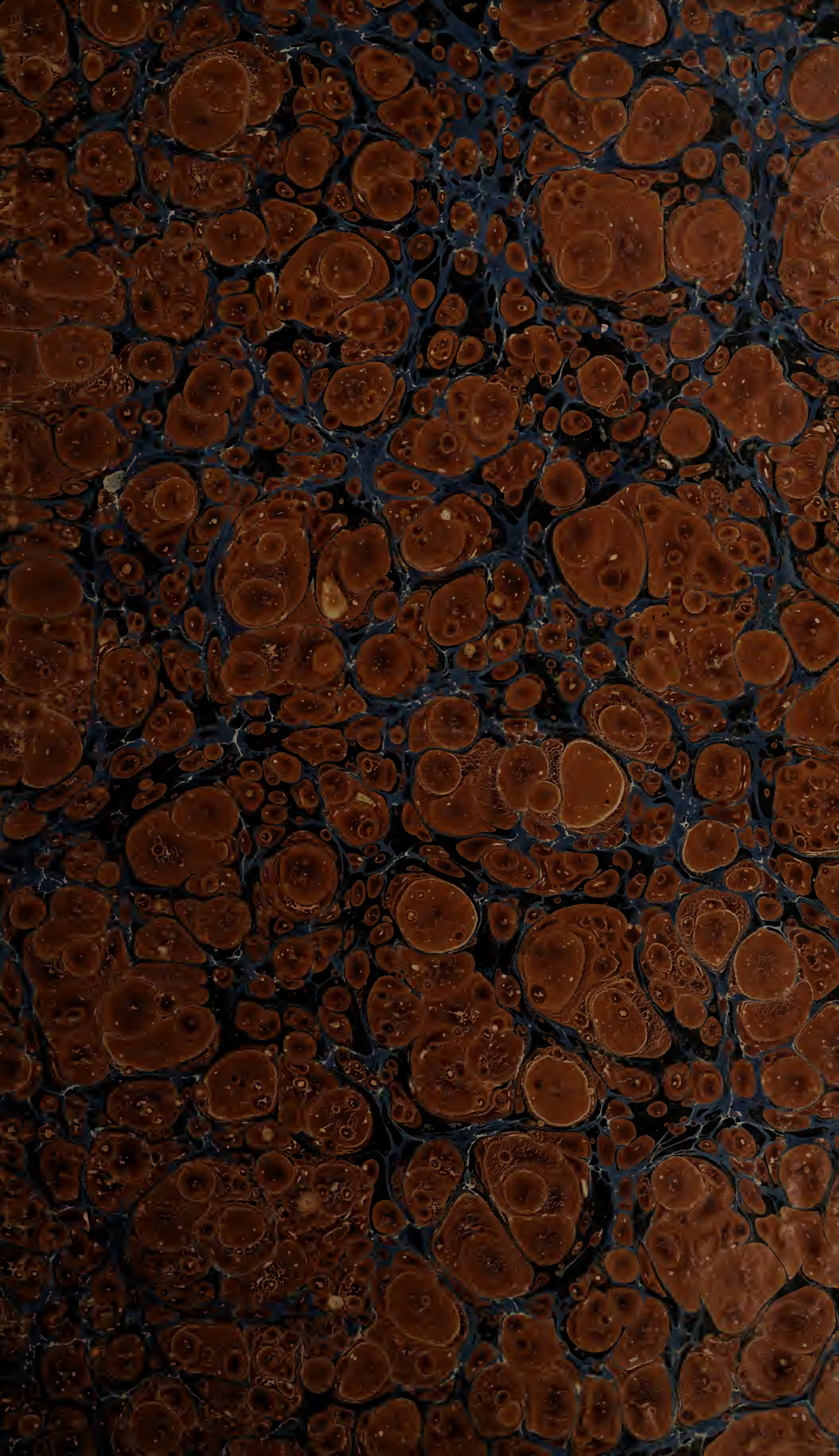
Their culture is the same with that of the Orange:

but the common Lemon is somewhat hardier, and requires a greater share of fresh air in winter; for which reason, Lemon trees should always be placed nearer to the doors or windows of the green-house. In some curious gardens these trees have been planted against walls, where, by covering them with glasses in winter, and protecting them from severe frosts, they have produced plenty of large fruit. As these trees generally produce stronger shoots, they require more water than the Orange. As to the more tender sorts, they must be treated with a little more care, otherwise their fruit will fall in winter.

CIVES. See *Allium*.

END OF PART I. VOL. I.







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